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AMENITY MIGRATION AND SOCIAL CHANGE: EXPANDING THE
CONCEPT OF COMMUNITY ATTACHMENT AND ITS RELATIONSHIP
TO DIMENSIONS OF WELL-BEING IN THE RURAL WEST

by

Joan M. Brehm

A dissertation submitted in partial fulfillment
of the requirements for the degree

of

DOCTOR OF PHILOSOPHY

in

Sociology

UTAH STATE UNIVERSITY
Logan, Utah

2003

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ABSTRACT

Amenity Migration and Social Change: Expanding the Concept of Community
Attachment and Its Relationship to Dimensions of Well-being in the Rural
Rocky Mountain West

by

Joan M. Brehm, Doctor of Philosophy

Utah State University, 2003

Major Professor: Dr. Richard Krannich
Program: Sociology

Most sociological analyses of community attachment have focused on the strength of attachment, with little concern for the qualities or attributes of a place to which people become attached. In cases where dimensions of attachment are the focus of analysis, the literature is rather narrowly focused on social dimensions, referring most often to connections with family, friends, and other social networks and largely ignoring the realm of natural environment factors. Two primary premises motivated this study. First, sociological understandings of community attachment would benefit from an expanded analytic framework that incorporates more complex arrays of both social *and* natural environment dimensions. Second, it is important to understand what variations in attachment may mean for the broader well-being of rural communities.

Initial analyses of the data demonstrated four key results. First, factor analysis of fifteen indicators of attachment produced two distinct dimensions of community attachment, social and natural environment. Second, the nature of the response patterns indicates that strength of natural environment attachment is widely shared amongst a variety of residents, regardless of length of residence, historical roots to the area, or life cycle. Third, participation in collective action and perceptions of open communication (measures of well-being) within a respondent's community explained only a small portion of the variance in both social and natural environment attachment. Fourth, Structural Equation Modeling demonstrated that there is a causal relationship between attachment and community well-being, though that relationship appeared to be non-recursive.

In contrast to much of the previous empirical work on community attachment, this research provides strong evidence of the natural environment dimension and provides justification for further research. This research provides one model to be considered and expanded upon in future research efforts in this area, and supports the need for further attention to the use of multiple dimensions of attachment and their associations with community well-being.

(165 pages)

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Joan M. Brehm

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CHAPTER I

INTRODUCTION

STATEMENT OF PROBLEM

From a sociological perspective, most analyses of community attachment have focused on the strength of attachment, with little concern for the qualities or attributes of a place to which people become attached (Beggs, Hurlbert and Haines 1996; Goudy 1990; Theodori and Luloff 2000). In cases where dimensions of attachment are the focus of analysis, the literature is rather narrowly focused on social dimensions, referring most often to connections with family, friends, and other social networks. Analyses of community attachment largely ignore the realm of natural environment or biophysical indicators, with only a few exceptions (Beckley Forthcoming; Brandenburg and Carroll 1995; Custer 2000).

This dissertation is motivated by a premise that a sociological understanding of community attachment would benefit from an expansion of the analytic framework to incorporate a more complex array of both social *and* natural environment dimensions. Such an approach is particularly appropriate in the current context of the Rocky Mountain West, where growth related to amenity migration is bringing with it many new residents and the potential to highlight the significance of natural environment dimensions of attachment *in concert* with social dimensions.

Related to this expansion of the concept of community attachment to recognize natural environment dimensions is an interest in what variations in attachment may

mean for the broader well-being of rural communities. Wilkinson (1991:68) argues that community well-being is directly dependent upon ecological well-being: "It is not accurate or appropriate to treat the environment as though it were somehow separate from the social life it supports. An active interdependency characterizes the relationship between social life and its surroundings." Daniel Kemmis (1990) contends that attachment to place is naturally embedded within the physical characteristics of a place. It is precisely this attachment to a place and its natural environment characteristics that can provide the common ground for civic engagement and collective action, which leads to enhanced well-being at both individual and collective levels (Wilkinson 1991).

New in-migrants who are drawn to the natural amenities and perceived quality of life of the rural West have the potential to be agents of both positive and negative change in their new communities, which may be related to a complex mixture of social and natural environment dimensions of attachment. As Beckley (Forthcoming: 3) argues, "we may come to discover that the roots and origins of many conflicts over land use have much to do with the different ways in which people are attached to places." An expanded sociological examination of community attachment that recognizes and measures natural environment dimensions in concert with social dimensions may provide important insights into processes for enhancing community well-being.

FOCUS AND PURPOSE OF THE STUDY

This research project expands the examination of attachment to allow both social and natural environment dimensions to act as significant contributors to overall attachment, and examines the linkages between these complex attachments and community well-being. The context for this analysis is a comparison of two rural areas experiencing steady growth as a result of amenity-related in-migration. Several theoretical perspectives for analyzing community attachment as it relates to both community and individual level well-being amongst various types of community members will be examined. Within sociology, attachment has been most often examined within the context of social attachments to a community. Long-term residence has been found to be a significant indicator of strong social attachment to a community by allowing for increased social ties (Beggs et al. 1996; Goudy 1990; Kasarda and Janowitz 1974). However, I argue that attachment is a much more complex phenomenon that often involves a diversity of both social and natural environment factors. For example, recent in-migrants may express a stronger initial attachment to certain natural environment variables such as the landscape or wildlife than they do to the traditional social dimensions. Additionally, longer-term residents may also exhibit attachments to such natural environment variables, but these will be in association with, not in lieu of, the strong social attachments.

Understanding the complexity of community attachment and its relationships to behavior, which may in turn influence community well-being, may have important consequences for policy issues ranging from community planning to regional

economic development. It is important to understand what it is about a community that people really care about, want to protect, and are willing to become involved in for the future. These issues can range from the significance of certain cultural or social values and traditions to more physical or natural environment aspects such as clean water and air, the presence of wildlife, or unimpeded views of the landscape. To understand the impact of growth on individuals and communities requires an examination of the types of connections and emotional attachments people have to the places in which they live. Understanding individuals' attachment to a community and associated degrees of civic participation in that place may help us to understand the roots of many conflicts over community change or land use. It may also be the case that the overall well-being of a community may have much more to do with individuals' complex attachments to that community than has previously been explored.

The primary focus of this study is to examine the following overall research questions:

1. To what extent does community attachment involve both social and natural environment dimensions?
2. How do levels and types of attachment differ between in-migrants and longer-term residents?
3. What other independent variables are associated with levels and types of attachment among residents?
4. How do various levels and types of community attachment relate to community well-being?

This research will address these questions through one primary research methodology, a random sample survey questionnaire. Specifically, dimensions of attachment are examined in combination with two key dimensions of community well-being,

collective action and perceptions of open communication. Two community areas in the Rocky Mountain West will serve as case studies for the research. Star Valley, Wyoming, and Western Wayne County, Utah, are both located in rural counties that are not part of a larger metropolitan area. Both areas possess a wealth of natural amenities and are experiencing increased growth that is likely associated with these amenities. Between 1990 and 2000, the average growth rate for the communities in Western Wayne County was 25 percent; in Star Valley it was 83 percent (U.S. Census Bureau). Therefore, both areas provide fertile ground for examining the linkages between attachment and community well-being within the context of communities experiencing amenity-related in-migration.

BACKGROUND TO THE PROBLEM

In order to understand the complexity of attachment and its potential impact on community well-being, it is necessary to understand the contextual variables that frame this analysis. Unlike many migration trends of the past, the 1990s were a decade in which increased migration to rural places, particularly within the West, appeared to be directly related to the presence of natural amenities (McGranahan 1999). Furthermore, many of the counties that are experiencing rapid growth are rural in composition and character, often far from any metropolitan center of services and employment, which is directly related to the presence of natural amenities such as National Forests and Parks, lakes, rivers, canyons, and wildlife.

Today, there is increased recognition and interest in the link between migration and non-economic "amenity" variables including climate, geography or topography,

and other natural resources such as water, clean air, and forests. Within the past 10 years, many researchers have explored this emerging phenomenon of natural amenity migration (Beale and Johnson 1998; Cromartie 1998; Cromartie and Wardwell 1998; Johnson and Beale 1994; Judson, Reynolds-Scanlon, and Popoff 1998; McGranahan 1999; Nelson 1997; Rudzitis 1991, 1998; Rudzitis and Johansen 1989; Thrush 1999). Current migration trends in the rural West appear to be driven in part by quality of life concerns related to natural amenities. The presence and attraction of such natural amenities may influence people's attachment to their place, which in turn has the potential to influence some aspects of community well-being.

With few exceptions (Fortmann and Kusel 1990), previous empirical research lacks a specific focus on amenity migrants as agents of social change, either positive or negative. The closest links to such research lie in two main areas of exploration: boom town studies and residential conflict research. Numerous studies examining community impacts from the rapid boom and bust cycles associated with energy extraction have documented varying degrees of social disruption and uncertainty for rural communities (Cortese and Jones 1977; England and Albrecht 1984; Freudenburg 1982; Greider and Krannich 1985; Krannich and Greider 1984; Krannich, Greider, and Little 1985; Little 1977; Smith, Krannich, and Hunter 2001; Wilkinson, Thompson, Reynolds, and Ostresh 1982). At the same time, some of the same studies have demonstrated unexpected benefits from such growth, including funding for improvements in infrastructure and social services and increased human and social capital (Greider and Krannich 1985; Krannich and Greider 1984). These studies share

an interest in social change and community well-being associated with rapid growth. However, the context for these studies is rapid growth as a result of energy development and expansion; migrants moving to these areas were primarily drawn by the potential economic benefits. This differs from the context of this study, in which many migrants appear to be moving to areas of the rural West due to the attraction of natural amenities. It is anticipated that social changes as a result of amenity-related growth will differ from those documented in the boomtown studies.

Second, studies of social conflict between long-term residents and newcomers have examined perceptions of an escalating "culture clash" as urbanites increasingly move to rural communities (Krannich and Smith 1998; Smith and Krannich 2000). These studies examined the argument that urban-origin newcomers bring particular sociocultural identities with them to rural communities and that this identity and associated value orientations differ significantly from those evident among longer-term residents. This study shares an interest in differences between newcomers and longer-term residents within the context of amenity-related growth, but it expands the examination beyond conflicts associated with values to explore the underlying dimensions of attachment and associated components of well-being. Furthermore, this study allows for the examination of additional independent variables that may also influence dimensions of attachment.

CHAPTER II

LITERATURE REVIEW

My examination of the complexities of attachment and their linkages to community well-being is grounded within a framework of migration and associated social change. Therefore, the ideas and writings of a variety of social scientists inform this work. This chapter introduces some of the major concepts and arguments that have influenced this study and that I have drawn upon in my own analysis. The chapter is divided into several major sections: migration, natural amenities, social effects of migration-related growth, community well-being, and finally attachment. These sections progress from the contextual variables of migration and natural amenities, to the specific concepts of attachment and well-being, which are the focus of this study. The following discussion is not intended to be a comprehensive review of all relevant studies in the area, but rather it is an overview of those studies that are most influential in my own thinking and figure prominently in the conceptual framework of this study. The chapter concludes with a presentation of a conceptual framework and specific research expectations for this study.

THEORIES OF MIGRATION

E. Ravenstein (1889), an English geography professor, proposed one of the earliest scientific theories of migration. His theory has formed the framework for numerous research studies, which have, for the most part, proven that his original

postulates still stand. Ravenstein (1889:103) developed five primary statements or laws that summarized his migration theory. These were:

1. Economics is the major reason people migrate: they seek a better job with more financial opportunities
2. The volume of migration decreases as the distance increases
3. Migration from origin to final destination is rarely accomplished in one move, rather it usually occurs in several stages
4. Migration risk is not the same for all persons; it varies by socioeconomic and demographic characteristics
5. Population movements are not unilateral, for every major stream of migration there is a counter-stream in the opposite direction.

Ravenstein based his original theory very heavily on economics and economic gain. Since his early theory of migration, several others have updated and expanded his theory. Everett S. Lee (1966) expanded Ravenstein's laws to include the *push-pull process*. Lee was concerned with conditions that influence migration at the origin as well as the destination. He also specified a number of intervening constraints and barriers that restrict the migration process, which now included both economic and non-economic factors in the migration theory. Push factors are undesirable conditions in the sender population that make remaining at one's current place of residence unattractive. These may include such things as lack of jobs, housing, and schooling or other social amenities, ethnic prejudice, or natural disasters. Pull factors are conditions that make a potential receiver population attractive. These may include perceived economic, social and political opportunities.

Lee further argued, in support of Ravenstein, that the risk of migration is not the same for all individuals because of variations in personal, societal, political, and geographic circumstances. Lee's theory of migration views the decision to migrate as

the outcome of an assessment of costs and benefits, which are different for each person. However, Lee was careful to note that it is impossible to specify all the benefits and costs associated with the complicated task of migration. Therefore, the decision to migrate also has a somewhat irrational component that can lead to regrets, attempts to return home, or the desire to move on to another destination (Lee 1966).

Just prior to Lee's migration theory, L.A. Sjaastad (1962) proposed a now widely used theory formulated on the assumption that migration happens in response to economic opportunities. This theory is founded on neoclassical economic theory, which assumes that individuals act rationally with the objective of utility maximization. Sjaastad essentially argued that migration is driven by economic incentives. This theory of migration posits that the act of migration has positive benefits if the difference between profits gained from migration and the cost of moving is positive (Sjaastad 1962).

Variations of these theories have been widely used to examine migration within the United States, particularly migration patterns to and from non-metropolitan areas of the United States in the last 20-30 years (Fuguitt et al. 1998; Johnson 1989, 1993; Nelson 1997; Wardwell 1997; Wardwell and Copp 1997; Williams and Sofranko 1979). Fuguitt et al. (1998) examined population trends in nonmetropolitan cities and villages between 1950-1996. From 1950 to 1960, urban areas experienced the largest growth due primarily to post-World War II economic expansion, high birth rates, and high levels of urbanization. This was the age of the post World War II baby boom. Clearly the economy was driving the decisions of many to migrate to the urban

areas where most of the economic growth was occurring. By 1960-1970, the growth patterns had drastically slowed, although urban areas still were experiencing more growth than rural and nonmetropolitan areas.

In the 1970s, a turnaround period emerged in which migration to rural areas was expanding faster than migration to urban areas. Wardwell (1997) identifies several social and structural changes that have influenced this so-called "rural renaissance." In the 1970s and early 1980s, Americans began delaying marriage as alternate roles grew and more women entered the labor force in larger numbers. This in turn delayed the onset of childbearing and reduced the number of children actually born to many couples. Smaller family sizes and additional income from women in the labor market helped to create a more mobile family that could begin to seek quality of life in rural areas. Rural areas pulled potential migrants with the perceptions of safer communities, slower lifestyles, and a generally improved quality of life. In addition, improvements in transportation and economic decentralization provided more opportunities for choice as to where people could live and work and a freedom to move from city to country without giving up opportunities for employment, incomes, and participation in the lifestyles of modern, industrialized society (Wardwell 1997).

Beginning in the 1980s, the trend of nonmetropolitan growth began to reverse itself as metropolitan areas again began to grow faster than nonmetropolitan due to migration. Many researchers argued that this shift in migration back to metropolitan areas was due primarily to period effects that were unique to the 1980s (Johnson 1998; Johnson and Beale 1994; Long and Nucci 1998). In particular, some of the period

effects included the worsening U.S. economy and subsequent recession, and the increase in the global economy which led to many U.S. companies closing their domestic manufacturing plants and relocating overseas where they could pay lower wages, operate with fewer restrictions, and therefore increase their profit margins. Furthermore, the downturn in the 1980s economy led in part to the collapse of the small family farm and the "farm crisis." This crisis resulted in many agricultural families losing their farm operations and often their homes, forcing them to seek work and economic sustenance elsewhere, often in a more urban setting.

The 1990s brought a renewal of the turnaround pattern in rural and nonmetropolitan areas, particularly within the Western United States (Fuguitt et al. 1998). In a pattern similar to that of the 1970s, Fuguitt and his associates found that the greatest growth was for the smallest size group of villages. This also marks the beginning of a more directed divergence from the economic theories of the past, to what has increasingly been termed the "amenity" migration explanation (Beale and Johnson 1998; Cromartie 1998; Cromartie and Wardwell 1998; Johnson 1998; Judson et al. 1998; McGranahan 1999; Rudzitis 1991, 1998; Rudzitis and Johansen 1989). Although it is difficult to point to specific causes for the increased migration to rural areas and there remains much debate about the extent and nature of the push and pull factors, it is becoming clear that migration to the rural West is increasingly occurring for reasons other than simply economic gains.

DEFINING NATURAL AMENITIES

As the name implies, natural amenities refer to such features as mountains, forests, lakes, streams, and relatively undisturbed and unpopulated "natural" landscapes. The areas of the United States that are most rich in these natural amenities include the Rocky Mountain West and the Pacific Northwest. In support of the link between natural amenities and population growth, population change and net migration change maps from the 1990s show the largest portion of growth occurring in the western United States (Johnson and Beale 1994; McGranahan 1999; Thrush 1999). Furthermore, the top twenty-five counties in McGranahan's (1999) amenity index are all in the west, compared to the bottom 10 counties that are all in the Midwest. Although there is some agreement that Western migration trends in the 1990s are being driven in part by non-economic forces, there is a lack of consensus on a clear and concise definition of natural amenities.

How a natural amenity is defined is a critical component to understanding and evaluating current research. The use of natural amenities as measurement variables assumes the risk of using a very value laden concept and variable. A natural amenity to one person may be a pristine, roadless wilderness, while another individual may value the natural amenity of ORV trails or big game hunting grounds. David McGranahan (1999), an economist with the USDA Economic Research Service, conducted one of the most comprehensive and recent studies that define natural amenities in relation to nonmetropolitan population growth. His study created a county-level rating index to measure an area's natural amenities and then linked that

index to changes in nonmetropolitan population over the past 25 years. The natural amenity index was based on three primary natural environment features or amenities: climate, topography, and surface water.

McGranahan noted that amenities that are attractive to tourists or recreationists might be different from the natural amenities he used to develop his index. His primary concern was to measure natural amenities that enhance a location as a place of residence (McGranahan 1999). According to McGranahan (1991:1), a natural amenity is defined as "an attribute that enhances a location as a place of residence. It may be quite distinct from an attribute attractive to tourists." McGranahan made it clear in his distinction that the natural amenities in his study are not synonymous with tourist attractions or recreational resources. He was most interested in the natural attributes that make an area attractive as a place to live.

In contrast, Johnson and Beale (1994) used centers of recreation to help define the natural amenity variable. They derived their measurement from analysis of a number of indicators of recreational activity, including high per capita spending on hotels, motels, and camps, a composite measure of high percentage of employment in entertainment and recreation, percentage of income from recreational sources, and the percentage of housing that was seasonal, recreational, or for occasional use. For the purpose of this study, this conception and measurement of natural amenities is less useful since this study focuses more on the social effects of long-term or more permanent residence migration.

Rudzitis (1998) simply noted the use of "high-amenity counties" as the source of his sampling frame. In his study though, it is unclear how these "high-amenity counties" were defined or selected. Factors that were used to represent natural amenities ranged from outdoor recreation to landscape, scenery, and environment. These variables are rather vague and not clearly defined, and hence, somewhat problematic.

Cromartie (1998:31) equates natural amenities with the "physical qualities of the landscape associated with recreation and tourism." However, in his analysis of net migration to the Great Plains, he uses the amenity index developed by McGranahan to identify "high-amenity" counties. Although Cromartie uses the existing high-amenity index developed by McGranahan, he makes an important distinction that is specific to the region under study. He posits that the physical dimensions of the landscape in direct association with recreation and tourism may assume greater importance in explaining net migration patterns in the Great Plains (Cromartie 1998). This connection to recreation and tourism is in contrast to the framework set forth by McGranahan, which focuses on natural amenities in relationship to the quality of a place to live, not as a tourist or recreational attraction.

LINKING NATURAL AMENITIES TO MIGRATION

As previously noted, historical migration theories were often heavily based on economic explanations. People moved for jobs and other economic incentives and gains. The 1990s were a decade of unprecedented growth due to migration within the Western United States, particularly in rural communities. It has been argued that a

transformation of land, culture and economy has been occurring throughout the West with irrefutable results and implications (Center of the American West 1997). Unlike the energy boomtowns of the 1970s, many of these rural communities were not centers of rapid economic growth, yet their populations continued to rise. For example, the Atlas of the New West identified a complex mix of social, cultural, and environmental factors that acted as pull factors in drawing new migrants to areas of the rural West (Center of the American West 1997). These factors included cultural events like rodeos, urban-style businesses such as coffee shops and micro-breweries, and of course the prevalence of natural amenities such as public lands, rivers, and wildlife. Clearly there are other factors beyond economics influencing this new trend in migration. Consequently, this transformation has spurred new research into the links between migration and natural amenities.

In the late 1970s, research began to show that amenities, such as a clean environment, slow pace of life and reduced crime rates, were becoming increasingly important indicators in explaining why people were moving back to nonmetropolitan areas (Long and DeAre 1980; Williams and Sofranko 1979). This early work did not clearly define amenities within the context of "natural" as some of the later research has done, but it did highlight the beginning of a shift away from the traditional economic theories of migration.

Rudzitis and Johansen (1989) used some of this early work as a foundation to explore the causes and consequences of migration into Western wilderness counties. Wilderness counties were defined as those that contain or are directly adjacent to

federally designated wilderness. They observed that wilderness counties were growing two to three times faster than rural or urban areas at the time of their study (Rudzitis and Johansen 1989). The results of their study found that scenery, outdoor recreation opportunities, environmental quality and pace of life were significant factors in people's decision to move to Western wilderness counties. Only 27 percent cited employment as the major reason for their move, while 42 percent cited environmental or physical amenity characteristics as important in their decision. Of those migrants that participated in the study, only 19 percent were retired, and 4 percent were unemployed (Rudzitis and Johansen 1989). These findings bolster the evidence supporting a shift away from the economic theory of migration. Rudzitis and Johansen demonstrated that the majority of migrants in their study were of working age and still had to earn a living. However, the quality of life or natural amenity factors were more important than economic factors to the majority of the migrants to wilderness counties (Rudzitis and Johansen 1989).

Johnson and Beale (1994) examined the widespread population growth in nonmetropolitan areas of the United States during the early 1990s. They found that nonmetropolitan counties that were destinations for retirement-age migrants or centers of recreation were the fastest growing counties during the early 1990s. Specifically, population gains occurred in 88 percent of the 283 nonmetropolitan recreational counties during the early 1990s and 79 percent received net in-migration (Johnson and Beale 1994). This is an important distinction because it demonstrates that population growth in recreational counties is linked to migration and not simply natural growth or

other factors. However, Johnson and Beale did not discuss the link between natural amenities and migration in much detail. The focus of their analysis was to examine the revival of population growth in nonmetropolitan areas of the United States, not to examine the causes or reasons for the nature of that growth. In spite of this lack of attention to the links between natural amenities and migration, Johnson and Beale provide important evidence of the resurgence in population growth in nonmetropolitan areas of the United States. Their research set the stage for further analysis of the specific linkages between migration and natural amenities.

Beale and Johnson (1998) focused their analysis specifically on the identification of nonmetropolitan counties where recreational activity is an important segment of the local economy. They argued that recreational areas represent important growth centers and those areas have experienced widespread population increase through net in-migration as well as natural increase (Beale and Johnson 1998). They also posited that the growth in recreational areas reflects the increasing significance of noneconomic factors in migration decisions. They equated recreational areas with high amenity areas, and argued that these areas are more likely to experience significant net in-migration, while at the same time reducing net outmigration by producing additional employment and opportunities for local residents based on tourism and recreation spending (Beale and Johnson 1998). Not surprisingly, the majority of the recreational counties identified by Beale and Johnson (1998) were located in the Western United States. This coincides with counties that have experienced significant population growth. Although Beale and Johnson (1998)

focused their study on the identification of such counties, their analysis is a useful benchmark for further research that investigates the factors accounting for in-migration trends to these areas.

Judson et al. (1998) adopted a different approach to linking natural amenities and migration trends by examining the various groups that are migrating and analyzing differences in natural amenities of destination locations between different age groups. They compared and contrasted migration trends between working age, near-retirees, and retirees in terms of their destination choices within the state of Oregon. They concluded that each group of migrants brings certain specific economic benefits and burdens to a community. Retirees were by far the largest group that cited amenities as their reason for migrating (86 percent) while 55 percent of middle-age migrants cited amenities as the reason for their move (Judson et al. 1998). However, Judson et al. did not clearly define what the term "amenities" means within the context of their study. It is very plausible that each of the three age groups they surveyed has a rather unique and distinct definition of natural amenities.

McGranahan's findings indicate that amenity measures add considerably to the understanding of where population is growing in nonmetropolitan areas and where it is declining. The higher the score on the amenity scale the higher the level of average population growth during 1970-1996. Counties with extremely low scores on the scale tended to lose population over the 1970-1996 period, while those with extremely high scores tended to double their population during the same period (McGranahan 1999). McGranahan argues that high amenity counties have accounted for much of the rural

population growth. Specifically, his study found that the counties in the top quarter of the natural amenities scale, with only 22 percent of the nonmetropolitan population in 1970, had over half of the gain in nonmetropolitan population between 1970 and 1996 (McGranahan 1999).

SOCIAL EFFECTS OF MIGRATION-RELATED GROWTH

The trends of the last decade clearly point to a renewed interest in living in rural America, particularly within the Rocky Mountain West. Migration to the smallest places in this region rose throughout the 1990s and the pull factors influencing this trend appear to be broadening beyond the strong economic factors of the past. However, there remain important questions about the social effects of these "amenity migrants" on the culture, social institutions, and collective well-being of rural communities. Specifically, do amenity migrants have different levels and types of community attachment and do these influence behaviors such as civic participation and collective action? How might the amenity migration phenomenon impact community well-being in the rural west? How might sociodemographic variations among amenity migrants influence their participation in collective action or civic activities within the community? I suggest that there are in fact some important distinctions even within the broader category of amenity migrants and that these require further exploration to begin to understand their social impacts on rural communities within the west. For example, the age structure and associated life cycle stage of new in-migrants may play an important role in defining and understanding the social effects of such rapid population growth.

The work of Judson et al. (1998) is particularly salient to the conceptual framework of this study. Attachment is a concept that changes over time and adjusts to diverse variables in one's life. At any given time, people may experience feelings of attachment to a place based on a variety of dimensions, and these dimensions will shift as they move through their lives and re-arrange their priorities. I posit that the various age structures and life cycle stages of new in-migrants will likely reflect contrasting implications for the social well-being of these rural communities. The motivators behind attachment are likely to be related to one's age and life cycle stage. Those of working age and having school-age children may be more attached to social dimensions, while those of retired age and who have no school age children may be relatively more attached to natural environment dimensions.

However, amenity-related growth does not simply bring one type of migrant and therefore one type of social change. It is often the case that there are several different waves or stages of in-migration that may follow the initial amenity-related growth. The growth in some rural areas affected by amenity in-migration has the potential to spur the additional growth of a service sector economy that may draw a new class of workers and families seeking economic opportunity. Growth may also result from people migrating to an area based on the presence of some critical mass of others like them in that area. In some cases, social problems may arise from the lack of affordable housing, and increasing social stratification may cause disruption and conflict both within and between the host and surrounding communities. For example, in Jackson Hole, Wyoming many of those who have migrated to work in the service

sector can't afford to live in Jackson and are forced to seek housing in surrounding rural communities such as those located in Star Valley, 30 – 50 miles to the south. This creates potential problems for these communities, which often are not prepared to deal with the infusion of service sector workers and their families. The phenomenon of amenity migration is clearly not limited to a single type of migrant, it extends into a much more complex phenomenon with an array of social and natural environment effects for small, rural communities.

Due in part to the relatively recent emergence of the amenity migration phenomenon, little research has focused on its social consequences for rural communities. The closest links to such research lie in two main areas of exploration. First, there have been numerous studies that have examined community impacts from the rapid boom and bust cycles associated with energy extraction (Cortese and Jones 1977; England and Albrecht 1984; Freudenburg 1982; Greider and Krannich 1985; Krannich and Greider 1984; Krannich et al. 1985; Little 1977; Smith et al. 2001; Wilkinson et al. 1982). The boom cycles associated with energy extraction have historically brought with them rapid increases in population growth and community expansion, yet they have also brought social disruption and uncertainty for many rural communities. The economic migration theories clearly apply to the rapid population growth in these communities, as most of the in-migration occurred as a result of the boom in employment from the energy industry.

Krannich and Grieder (1984) compared indicators of well-being in both a control community and an energy boom town. They concluded that any assertions

about disruption and reduced well-being among boom town residents must be clearly qualified by a recognition that such effects may be observed only with respect to some indicators and then not always among all boom town subpopulations. Furthermore, with respect to both perceived stress and psychological distress index, the findings provide no support for the disruption hypothesis. The resolution of the ongoing debate over the disruption hypothesis can't be attained by an "either-or" approach. Much like well-being, social disruption is a vague and broad concept, and therefore we should not expect to see evidence of disruption across all possible measurable dimensions of the concept. Analyses of rapid growth and its social effects need to focus on the distributive allocation of a wide range of both disruptive and positive repercussions, across a variety of distinct subpopulations in impacted communities, in order to grasp the meaning of social reality in a rapidly changing community (Krannich and Greider 1984).

Social effects from boomtown growth can also provide many positive conditions and outcomes. These positive elements can be in the form of either social or economic benefits. For example, Smith et al. (2001) argue that boomtown-related growth may actually enhance human capital in the community through the influx of new residents. These new residents may bring with them education and skills that can be beneficial to the community. They can increase the capacity of the community to effectively pursue community development activities and agendas. They may also improve the political voice of the community, bringing with them contacts, connections, and sheer numbers (Fortmann and Kusel 1990; Hunter, Krannich, and

Smith 2002). Small rural communities often lack the sheer numbers to carry any political influence, but the influx of new residents due to boomtown energy growth has the potential to significantly alter that to the benefit of the local residents.

A second link to research on the social effects of amenity migrants is the research addressing the perception of social conflict between long-term residents and newcomers. This phenomenon is particularly salient within the rural Rocky Mountain West, where there is a perception of an escalating “culture clash” as urbanites increasingly move to rural communities. Several studies have examined these social impacts in rural communities that have experienced rapid population growth (Fortmann and Kusel 1990; Krannich and Smith 1998; Smith and Krannich 2000).

Smith and Krannich (2000) examined the suggestion that newcomers to rural communities in the Rocky Mountain West have different values than longer-term residents regarding environment, growth, and development issues. They specifically analyzed this perceived clash in values and culture in three rural, Rocky Mountain West communities that are experiencing amenity-related in-migration. They concluded that although newcomers and longer-term residents do differ on a number of sociodemographic variables, there are either no significant attitude differences between the two groups, or where differences do exist, longer-term residents wish more strongly than newcomers to limit population growth and development in their communities (Smith and Krannich 2000). Beyond differences in values between the two categories of residents, Smith and Krannich do not address the broader social

impacts of such amenity migrants on rural communities within the Rocky Mountain West.

To date, the related research generally lacks a specific focus on amenity migrants as agents of social change and well-being. The past research on the social effects of boomtowns focuses on the social effects of rapid growth due primarily to economic booms related to natural resource extraction. This research differs by addressing the unique social changes and issues brought on by rapid growth due primarily to amenity migrants, which are presumed to be different from those associated with boomtown growth. In support of this assumption, Smith and Krannich (2000) found that newcomers are likely to differ from longer-term residents on a number of sociodemographic and socioeconomic variables such as levels of education, income, age, and employment status. These newcomers are often those same people who have migrated in response to the natural amenities and quality of life issues. I suggest that it is likely that these new in-migrants will also differ by exhibiting different types of attachment to their new communities, presumably demonstrating stronger natural environment attachments as compared to social attachments.

These differences from the longer-term population can have real implications for the social well-being of affected rural communities. For example, retirees are not likely to have any school-age children, and therefore may be less inclined to be involved in activities that support the school system. Those that are working age but rely on technology to telecommute or otherwise work from home may have different levels of interaction in the community and rely on the community for a more limited

number of services. Furthermore, in rural communities where there is a dominant religion, such as the Mormons in and around Utah, social interaction may be decreased for those that do not belong to the majority faith due in part to religious isolation.

I argue that amenity migrants are likely to have different types and degrees of community and place attachment than the longer-term residents. Amenity migrants are likely to have a more natural environment attachment to a community, while longer-term residents are likely to exhibit more fully developed social attachments. Life stage and the presence of school age children are likely to be strong correlates of attachments grounded more in social dimensions as compared to natural environment dimensions. Furthermore, these variations in community attachment will likely have implications for actions and behaviors such as civic engagement and collective action, which in turn influence overall community well-being.

COMMUNITY WELL-BEING, COMMUNITY CAPACITY, AND SOCIAL CAPITAL

Community well-being is a concept that is often difficult to grasp, due in part to the wide array of applications across a variety of disciplines. Within sociology, Wilkinson (1991) defines *well-being* broadly as a concept that involves the social, cultural and physical needs of people, their families, institutions, and communities. This definition highlights the complexity of the concept and justifies the wide array of applications across disciplines.

In relation to rural, resource-dependent communities, community well-being has historically been examined within the context of "community stability" (Drielsma,

Miller, and Burch 1990; Fortmann, Kusel, and Fairfax 1989; Kaufman and Kaufman 1990; Kusel and Fortmann 1991; Machlis and Force 1988; Mason 1927; Schallau 1990; Waggener 1977). Community stability was commonly defined in terms of economic criteria, as exemplified by Forest Service policies emphasizing a steady flow of logs to ensure stable employment in the timber industry, and hence community stability (Fortmann et al. 1989; Hirt 1994; Hoberg 1997; Mason 1927).

Kaufman and Kaufman (1990) identified approaches to building community stability that went beyond the simplistic and narrow economic focus exemplified in the Forest Service policies at the time of their research. They discussed a need for trained leadership with vision, widespread participation on the part of all groups, and cooperative action toward common ends as essential for community well-being or stability (Kaufman and Kaufman 1990). They identified ten strategic areas necessary to promote community well-being, which went beyond the traditional economic emphasis, such as the need to promote greater public participation in determining forest policy, developing a forest-centered tradition, and securing adequate leadership in community affairs (Kaufman and Kaufman 1990).

The term "community stability" has given way to a new framework for understanding rural communities, commonly referred to as well-being. Kusel and Fortmann (1991) and Kusel (1996) define well-being in terms of capacity, "what enables communities to pull through hard times" (Kusel and Fortmann 1991: 84). The concept of community capacity emerged from a synthesis of research in human ecology, rural studies, and sociology and refers to the ability of a community to adapt

to evolving changing economic, social, and political conditions (Nadeau, Shindler, and Kakoyannis 1999). Capacity is a closely related concept that is integral to understanding well-being. Community capacity is often associated with the improvement of social networks or social capital within rural communities. Social capital, including the ability and willingness of residents to work together for community goals, is often seen as one of the most important determinants of community capacity (Kusel 1996).

Social capital may be described as the features of social organizations, such as norms, networks, and trust that facilitate cooperation and coordination for mutual benefit (Putnam 1993). Social capital is essential to the capacity and ability of a community to deal with change and conflict. As Duane (1997) notes, it is not sufficient to only have intellectual capital grounded in good science and information to solve conflicts, but people must also have trust and certain levels of working relationships to reach successful agreements in good faith. "Information does not resolve social conflicts; people do" (Duane 1997: 775). Putnam (1993) argues that voluntary cooperation is easier in a community that already possesses a certain degree of social capital, in the form of norms or reciprocity and networks of civic engagement. Social capital is an integral component to community capacity, which is a concept often used to reflect on community well-being.

Wilkinson (1991) defines well-being as having social, individual, and ecological dimensions. Each one of these dimensions is interrelated and dependent upon the others for overall well-being. Ecological well-being refers to natural and

other conditions that support and sustain human life (Wilkinson 1991). It forms the foundation for both individual and social well-being because it is first necessary to have ecological well-being in order to have subsequent individual or social well-being. If the natural environment is no longer fit to support life, then all other considerations of well-being become moot points. It is not possible to address individual or social well-being without first addressing the natural environment which supports basic human life.

Individual well-being is the next key factor necessary to assess prospects for the greater social well-being in a community setting. Individual well-being refers to meeting the basic hierarchy of needs. Maslow (1954) and Allport (1955) refer to this hierarchy of needs as including "lower order needs" such as food, clothing and shelter and "higher order needs" such as social responsiveness and solidarity and the need for self-actualization. Individual well-being implies that a person has met their "lower order needs" and is now free to pursue the "higher order needs". However, the ability to pursue such "higher order needs" is dependent on social structures, institutions, and conditions, which demonstrates the connection between individual and social well-being.

Social well-being depends upon but differs from concepts of individual and natural environment well-being. Social well-being refers to the social conditions that can either enhance or detract from individual well-being. Social processes and structures can enhance individual well-being in two ways, first by ensuring adequate provisions to meet basic sustenance needs, and second by producing minimum

interference with accurate personal and interpersonal perception and responses in the pursuit of basic needs and collective interests. The community is critical to social well-being because, according to Wilkinson, "it is where the individual and society meet."

It is often difficult to develop social actions to affect individual well-being. The most likely way to impact individual well-being is through the development and maintenance of institutional and organizational structures that create the capacity for the individual to seek and create their own well-being (Wilkinson 1991). Wilkinson identified five conditions or social dimensions that elaborate the relationship between community and social well-being: distributive justice; open communication; tolerance; collective action; and communion. *Distributive justice* refers to equity in exchange and the broader concept of social justice. Distributive justice facilitates communication and positive interpersonal responses, which links the concepts of distributive justice and open communication. Specifically, *open communication* refers "both to the efficiency of channels for transmitting information and resources among people and to the extent of honesty, completeness, and authenticity of the exchanges in communicative relationships" (Wilkinson 1991:67). *Tolerance* refers to the acceptance of differences and similarities among humans. Wilkinson distinguishes between tolerance of others by the individual, which is a component of individual well-being, and tolerance as a shared normative standard of behavior, which is a component of social well-being. *Collective action* is a key component of social well-being, and involves people working together in pursuit of their common interests as

well as a process of building social relationships. Finally, *communion* refers to a “consciousness of community and joyful response to the relationships that are realized” (p. 68). This broader emotional feeling of community contributes to social well-being by encouraging equity, openness, tolerance and collective action.

This research will specifically examine open communication and collective action as dimensions of community well-being, which according to Wilkinson impacts the likelihood of individual well-being. The conditions of open communication and collective action have been selected as the most salient elements of well-being for several reasons. First, both open communication and collective action indicators can be measured through quantitative survey tools as well as qualitative interview approaches (Flora and Flora 1996; Krannich and Greider 1984; Krannich and Luloff 1991; Kusel and Fortmann 1991; Wilkinson 1979). Second, Wilkinson argues that the foundation of the community is collective action, the process of building social relationships. Community well-being relies heavily on the ability of people to work collectively in pursuit of common goals and to solve problems. Open communication is an essential element in the pursuit of collective action, providing an important link between the two conditions. Wilkinson argues that impediments to communication are at the same time impediments to social well-being. The development of well-being for both the community and the individual requires full and authentic communication.

ATTACHMENT: COMMUNITY VS. PLACE – SOCIAL VS. NATURAL ENVIRONMENT

The concept of attachment is very complex and the literature that surrounds it is difficult to summarize. It is often difficult to find any consensus on a definition of attachment or how it is best measured. Examinations of attachment vary greatly from discipline to discipline. The most widely studied concepts, place attachment and sense of place; have been examined within architecture, anthropology, cultural ecology, environmental psychology, geography, planning, and sociology (Brandenburg and Carroll 1995; Cross 2001; Eisenhauer, Krannich, and Blahna 2000; Relph 1976; Tuan 1974; Williams et al. 1992). One of the most difficult tasks of this study has been the selection of a distinct conceptual framework for the examination of attachment. The following discussion highlights some of the most salient conceptions of attachment in relation to this study, and concludes with a conceptual framework of attachment as it relates to this study and the research expectations.

Some of the earliest work within the realm of attachment can be found within the discipline of human geography. Within such early studies, it is argued that positive cognition related to a specific setting allows people to acquire a sense of belonging to places that give meaning to their lives. Human geographers have most commonly used the term *sense of place* to describe and explore this attachment (Relph 1976; Tuan 1974). Specifically, Tuan (1974) uses the concept of *topophilia* to describe such a sense of place. According to Tuan, topophilia is the affective bond between people and place or setting. These ties may vary in intensity and mode of expression, and

may be manifested by responses to the environment that are aesthetic, tactile, or emotional (Tuan 1974). Relph (1976) expands on the study of place and place attachment by suggesting that there is a continuum of attachment that ranges from a simple recognition of a place to an intense association with a place as fundamental to one's existence and identity.

Studies of place attachment often focus on attachments to specific or special physical places (Eisenhauer et al. 2000; Kruger 1996; Williams and Carr 1993; Williams and Patterson 1996). Examples of such work include Brandenburg and Carroll's (1995) study of place attachment, and specifically the creation of place based on environmental values and meanings. In this study, the authors argued that place and emotional attributes are important in contributing to an understanding of stakeholders' preferences, values and beliefs related to land use. Incorporating place creation into land management may not end conflict, but it does suggest ways of discovering common values and meaning among very divergent groups of stakeholders (Brandenburg and Carroll 1995). Cheng and Daniels (1996) argued that attachments to place materialize as groups come together through the use of common symbols and the use of a common definition or language about a place. Studies of place attachment as it relates to special places are valuable to land management agencies such as the USDA Forest Service that confront the difficult task of managing public natural resources for a diversity of values and stakeholders. However, when considering attachments to rural communities where people live, work, and play, and

the effects of rapid population growth to such attachments, the conceptual framework of place attachment seems to fall short.

Place attachment simultaneously involves individual, social and cultural processes (Altman and Low 1992). Migrants may not initially exhibit a well-developed attachment to the place that they have moved to. However, within the context of the Rocky Mountain West, it is possible that a segment of those who migrate may have a perceived or expected attachment to this region based on past experiences or cultural depictions. Riley (1992) argues that it is not the attachment to a particular place that is central, but rather it may be affective attachments to ideas, people, psychological states, past experiences, and culture that is critical. People may have vacationed in these areas as children; they may have driven through them at some time or another, or hold images of these places from the media and broader cultural experiences. Past experiences, memories, and perceptions may in part influence their choice to migrate. However, such perceived attachments or expectations do not always reflect the reality of life in these rural communities. Jobs (2000) notes that many of the initial migrants to Gallatin County, Montana, arrived with unrealistic expectations or perceptions about what it would be like to live in that region, and within 10 years they had moved on. Their perceived attachment was never realized, due in part to the fact that it may never have been truly sustainable.

Environmental determinism argues that such attachments to places live on in the hearts of travelers and prose writers and reflect a primitive attempt to relate landscape, culture, and human personality traits (Riley 1992). Wallace Stegner and

Ivan Doig are classic examples of writers who evoke such an idealized image of the Rocky Mountain West landscape and its people. Their stories bring forth images of an ideal quality of life, a landscape and lifestyle that permit control, opportunities for privacy, personal displays, security and serenity. The settlement history of the United States evokes highly idealized and romanticized visions of the West and what it means to live in such a region. Travel writers also idealize the region of the Rocky Mountain West -- who cannot be moved by dramatic photos of the Rocky Mountain landscape and homes perched on the edge of a pristine lake or in the shadow of a snow-covered peak? These images of the landscape and what it means may contribute to an emotional or sentimental level of attachment long before a person actually elects to migrate to the region.

The phenomenological approach to place attachment views such attachment as a cultural phenomenon tied to symbolic landscapes. Donald Meinig (1979) argues that Americans respond to three symbolic environments: the New England village, Main Street, and California suburbia, the landscapes of steeples and red maples, of store fronts with the Elks above, and of carports, swimming pools and patio barbecues. These symbols represent more the generalized qualities and conditions of a landscape rather than the specific landscape (Meinig 1979). This theoretical framework could be adjusted and updated to add the symbolic environment of the log cabin in the mountains or the rustic home on 80 acres in a small, rural community, perhaps the idealized "rustic Western ranch."

A variation on sense of place is community attachment, which can be defined as the emotional investment in place (Hummon 1992). Sociologists have long been concerned with the consequences of the emergence of modern society for social and sentimental bonds. Toennies, Marx, Weber and Durkheim demonstrated a concern for the decline of local community life with the emergence of urban society. Contemporary pioneers in community attachment literature include Kasarda and Janowitz (1974), who developed a community attachment model that posited a systematic interaction between length of residence, position in the social structure, and stage in the life cycle. This model has been replicated and modified by many others, with long-term residence emerging as highly correlated with friends, relatives, and people known in the community, and therefore a strong indicator of increased sentimental ties to a local place (Beggs et al. 1996; Gerson, Stueve, and Fischer 1977; Goudy 1990; Kasarda and Janowitz 1974; Sampson 1988). Community attachment appears to be most strongly associated with social integration into the local area.

David Hummon provides an in-depth examination of the concept of community attachment in his chapter "Community Attachment" in the interdisciplinary book *Place Attachment* (1992). In this chapter, he attempts to bring together multiple disciplinary perspectives to create a cohesive conceptualization of community sentiment. Hummon presents a typology that represents people's feelings and beliefs about their place of residence. Fundamental to his typology is the feeling of "rootedness" which contributes to a strong feeling of community attachment. In support of many other sociological perspectives, Hummon argues that community

attachment appears to be most strongly rooted in involvement in local social relations. However, he also acknowledges that the built environment may also contribute to such emotional ties if perceived in favorable terms. In relation to many rural communities in the Rocky Mountain West, the perspective on the built environment can be transferred to the natural environment and natural environment setting. If the natural environment is perceived in favorable terms, it too can contribute to the overall levels and degrees of community attachment.

In view of the diversity of definitions and conceptions of attachment, I find Hummon's conceptualization of community attachment most appropriate as a framework for orienting this study. However, I suggest that the conceptualization of community attachment should be modified to include natural environment dimensions. Natural environment dimensions should be given the same recognition as social dimensions, as they both have the potential to be a strong foundation for community attachment. This modified conceptualization of community attachment incorporates crucial elements of both community and place attachment simultaneously. I argue that certain natural environment variables are also likely to positively influence attachment. It is possible that even recent in-migrants can form a strong sentimental tie to a community based on natural environment factors such as landscape features or the presence of wildlife. In contrast to the commonly observed positive correlation between length of residence and community attachment, McCool and Martin (1994) found that in fact newcomers were more highly attached to their community than long-term residents. They argued that this might be due to the fact that newcomers are

attached to biophysical or landscape features of place, as opposed to social networks and local relationships, and that these natural environment attachments can be equally strong in forming an emotional investment in place. Another explanation may be due to the social fragmentation of the community. As growth from in-migration continues, long-term residents may begin to feel more disconnected and disenchanting with their own community resulting in lower levels of attachment.

To date, little sociological research has attempted to examine the complexity of community attachment beyond the traditional focus on social networks such as family, kin, and friends. Traditional community attachment measures seem clearly to be lacking in their acknowledgement and inclusion of any environmental or natural environment dimensions. Within sociology, community attachment is often measured through questions that ask about feeling at home, sorrow in leaving, and interest in the community (Theodori and Luloff 2000). Such indicators measure the presence of attachment, but neglect an examination of what it is that drives such attachment. WHY does one feel at home, or sorry to leave, or interested in their community? What factors contribute to a strong feeling of community attachment? Is it because of social networks, the presence of certain natural environment features, or more likely, a combination of both? I suggest a multifaceted interconnected model of attachment, where a person may have both social and natural environment dimensions to their attachment; though one component may occupy a greater proportion of their attachment compared to the other. The point is that social and natural environment dimensions are interrelated, not mutually exclusive of each other (see Figure 1). A

person's degree of social versus natural environment attachments may be related to several intervening factors such as length of residence, life cycle, or historic roots to in area.

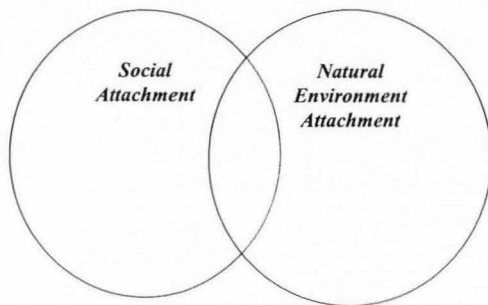


Figure 1: Dimensions of community attachment

Given the rather recent emergence of the amenity migration phenomenon within the rural Rocky Mountain West, it seems imperative to broaden the examination of community attachment to now include a combination of both social AND natural environment attachments. It is not enough to simply understand if someone has strong feelings of attachment to their community. Rather, it is necessary to understand what variables and factors contribute to and drive that attachment. Furthermore, it seems logical to attempt to examine the potential linkages between types of community attachment and behaviors such as civic participation that directly influence community well-being. As communities continue to change as a result of in-

migration, it becomes more important to understand the complexities of attachment and their relationships to community well-being. Doing so will aid in the development of planning and policy processes that will shape community conditions into the future.

RESEARCH EXPECTATIONS

RE #1 – It is possible to distinguish and measure both social and natural environment dimensions of overall community attachment.

Expectation one forms the foundation for all subsequent expectations and reflects a similar hypothesis that was recently presented by Thomas Beckley (In Press). Beckley argues that “it is possible to demonstrate the degree to which a person’s overall attachment to place is composed of attachments to sociocultural attributes of the place versus biological, geological, or ecological attributes of the place”. However, to date this hypothesis has only been discussed in theoretical terms, it has not been tested empirically with actual data. This study attempts an empirical approach to differentiating attachment into distinct, yet complementary dimensions of both social and natural environment dimensions. Although the dimensions of attachment are not mutually exclusive, it is likely that people will express strength on one dimension as compared to another, depending on a variety of sociodemographic factors. In order to pursue the remaining research expectations it is first necessary to empirically distinguish between both social and natural environment dimensions of attachment.

RE # 2 – Long-term residents’ community attachment will be more influenced by variables related to social aspects, such as friends, family, and social groups, while recent in-migrants’ community attachment will more likely be influenced by variables

related to the natural environment, such as the landscape, clean air and water, and outdoor recreational opportunities.

Expectation two reflects the belief that the unique dimensions of attachment will be related to length of residence. For example, McCool and Martin (1994) argue that newcomers had even stronger attachments than longer-term residents did. However, the difference was in what dimensions comprised that overall attachment. McCool and Martin posit that newcomers' attachments were likely based on natural environment dimensions as compared to social dimensions. In contrast, the previous sociological literature on community attachment suggests that length of residence is a key variable related to strong social dimensions of attachment (Albrecht, Clarke, and Miller 1998; Beggs et al. 1996; Goudy 1990). In keeping with these previous works, it is anticipated that because recent in-migrants have not resided in the community long enough for them to develop strong social networks, their attachment to the community will be based more on amenity-related concepts such as natural environment features of the landscape.

RE#3 – Life stage, the presence of children in the home, historical roots to an area, and religious affiliation will be more strongly related to community attachment involving social dimensions than to natural environment dimensions.

Expectation three involves four independent variables that are somewhat interdependent in their influence on social dimensions of attachment. The belief is that regardless of length of residence, those people with school-age children, who are at a life stage that actively involves them in the work force, who have historical roots to an area, or who of the Mormon faith (i.e, members of The Church of Jesus Christ of

Latter-day Saints) will exhibit higher levels of attachment to social dimensions of a place as compared to natural environment dimensions.

Kasarda and Janowitz (1974) demonstrated a systematic interaction between community attachment and length of residence, position in the social structure, and life cycle stage. They argued that as people enter into the advanced life stage, their involvement in the social fabric of their community declines. This would imply that a person's social attachments would be stronger in the middle years of their life stage. The middle years of a person's life stage are also the time in which they usually raise children, which provides another means of connection to the social dimensions of attachment. For example, in many rural communities, the school is frequently the center of social activities and the school system depends heavily on parents for volunteer assistance and involvement. The presence of school-age children is a natural link to a heightened attachment based on social variables. When considering historical roots to an area, it is presumed that those residents who may have grown up in the area or maintained family in the area but moved away for a period of time have retained some social ties or connections to the area even in their absence. The existence of these historical roots is hypothesized to enhance social dimensions of attachment regardless of the most recent length of residence in the area. Historical roots to an area may also enhance natural environment dimensions of attachment. However, it is presumed that historical roots are embedded within the context of ties to family and friends, which will be more important to overall community attachment than the natural environment dimension. Finally, in consideration of the domination

of the Mormon religion within this study region, it is presumed that affiliation with the Mormon faith will provide an instant social connection to a community. For example, some have argued that membership in the Mormon faith enhances and expedites social integration for newcomers, therefore allowing for stronger social attachment regardless of length of residence (Toney 1973,1976).

RE # 4 - *Natural environment and social dimensions of attachment will be correlated with two specific aspects of well-being: collective action and perceptions of open communication.*

Research expectation four reflects the assumption that the level and degree of community attachment varies amongst residents, and therefore influences both behaviors and perceptions among local residents. Wilkinson (1991) identified collective action as the foundation of the community, and open communication as an essential element in the pursuit of collective action. Therefore, I use these two specific aspects of well-being to assess the relationship between dimensions of attachment and community well-being. Specifically, I anticipate that collective action and perceptions of open communication processes will be positively associated with social dimensions of attachment, but will be weaker predictors of the strength of natural environment dimensions of attachment.

CHAPTER III

RESEARCH DESIGN AND APPROACH

This chapter is divided into two sections that describe the research design and approach used in the study. The first section describes the demographic, economic, and sociocultural context and history of the two study communities. The second section describes the sampling and data collection method used in study. The final section describes measurement and analytical procedures used in conjunction with the conceptual orientation and research expectations outlined in Chapter II.

STUDY AREAS

My dissertation focuses on two areas that were part of a larger study conducted by the Institute for Social Science Research on Natural Resources at Utah State University, which examined social and economic changes affecting small towns in the Rocky Mountain Region. These two areas, Star Valley, Wyoming, and Western Wayne County, Utah, were selected for several reasons. First, both areas comprise a cluster of smaller, individual communities with a common identity that shapes their past and future. Second, both areas possess an abundance of natural resources and are located in counties with over 90 percent of the land base in public ownership and management. Both areas are within 100 miles of at least one National Park and communities within these areas are experiencing some impact from tourism and recreation related activities associated with these destinations. Third, both areas have

a historical economic and cultural relationship to natural resources, in particular agriculture related industries such as ranching and dairy farming. Nevertheless, these industries are continuing to decline in both raw numbers and in their economic significance. Finally, both areas are experiencing a notable rise in population due mainly to in-migration. The composition of the population is beginning to change from predominantly Mormon communities heavily involved in agriculture, to ones that possesses an increasing diversity of values, cultures, and occupations.

Western Wayne County, Utah

For the purpose of this study, references to Western Wayne County mean the individual communities of Loa, Bicknell, Lyman, Torrey and Teasdale (see Appendix A). Western Wayne County was first settled by Euro-Americans in 1892 and is still a relatively remote area in south central Utah; it is not part of a metropolitan area. Until the 1930s, the lack of roads and railroad in the area kept the population and economic development levels rather low. Table 1 represents a profile of the general demographic characteristics for the communities in Western Wayne County, based on the 2000 Census.¹ Torrey is the community closest to Capital Reef National Park and is on the travel route to the Grand Staircase Escalante National Monument and is therefore the community with the most tourism-related businesses and development. In relation to this, Torrey has the largest percent of the population age 65 and over at 22.8 percent, and the smallest percentage of the population age 19 and under at 22.2

¹ The community of Teasdale was not incorporated or listed as a Census Designated Place in the 2000 Census: therefore general demographic characteristics were not available for this community in Western Wayne County.

percent (see Table 1). Torrey also had the largest growth rate from 1990 to 2000 at 40.16 percent (see Table 2). In contrast, Loa is located furthest from Capital Reef National Park and recreational and tourist attractions. Loa is the county seat and therefore is home to many of the county services such as the courthouse and Sheriff offices, as well as the location of most consumer-related services such as the main grocery and hardware stores.

Table 1: Profile of general demographic characteristics: Western Wayne County, 2000

	Loa	Bicknell	Lyman	Torrey
Total Population	525	353	234	171
Median Age	28.1	30.5	29.3	43.4
Percent 19 Years and Under	41.1	34.4	40.1	22.2
Percent 20 to 64 Years	45.2	48.1	49.1	54.9
Percent 65 Years and Over	13.7	17.3	10.7	22.8
Percent Non-Hispanic White	99.2	97.2	98.7	99.4
Percent Households with Individuals Under 18 Years	47.3	39.7	45.9	24.7

Source: U.S. Census Bureau, 2000 Census

Agriculture has historically been the main source of income for residents of Western Wayne County, and this tradition continues today, although to a declining degree. In Wayne County, the amount of land in farms decreased 44 percent between 1992 and 1997 (U.S. Census of Agriculture 1997). Beef cattle contribute the most

income, followed by dairy cows, sheep, alfalfa and hay crops, and poultry. A small lumber industry has also contributed to the local economy, although that has decreased considerably with the reduction of timber harvesting on surrounding National Forests. Increasingly tourism and recreation-based services are providing a greater proportion of the regional economy. In Wayne County as a whole in 1999, there were a total of 21 businesses classified as Accommodations and Food Services, followed closely by 17 businesses classified as Retail Trade and 15 classified as Construction. In comparison, there were 2 establishments classified as Forestry, Fishing, Hunting and Agriculture Support. In 1999 the largest industries based on earnings were services, with 27.7 percent of the total county earnings. Agriculture followed with 16.4 percent, and federal civilian government was 14.0 percent. The fastest growing sector based on earnings was construction, which increased 15.3 percent between 1998 and 1999 to 9.1 percent of earnings (U.S. Census Bureau, County Business Patterns 1999).

Western Wayne County is bordered on the south by the Dixie National Forest, to the north by the Fish Lake National Forest, and to the east by Capital Reef National Park. These natural amenities make Western Wayne County an attractive area for increasing numbers of amenity migrants. The significant growth in the construction sector also reflects the increased growth and migration to this area. Table 2 represents the population change in Western Wayne County from 1960 – 2000.

Table 2: Population change 1960-2000: Western Wayne County

Western Wayne County Population Change: 1960-2000									
	% Change 1960-		% Change 1970-		% Change 1980-		% Change 1990-		
	1960	1970	1970	1980	1980	1990	1990	2000	2000
Loa	359	324	-9.75	364	12.35	444	21.98	252	18.24
Bicknell	366	264	-27.87	296	12.12	301	1.69	353	17.28
Torrey	128	84	-34.38	140	66.67	122	-12.86	171	40.16
Lyman	na	na	na	na	na	na	na	234	na

Source: United States Census 1960-2000

Between 1960 and 1970, Western Wayne County actually lost considerable population, as did many rural areas throughout the United States. Beginning in 1970, Western Wayne County again began to gain in population and has continued to do so, with the exception of Torrey, which briefly lost population between 1980 and 1990.²

Star Valley, Wyoming

Star Valley, Wyoming, was settled in 1879 and is located in Lincoln County, on the far western edge of the state. It is approximately 50 miles southwest of Jackson, Wyoming. As with Western Wayne County, Star Valley comprises a cluster of individual towns, including Alpine, Etna, Freedom, Grover, Thayne, Afton, and Smoot (see Appendix A). Table 3 represents a profile of the general demographic characteristics for the communities in Star Valley.³

² The community of Lyman was not considered a Census Designated Place until the 2000 Census, and therefore figures for Lyman were not available prior to this date.

³ The community of Freedom is not incorporated or recognized as a Census Designated Place and therefore general demographic characteristics were not available.

Table 3: Profile of general demographic characteristics - Star Valley 2000

	Smoot	Afton	Grover	Thayne	Etna	Alpine
Total Population	182	1,818	137	341	123	550
Median Age	30.7	32.6	35.8	26.1	33.9	35.9
Percent 19 Years and Under	40.0	36.3	32.2	38.5	35.0	25.6
Percent 20 to 64 Years	49.4	49.8	56.8	51.6	52.0	66.6
Percent 65 Years and over	10.4	13.9	10.9	10.0	13.0	7.6
Percent Non-Hispanic White	95.6	97.2	96.4	97.7	93.5	96.7
Percent Households with Individuals Under 18 Years	47.3	40.1	43.8	52.5	50.0	31.3

Source: U.S. Census Bureau, 2000 Census

Geographically, the communities of Alpine and Etna are located at the northern end of the valley, closest to Jackson and Grand Teton National Park. Many service sector employees for the Jackson area have begun to seek affordable housing in the Star Valley area, in particular at the northern end. Between 1990 and 2000 Alpine's population grew by an astonishing 194 percent (see Table 4). Thayne and Freedom are located in the middle of the valley, while Grover, Afton, and Smoot are located at the southern end. Afton is the location for the schools in Star Valley, which may help to account for the higher percentage of the population age 19 and under and households with individuals under 18 in the communities of Smoot, Afton, Grover, and Thayne.

Dairy cattle and related dairy industries have historically been the primary industry in the valley. The valley's lush fields and ample water supply provide

sufficient amounts of alfalfa, hay, and feed barley to sustain the dairy herds throughout the year. Due to the remote location of the valley, milk processing plants and creameries quickly became commonplace and enabled dairying to remain the primary industry in Star Valley for much of its history. However, due to a decline in the profitability of dairy farming, this industry is no longer a primary source of economic revenue for the valley. In Lincoln County as a whole, full-time farms decreased 12 percent from 277 farms in 1992 to 244 farms in 1997 (U.S. Census of Agriculture 1997). Currently, Star Valley has one remaining cheese processing plant and fewer than 20 operating dairy farms. Timber harvesting and sawmills were an important part of the economy during the 1960s, but as with the dairy industry, this segment of the economy has declined significantly.

The other important industries in Star Valley include small aircraft manufacturing, headquarters for Maverick Country Stores, Freedom Arms, Silver Star Communications, and the Smoky Canyon Phosphate Mine. In 1999 the largest industry based on earnings in Lincoln County was state and local government, accounting for 18.4 percent of total earnings. Construction followed with 16.2 percent and transportation and public utilities at 15.5 percent. The fastest growing industry in Lincoln County based on earnings was construction, with an increase of 57.1 percent between 1998 and 1999 (U.S. Census Bureau, County Business Patterns 1999).

As the economy of Star Valley continues to change, tourism and recreation based services and migration continue to play an increasingly important role. Star Valley is about 50 miles long and between 5 and 10 miles wide and is enclosed by the

Caribou, Salt River, Wyoming, and Gros Ventre mountain ranges. Adjacent to the valley are the Bridger-Teton, Caribou, and Targhee National Forests. Star Valley is also within 100 miles of both Grand Teton National Park and Yellowstone National Park. The Salt River runs through the valley and joins the Snake River and Grays River near Alpine, just above the Palisades Reservoir. Due to the spectacular natural amenities surrounding the valley and the relatively close proximity to two National Parks and Jackson, Star Valley is increasingly drawing new migrants. Table 4 represents population change in Star Valley from 1960-2000.

Table 4: Population change 1960-2000: Star Valley

Star Valley Population Change: 1960-2000									
			% Change		% Change		% Change		% Change
	1960	1970	1960-1970	1970-1980	1970-1980	1980-1990	1980-1990	1990-2000	1990-2000
Afton	1337	1290	-3.52	1481	14.81	1394	-5.87	1818	30.42
Thayne	214	195	-8.88	256	31.28	274	7.03	341	24.45
Alpine	na	na	na	na	na	187	na	550	194.12
Etna	na	na	na	na	na	na	na	123	na
Grover	na	na	na	na	na	na	na	137	na
Smoot	na	na	na	na	na	na	na	182	na

Source: United States Census, 1960-2000.

As with other rural communities throughout the United States, Star Valley lost population between 1960 and 1970. However, beginning in 1970 the population of Star Valley began an overall increase, with the exception of Afton that had a slight loss

of population between 1980 and 1990.⁴ During the mid-1970s a significant vacation and recreation development began on the western foothills between Thayne and Etna. This development, known as Star Valley Ranch, borders the Bridger-Teton National Forest and consists of 2500 acres subdivided into 2034 privately owned building lots, with 600 homes built or under construction in 1999. Although the development began as a vacation/recreation development, an increasing number of the homes are now occupied on a year-round basis, further demonstrating the trends in migration to this area. Star Valley Ranch has a private water system, a seasonal airstrip, two championship golf courses and many other amenities. Located adjacent to the ranch is a large seasonal RV Park with over 200 units and facilities to support occupancy three seasons of the year. These developments have been a significant source of the growth in Star Valley, particularly the 31 percent growth between 1970 and 1980 in Thayne.

DATA COLLECTION

The next section of this chapter describes the data collection procedures for this study. The primary method of data collection was a random sample survey. During the summer of 2001, a team of Utah State University graduate students administered a total of 400 surveys to random samples of community residents in Star Valley and Western Wayne County. A scientific random sample of 200 households in each area was drawn from public utility records. Each residential address was assigned a

⁴ The communities of Etna, Grover, and Smoot were not recognized as Census Designated Places until the 2000 Census, and therefore population data for these specific communities could not be obtained. Alpine was incorporated in 1998 and recognized as a Census Designated Place in the 1990 Census.

number, and using a random number generation system 200 residential households were drawn from each study area. Street addresses were used to identify those households in the random sample; no names or other identifying information were used. Approximately 200 additional replacement households were drawn for use in the event of no contact or a bad address.

A team of research assistants spent approximately 7 days in each study area delivering the survey questionnaire to each randomly selected household using a drop-off pick-up method. This methodology involves hand delivering the survey to each household and then returning in 24 to 48 hours to pick up the completed survey. This methodology has proven to significantly increase response rates for self-completion surveys (Steele et al. 2002). Western Wayne County had a response rate of 67 percent and Star Valley had a response rate of 63 percent; the overall combined response rate for the study was 65 percent (N= 332). Table 5 represents a detailed account of response rates, refusals, and replacements.⁵

⁵ Participation rates, based only on those respondents that were actually contacted, were significantly higher. Western Wayne County was 85 percent and Star Valley was 81 percent.

Table 5: Community participation rates

Community Name	Number Surveys Delivered	Number Surveys Completed	Number Surveys Replaced	Refusal	Response Rate
Western Wayne County, UT	200	170	114 – total 54 – no contact* 50 – vacant, NSA** 6 commercial 4 - duplicate	17	67.0%
Star Valley, WY	200	162	102 – total 58 – no contact* 40 – vacant, NSA** 2 – commercial 2 duplicate	22	63.0%

* *No contact includes seasonal residences where people were confirmed to live there, but were not present at the time of the survey.*

** *Vacant or NSA includes vacant lots, vacant homes (either for sale or simply vacant), and 'no such addresses'*

Attempts to contact the household were made at least three different times of day over a period of two to three days. Once contact was made, the specific respondent in the household was identified as the adult, age 18 or over, who had the most recent birthday and was a permanent resident of the home. In the event that no contact could be made after at least three attempts, or if the property was determined to be vacant or a commercial business, the household was replaced with the next household in the random selection sequence. If a respondent was unable to return the completed survey by the time the research team left the area, they were provided with a postage-paid envelope and asked to mail the completed survey as soon as possible.

The significant number of "no contacts" reflects the high percentage of seasonal residences in both Star Valley and Western Wayne County. Many of these homes are occupied only a few weeks or months out of the year, yet they were included in the initial sampling frame that came from public utility records.

The questionnaire (Appendix B) was divided into several major sections. The first section asked questions pertaining to community satisfaction, the second section asked questions pertaining to community involvement, the third section asked questions pertaining to community attachment, and the fourth section asked general demographic questions about the respondent's background and migration history.

MEASUREMENT AND ANALYTIC PROCEDURES

The following sections describe the independent and dependent variables as well as the univariate, bivariate, and structural equation analyses that were conducted for this study. All statistics were calculated with either SPSS for Windows version 10.0 or LISREL for PC version 8.4. Univariate and bivariate analyses as well as confirmatory factor analysis were conducted for a combined sample of both study areas.

The decision to analyze the data based on an aggregate sample of the two communities was based on several considerations. First, the primary objective of this study was to explore the broader phenomenon of social change in high natural amenity communities with significant levels of related in-migration. The intent was not to examine the specific distinctions of the individual community contexts of Star Valley

and Western Wayne County, but rather the broader phenomenon that they represent. Second, although there are certain differences between the communities (Star Valley had significantly higher rates of growth between 1990 and 2000 compared to Western Wayne County), both Star Valley and Western Wayne County are similar on some basic sociodemographic characteristics that allow for the aggregation of the sample (median age, gender, religious affiliation, education, percentage retirees).

It is important to acknowledge that these two communities were *purposely* selected based on the study objectives; they are not considered a representative sample. County rankings on the natural amenity scale (McGrannahan 1999), combined with local knowledge of change and current conditions were used to specifically identify and select these two study sites. In addition, population data from the 1980, 1990, and 2000 Censuses were used to determine migration trends and growth rates for each potential study site.

Although purposive selection is useful in identifying specific study sites that meet the criteria of the broader study objectives, it also carries certain limitations. It is risky to generalize the findings from this aggregate sample to all high natural amenity communities that are experiencing growth due to in-migration. For example, both Star Valley and Western Wayne County are historic Mormon settlements that still retain a majority of LDS residents. This religious dominance is unique to the "Mormon Culture Region" of Utah and surrounding states and requires caution in generalizing findings from these communities to other high growth and natural amenity communities. Nevertheless, findings from this aggregate sample should provide

important insights into the changing nature of attachment and community well-being in high natural amenity and growth communities in the rural West.

UNIVARIATE AND BIVARIATE ANALYSES

Univariate analyses describe the demographic and socioeconomic characteristics of the two study areas individually and as a combined sample. The descriptive statistics were compared for the five primary independent variables discussed below: length of residence, life-cycle, presence of school-age children, historical roots in the area, and religion.

The two primary analytic techniques that used in the bivariate analyses were one-way analysis of variance (ANOVA) and t-tests. The principal purpose of ANOVA is to determine whether the means of the dependent variable for each level of an independent variable are significantly different from each other. ANOVA allows for the assessment of the overall strength of a relationship via the formation of a ratio of between-groups variance to within-groups variance (Denzin 1970; Levin and Fox 1988). The stronger the relationship the larger the F ratio, which is used to establish if it is necessary to reject the null hypotheses of no relationship between the independent and dependent variable. In this analysis, the variability of the mean responses between the categories of the independent variables is compared for each of the dependent variables listed below. The t-tests compare two sample means from separate populations to see if there is sufficient evidence to infer that the means of the corresponding population distributions also differ (George and Mallery 2001).

Independent Variables

There are five primary independent variables used in this study: length of residence, historical ties to an area, life cycle, presence of children, and religious affiliation. The first is the length of residence. As discussed earlier, many previous studies of community attachment have found length of residence to be strongly correlated with social attachment (Beggs et al. 1996; Goudy 1990; Kasarda and Janowitz 1974). Kasarda and Janowitz (1974) measured length of residence in six categories, ranging from less than one year to over twenty years/born there. However, in their analysis, using the Goodman modified multiple regression method, length of residence was re-coded as a dichotomous variable of less than one generation (twenty years) and more than one generation (including born here). Goudy (1990) replicated this same measurement with similar results.

In contrast, more recent work that has examined newcomer/long-term resident attitudes in high amenity growth communities has used smaller divisions, the most common being a cut point of 10 years: residents who have lived in the community less than 10 years are classified as newcomers, compared to those who have resided in the community for 10 years or more, classified as long-term residents (Fortmann and Kusel 1990; Graber 1974). Others have argued that another important factor in classifying newcomers and long-term residents is the approximate year in which substantial in-migration to the community began occurring (Blahna 1985; Graber 1974; Smith and Krannich 2000). Therefore, those present prior to the major wave of migration are classified as long-term residents, and those arriving during or after the

major wave are classified as newcomers. In consideration of these various arguments for classifying length of residence and due in part to the fact that most of the recent population in-migration to the rural Rocky Mountain West seems to have begun in earnest about 1990 to 1991 (Fuguitt et al. 1998, Johnson 1998), this study will use a ten year cutoff point for length of residence.

Length of residence was measured by asking two questions. First, respondents were asked if they are originally from the area around their community. If yes, then they were asked if they have ever lived anywhere else. If no, they are assumed to have lived in their community their entire life and length of residence was computed based on their age. If the respondent has ever lived any place other than their current community, they were asked to indicate the year in which they moved back to their current community. If they were not originally from the area around their community, they were simply asked to provide the year in which they moved there. From this data, length of residence is re-coded into the following categories: 10 years or less = 0; 11 years or more = 1.

Historical ties to an area are also hypothesized to be important with respect to the strength of social attachment dimensions. Theoretically, it is presumed that if a person has historical ties to an area, such as being born and raised there, they are likely to have retained some of the social ties and connections to that area through extended family or friends that have remained there. Although a person may have moved away to pursue education or employment for a period of time, if they have roots to that area their attachments will quickly develop strong social dimensions regardless of their

length of residence at the time of the study. In some cases, it is presumed that those social ties and connections may have never been fully severed in the first place, and that returning to the area only strengthens attachments that existed during a period of absence. In this study, the presence of historical ties to an area is measured by asking respondents if they are originally from the area, with responses coded as 1 = yes and 2 = no.

The third independent variable is life cycle. Kasarda and Janowitz (1974) found that life cycle has specific and limited effects on local social bonds and attachment. Involvement in the social dimensions of the community declined with advanced life-stage, and older residents significantly reduced their involvement in formal organizations and informal social activities. However, Kasarda and Janowitz are quick to point out that life-cycle is not nearly as powerful or consistent in affecting attachment as is length of residence. I posit that life cycle will be related to changes in the strength of the various dimensions of attachment, and therefore is an important independent variable. In this study, life cycle is measured by a respondent's age. Based on the categories used by Kasarda and Janowitz, life cycle is coded into five stages: 18 – 29 = 1, 30 – 39 = 2, 40 – 49 = 3, 50 – 64 = 4, and 65 and older = 5.

The fourth variable, the presence of children in the home, relates to life cycle. I posit that the presence of children will significantly increase the likelihood of strong social dimensions of attachment. Unfortunately, the survey question did not specify if those children are school age or adults simply residing in the same home. Given this limitation, it is still presumed that the presence of children, especially those of school

age, will act as a natural connection to the social networks that commonly form around schools, particularly in rural areas. However, this does not imply that the same person will not simultaneously possess strong natural environment dimensions of attachment; it is very possible that a person may possess strength in both attachment dimensions. The presence of children is presumed to simply be a strong predictor of specific social dimensions of attachment, compared to those respondents without children in the home. In this study, the presence of children is measured as a dichotomous variable, based on respondent's answer to the question "Do you have any children living at home with you now" (1 coded "yes"; 2 coded "no").

The fifth independent variable is religious affiliation. This particular variable is significant given the dominance of the Mormon faith in Utah and surrounding areas such as Star Valley. This part of the United States is commonly referred to as the "Mormon Culture Region" by social scientists (Toney, Stinner, and Byun 1997). It is argued that Mormons within this region exhibit especially high degrees of internal social cohesion due in part to their numerical dominance, a strong and well-established belief system, and lifestyles that tend to be oriented around church-related activities (Toney 1973; Van Loon and Stinner 1991). Given this strong network, it is presumed that affiliation with the Mormon faith will enhance social dimensions of attachment, regardless of other intervening variables such as length of residence by providing an instant social connection and network with the community. In this study, respondents were asked to identify their religious affiliation from a list that included LDS (Mormon); Catholic; Protestant; Other; and None. Religious affiliation is re-coded for

analysis as a dichotomous variable, with 1 coded as "LDS" and 2 coded as "non-LDS."

Dependent Variables

In order to address the first three research questions and to test the first three research expectations presented in Chapter II, two categories of dependent variables are examined in the bivariate analyses: (1) social/economic attachment; and (2) natural environment attachment. A description of the measures for each of the variables follows.

The initial measurement of attachment included a list of fourteen individual indicators of attachment. Factor analysis was used to decompose a correlation matrix of the fourteen indicators into its constituent factors. A Kaiser-Mayer-Olkin measure yielded .78, demonstrating that the distribution of values in the initial measure of attachment dimensions was adequate for conducting factor analysis. The Direct Obliman method of rotation was used to achieve the factor loadings for the dimensions of attachment (see Table 8 for a complete factor decomposition). Factor analysis yielded two distinct components of attachment.

Social/Economic Attachment. The social/economic dimension of attachment includes six separate variables combined in a summated composite index. Based on the factor loadings and face validity, the six variables that comprise the social and economic dimension of attachment include: friends close by; family ties in the area; local culture and tradition; economic opportunities; ability to earn a living off the land; and opportunities to be involved in community projects or activities. The

social/economic dimension of attachment was expanded beyond simply social to include economic due in part to the results of factor analysis. Several economic indicators clearly loaded onto the social factor and with further consideration made theoretical sense as well.

Natural Environment Attachment. The natural environment dimension of attachment includes three separate variables that were measured on an identical scale to the social and economic attachment variables. Natural environment attachment comprises the second dimension of overall attachment. The three variables that comprise the natural environment dimension of attachment include: natural environments/views; presence of wildlife; and opportunities for outdoor recreation.

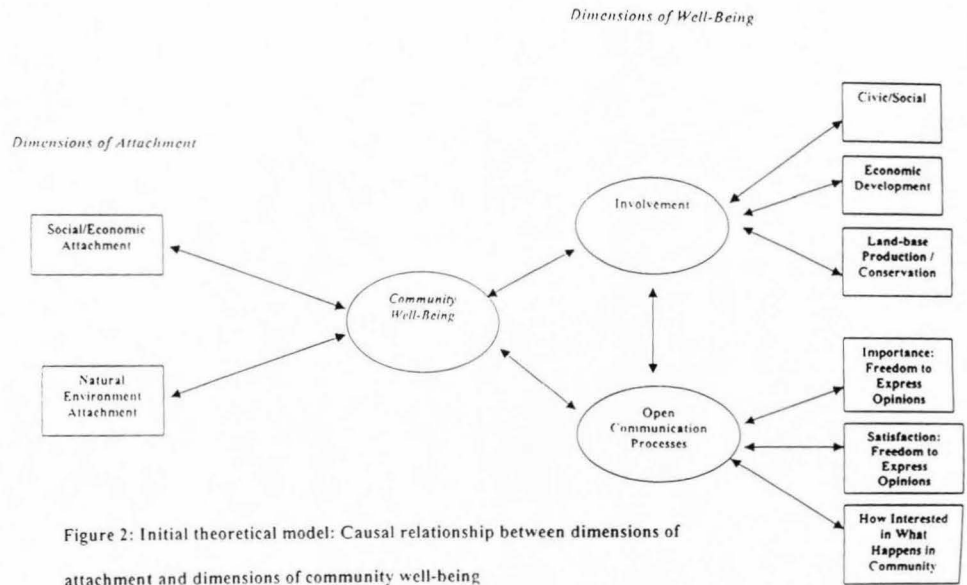
STRUCTURAL EQUATION MODELING

Structural equation modeling (SEM) is used to examine the possibility of a causal relationship between natural environment and social dimensions of attachment and the two specific aspects of community well-being: collective action and perceptions of open communication. Confirmatory factor analysis (CFA) is also used to evaluate the goodness of fit of an *a priori* model to the data and is primarily a tool for theory testing. The propositions for developing the CFA model are most often drawn from previous empirical work and theory (Kelloway 1998). SEM models "are far more comprehensive and flexible in their ability to link multiple observed indicators to unmeasured causes, to make quantitative estimates of model parameters and their standard errors, to assess the overall fit of a model to data, and even to

determine the equivalences of model parameters across several samples” (Knoke, Bohmstedt, and Mee 2002: 405).

Although there is little past empirical work that has actually tested the *causal relationship* between attachment and well-being, theoretical work on both constructs has played a large role in the propositions composing this model. In this analysis, there is a theorized causal relationship between the observed measures of the two dimensions of attachment and the latent construct of well-being. Due in part to the lack of previous work that has examined such causal relationships between attachment and well-being, the initial theoretical model posits that such causal linkages may actually occur in both directions (see Figure 2). Structural Equation modeling will be used to explore the causal relationships from both directions.

Relationship Between Dimensions of Attachment and Dimensions of Community Well-Being



Observed Indicators – Dimensions of Collective Action

Using a Likert-type scale, respondents were asked to circle the number that best represented how involved they were with 15 different types of local groups. The scale ranged from 1 = “not at all involved” to 7 = “extremely involved.” The initial measurement of collective action included a list of fifteen individual types of local groups. As with attachment, factor analysis was used to decompose a correlation matrix of the fifteen indicators into its constituent factors. A Kaiser-Meyer-Olkin measure yielded .89, demonstrating that the distribution of values in the initial measure of collective action dimensions was adequate for conducting factor analysis. The Direct Obliman method of rotation was used to achieve the factor loadings for the dimensions of collective action. Factor analysis yielded three distinct types of collective action: civic/social involvement, economic development involvement, and land-based production involvement.

Civic/ Social Involvement. Based on the factor loadings and face validity, the three variables that comprise the civic and social dimension of involvement include: school board; church groups; and youth/senior service groups. These three variables were combined to create a composite index of social/civic involvement. Theoretically, school boards, church groups and youth/senior service groups all share common objectives that focus on the overall well-being of community residents, ranging from youth to senior citizens. The focus of such groups is on other people, and therefore involvement in them implies a social or civic orientation. A reliability analysis of this

index yielded inter-item correlations ranging from .38 to .54, corrected item-total correlations ranging from .43 to .57, and a Cronbach's alpha coefficient of .69

Economic Development Involvement. The economic development dimension of involvement involves three separate variables. Based on Factor Analysis and face validity, the three variables that compose the economic and development dimension of involvement include: Chamber of Commerce; community planning groups and economic development groups. Theoretically, these three types of groups all share a common emphasis on economic well-being and development within the community. It is presumed that residents who participate in such groups share a common concern with the development of viable and socially acceptable businesses and economic opportunities. A reliability analysis of this index yielded inter-item correlations ranging from .42 to .64, corrected item-total correlations ranging from .51 to .70, and a Cronbach's alpha coefficient of .76.

Land-based Production and Conservation Involvement. The third dimension of involvement focuses on natural environment components but is broadened to include aspects that allow for the use of the land for production or economic sustenance. Factor Analysis and face validity produced a composite index composed of five different groups: local watershed councils; local RC&D groups; local irrigation district groups; water conservation district groups; and production organizations (ie: Cattlemen's Association, Farm Bureau). Theoretically, these five groups all share a concern for the environment that centers on their ability to earn a living off the land. Concern for the natural environment integrity of the land is presumed to be related to a

desire to maintain a living off of that land. A reliability analysis of this index yielded inter-item correlations ranging from .40 to .78, corrected item-total correlations ranging from .58 to .84, and a Cronbach's alpha coefficient of .87

Observed Indicators – Perceptions of Open Communication Processes

Open communication processes was the most difficult variable to measure. Two separate variables were used as reasonable proxies for measures of perceptions of open communication processes. The first variable measured respondents' satisfaction with the current state of open communication processes in their communities. Using a Likert-type scale, respondents were asked to indicate how *satisfied* they were with the freedom to express their opinions about community affairs. The response scale ranged from 1 = "completely dissatisfied" to 7 = "completely satisfied". A second variable measured the importance of open communication as a *desired trait*, something that they felt was important to them, regardless of whether or not it currently exists. Again, using a Likert-type scale, respondents were asked to circle the number that best indicated how *important* it was to them that they have the opportunity to be personally involved in decisions that affect their community. The scale ranged from 1 = "not at all important" to 7 = "extremely important".

A third variable was added to the measures of collective action and perceptions of open communication to address the broader concept of civic engagement, a construct that is closely associated with the broader concept of community well-being. Although not a direct measure of either collective action or perceptions of open

communication, this variable measures the general interest in civic engagement which, according to Daniel Kemmis (1991), has real implications for things such as collective action and open communication at the local level. This third variable consisted of a question that asked "How interested are you in knowing what goes on in your community?" Responses were categorical and reverse-coded as 1 = very interested; 2 = somewhat interested; 3 = neither interested nor disinterested; 4 = not very interested; 5 = not at all interested. Reverse coding was used to prevent response set effects.

Due in part to the difficulty in measuring perceptions of open communication processes, some caution must be used when interpreting the level of importance and significance that they may demonstrate in subsequent analyses. Open communication may exist to varying degrees through a variety of different channels and networks within the same community. For example, community members who belong to the LDS church may feel that lines of communication are very open, while those that are not part of the religious majority may feel that communication channels are closed to them. Wilkinson clearly argues that open communication processes are a critical element in community well-being. Although the measures used in this research only address broader perceptions of open communication as a current and desired trait, I argue that the use of reasonable proxy measurements is preferable to no measurement at all.

Observed Indicators – Dimensions of Attachment

The two dimensions of attachment were previously discussed in the section on bivariate analysis: social/economic attachment and natural environment attachment. As with collective action, these dimensions are analyzed as summated composite indices based on the previous factor analysis. Theoretically, the two distinct dimensions of attachment are presumed to have a causal relationship to the latent construct of well-being, measured by the three dimensions of involvement and open communication processes.

CHAPTER IV

RESULTS AND ANALYSIS

This chapter reviews findings from the quantitative analyses performed for this study. First, the basic demographic characteristics of respondents are presented, along with descriptive statistics for the five independent variables: length of residence, life cycle, presence of children in the home, historical roots to an area, and religion. These statistics are compared for each study site individually. Second, results from the bivariate analyses are presented and discussed in relationship to the two dimensions of attachment: social/economic attachment and natural environment attachment. Third, results from regression analyses are presented and discussed in relationship to indicators of well-being as predictors of attachment. Finally, results from the structural equation modeling analysis are presented.

UNIVARIATE ANALYSIS

Table 6 presents the basic sociodemographic characteristics of survey respondents from each study site. The median age of respondents was approximately 51, slightly more respondents were female than male, almost three-fourths were married, about one-fourth were retired, and they were almost entirely permanent full-time residents. Respondents from Star Valley were slightly more educated when comparing those who had completed a graduate degree, but respondents from Western Wayne County had a slightly higher percentage of respondents who had only a college

Table 6: Demographic and socioeconomic characteristics of survey respondents

Demographic or Socioeconomic Variable	Star Valley	Western Wayne County
Male	41.4%	44.7%
Female	56.8%	51.8%
Median Age	51	52
Marital Status: Married	76.5%	72.9%
Religious Affiliation: LDS	58.0%	73.5%
<i>Education:</i>		
Did not complete High School	7.5%	10.2%
Completed High School	28.3%	24.0%
Some College, no degree	28.5%	28.1%
Assoc./Vocational degree	13.8%	14.4%
College bachelors	7.5%	12.0%
Some college graduate	5.7%	4.2%
Completed graduate	11.3%	7.2%
Median Household Income	\$40,000 – \$49,000	\$30,000- \$39,999
Employed by Company or Business	42.0%	42.4%
Retired	26.5%	25.3%
Originally from area	37.0%	42.4%
Permanent full-time resident	87.0%	92.4%

bachelor's degree. Respondents from Star Valley had a slightly higher median income compared to respondents from Western Wayne County.

Table 7 presents the comparison of descriptive statistics for the five independent variables. As stated earlier, length of residence has been re-coded into 10 years or less compared to 11 years or more. This reflects the fact that most of the population growth in the study areas accelerated in the 1990s (see Table 2 and Table 4). In terms of length of residence, Western Wayne County has a slightly higher proportion of respondents classified as living in the area for 11 years or more (long-term residents) compared to Star Valley. Star Valley has a slightly higher proportion

Table 7: Comparison of descriptive statistics for independent variables

Variable	Star Valley	Western Wayne County
<i>Length of Residence:</i>		
10 years or less	44.4%	34.7%
11 years or more	55.6%	65.3%
<i>Life Cycle Stages:</i>		
18-29	9.1%	11.3%
30-39	13.6%	13.8%
40-49	24.0%	16.4%
50-64	28.6%	34.6%
65 and above	24.7%	23.9%
<i>Presence of Children in the Home:</i>		
Yes	42.8%	43.7%
No	57.2%	56.3%
<i>Historical Roots to the Area:</i>		
Yes	37.5%	43.9%
No	62.5%	56.1%
<i>Religious Affiliation:</i>		
LDS	60.3%	75.3%
Other	39.7%	24.7%
<i>N</i>	<i>162</i>	<i>170</i>

of respondents that could be classified as “newcomers,” with nearly half of respondents having been in the area for 10 years or less.

When comparing life cycle stages, Star Valley has slightly fewer respondents ages 18-29 and slightly more respondents ages 40-49, compared to Western Wayne County. Western Wayne County has slightly more respondents ages 50-64 compared to Star Valley. The percentage of respondents 65 and above is slightly greater than figures represented in the 2000 Census. Census 2000 reports 14.4% of the population age 65 and over for Wayne County, Utah and 12.4% for Lincoln County, Wyoming. This may be due in part to the fact that those 65 and above are often retired and

therefore tend to be easier to make contact with for survey completion. Also, the survey may have captured the presence of older seasonal residents whose permanent addresses are elsewhere, causing them to be excluded from the April census counts for these areas.

In terms of presence of children in the home, Western Wayne County and Star Valley are almost identical. In Western Wayne County, 44 percent of respondents indicated that they had children present in the home compared to 43 percent of respondents in Star Valley. This may reflect both an aging population and the immigration of retirees to the area who no longer have children in their homes. In the combined sample, 26 percent of respondents indicated that they were retired (see Table 6).

Comparing historical roots to an area, Western Wayne County had a slightly higher percentage of respondents who indicated they were originally from that area (44 percent) compared to Star Valley (38 percent). This may reflect the significance of both social/economic and natural environment attachments in making choices about locations to live.

Finally, comparing religious affiliation, 75 percent of respondents from Western Wayne County indicated they were members of The Church of Jesus Christ of Latter-day Saints (LDS) compared to 60 percent of respondents from Star Valley. These results are to be expected given the historical Mormon settlement patterns of both of these study sites. However, the percentage of respondents who are LDS has declined, since at the time of settlement these communities were virtually 100 percent

LDS. This relative decline in the dominance of the LDS faith reflects the population growth in these areas and the greater diversity of residents and religions that such population growth brings.

Overall, respondents from Western Wayne County are slightly more likely to have historical roots to their community, to be of the LDS faith, and to be considered a long-term resident compared to respondents from Star Valley. Respondents from both communities are equally likely to have children in the home, and are similar in age distribution. Differences between the study areas on basic sociodemographic characteristics and the descriptive statistics for the independent variables are not substantial and therefore allow bivariate analyses to be performed on the combined sample of 332 respondents.

Dimensions of Attachment

The following discussion focuses on findings related to the first research expectation:

RE #1 – *It is possible to distinguish and measure both social and natural environment dimensions of overall community attachment.*

The section of the questionnaire designed to measure attachment included a list of fourteen individual items. All of these items were measured using a Likert-type scale that asked respondents to circle the number that best represented how important the different aspects were to their attachment to their area/community. The scale ranged from 1 = “not at all important” to 7 = “extremely important.” Factor analysis was used to decompose a correlation matrix of the fourteen items into its constituent

factors. A Kaiser-Mayer-Olkin measure yielded .78, demonstrating that the distribution of values in the initial measure of attachment dimensions was adequate for conducting factor analysis. Factors were rotated obliquely using SPSS's "Obliman" method of rotation.

Table 8 represents the results from the factor analysis of the attachment variables and demonstrates that, consistent with research expectations, there are two clear dimensions to attachment, social/economic and natural environment. Table 9 presents the univariate measures of central tendency for the two dependent measures of attachment: social/economic attachment and natural environment attachment.

Social/economic attachment is a summed composite index of six variables: friends close by; family ties in the area; local culture and tradition; economic opportunities; ability to earn a living off the land; and opportunities to be involved in community projects or activities with a range of 6 to 42. A reliability analysis of the index yielded inter-item correlations ranging from .29 to .56, corrected item-total correlations ranging from .48 to .64, and a Cronbach's alpha coefficient of .80.

Table 8: Factor loadings for dimensions of attachment

Attachment Variable	Component Factor Loading	
	Social/ Economic Attachment ($\alpha = .73$)	Natural Environment Attachment ($\alpha = .74$)
Friends close by	<u>.653</u>	.012
Family ties	<u>.723</u>	-.108
Local culture and traditions	<u>.725</u>	.110
Slow pace of life	.253	.222
Economic opportunities	<u>.632</u>	.185
Ability to earn a living off land	<u>.756</u>	.046
Natural landscapes/views	.130	<u>.712</u>
Presence of wildlife	.017	<u>.843</u>
Opportunities for outdoor recreation	.079	<u>.850</u>
Opportunities for motorized recreation	.395	.394
Opportunities to be involved in community projects	<u>.676</u>	.252
Area not heavily developed	.079	.226
Few restrictions on what I can do with my land/property	.491	-.011
Ability to freely express opinion about community affairs	<u>.597</u>	.165

Note: Underlined items represent those items included in the final multiple-item index.

Table 9: Univariate measures of central tendency for two dependent measures of attachment

Measure of Attachment	Mean	Median	Range	Standard Deviation
Social/Economic Attachment	30.75	33.0	6-42	8.415
Natural Environment Attachment	19.64	21.0	3-21	2.215

Theoretically, this index measures the social and economic connections that may influence a person's overall degree of emotional or sentimental attachment to their community. Friends, family ties, local culture and tradition, and the opportunity to be involved in community projects or activities are presumed to be relevant to feelings of social support, belonging, and familiarity. The ability to earn a living off the land and to have economic opportunities may also be tied indirectly to family history, culture, and tradition. Some respondents are members of fifth or sixth generation families and have a long history of supporting themselves via land-based occupations such as agriculture or forestry. Furthermore, many social ties and networks are presumed to be formed on the basis of one's occupation. Friendships may often be formed within the work environment and can provide a basis of social networks.

The mean value of 30.75 and median value of 33.0 indicate that the average respondent has fairly strong social/economic attachments to their community. However, Figure 3 demonstrates that the measure is asymmetrically distributed around its median value and is negatively skewed, with 46 percent of respondents above the mean.

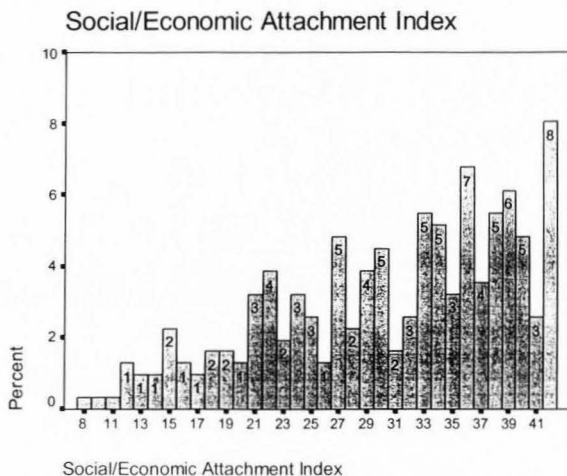


Figure 3: Frequency distribution for social/economic attachment index

Natural environment attachment is also a summed index of three variables: natural environments/views; presence of wildlife; and opportunities for outdoor recreation. These variables were measured on the same Likert-type scale as the preceding social/economic attachment variables, yielding a composite measure with values ranging from 3 to 21. Theoretically, this index measures the natural environment dimension of a respondent's emotional and sentimental attachment to their place. Natural environments, presence of wildlife, and opportunities for outdoor recreation are presumed to be dependent upon a certain level of natural environment health and a lower level of human development. A reliability analysis of this index

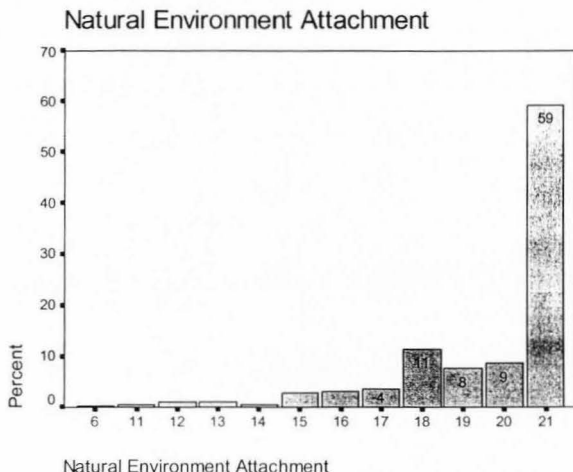


Figure 4: Frequency distribution for natural environment attachment index

yielded interitem correlations ranging from .49 to .58, corrected item-total correlations ranging from .50 to .64, and a Cronbach's alpha coefficient of .74.

The mean value of 19.64 and the median value of 21 indicate that the average respondent has an extremely strong natural environment attachment. Figure 4 represents the frequency distribution for the natural environment attachment index. As with social/economic attachment, this measure is also asymmetric around the mean and even more negatively skewed, with a clear majority of the respondents (approximately 68 percent) above the mean. There is very little variation in this measurement, indicating again that the majority of respondents share a strong attachment to the natural environment dimensions of their communities. The Pearson

Correlation Coefficient of .056 indicates that there is little correlation between the social/economic dimension of attachment and the natural environment dimension of attachment and provides further evidence for the use of two distinct dimensions of attachment.

In sum, results from factor analysis provide strong support for the first research expectation. The concept of community attachment can be decomposed into two distinct dimensions, social/economic attachment and natural environment attachment. The acceptable Cronbach's alpha coefficient for the indices developed to measure each dimension is further evidence in support of the expectation that it is possible to distinguish and measure these two distinct dimensions of community attachment.

BIVARIATE ANALYSIS

The following section presents the findings from the bivariate analyses of relationships between the categories of the five independent variables and the two dependent variables, social/economic attachment and natural environment attachment.

Length of Residence

This discussion focuses on findings related to the second research expectation:

RE #2 – *Long-term residents' community attachment will be more influenced by variables related to social aspects, such as friends, family, and social groups, while recent in-migrants' community attachment will more likely be influenced by variables related to the natural environment, such as the landscape, clean air and water, and outdoor recreational opportunities.*

In this examination, t-tests are used as a means of analysis. Although the distribution of cases on the measure of natural environment attachment violates the assumption of

a normal distribution, t-tests specified for unequal variances are used in order to compare the two dimensions of attachment on the dependent variable, length of residence. Long-term residents are classified as those who have lived in the area for 11 years or more, and newcomers as those who have lived in the area for 10 years or less.

The results presented in Table 10 partially support the research expectation and represent the mean response values and t-test results for the dependent variables social/economic attachment and natural environment attachment by length of residence. The results also represent the ratio of social/economic attachment to natural environment attachment by length of residence. The ratio addresses the proportion of attachment that is comprised of social aspects as compared to natural environment aspects for both lengths of residence.

The relationship between length of residence and social/economic attachment is statistically significant, but it is not significant for natural environment attachment. Those respondents who have lived in their community for 10 years or less had a mean social/economic attachment of 26.96, compared to those who have lived in their community for 11 years or more with a mean value of 33.22.

Table 10: Mean response values and t-test results comparing length of residence to social/economic and natural environment dimensions of attachment

Length of Residence			t
	10 years or less	11 years or more	(unequal variances assumed)
Social/Economic Attachment	26.96	33.22	-6.63***
<i>N</i>	123	188	
Natural Environment Attachment	19.85	19.49	1.49
<i>N</i>	130	194	
Ratio of Social/Natural Attachment	1.37	1.73	-6.50***
<i>N</i>	123	187	

***Significant at $p < .001$

These results demonstrate that long-term residents do have a stronger social/economic attachment compared to more recent newcomers, consistent with previous empirical work that found length of residence to be strongly correlated with social ties and attachment. However, the results only partially support the second research expectation. Although there is evidence that long-term residents community attachment is more influenced by social aspects such as family, friends, and social groups, there is no statistically significant evidence that newcomers community attachment is more influenced by the natural environment compared to social dimensions. Furthermore, there is no statistically significant evidence that those who have been in their community less time have any stronger a natural environment attachment compared to those who have been in their community for 11 years or more.

In fact, the mean values for natural attachment are very similar, with newcomers having only a slightly higher mean value of 19.85 compared to long-term residents at 19.49.

In sum, there is only partial support for the second research expectation. Long-term residents have a stronger attachment composed of social/economic dimensions compared to newcomers. However, newcomers do not have a greater proportion of attachment composed of natural environment dimensions compared to long-term residents. Therefore, the expectation that newcomers' community attachment will be more influenced by natural environment variables, such as the landscape, clean air and water, and outdoor recreational opportunities is not supported by the data.

*Life Stage, Presence of Children in the Home,
Historical Roots to an Area, and Religious Affiliation*

The next discussion focuses on findings related to the third research expectation:

RE#3 – *Life stage, the presence of children in the home, historical roots to an area, and religious affiliation will be more strongly related to community attachment involving social dimensions than to natural environment dimensions.*

Both one-way analysis of variance (ANOVA) and t-tests are used as a means of analysis, depending on the composition of the specific independent variable. As previously noted, the t-test for which equal variances are not assumed was used due to the skewed distribution for natural environment attachment.

The results in Table 11 represent the mean response values and ANOVA results for the two dependent variables, social/economic attachment and natural environment attachment, by life cycle stages. The results do not reveal any statistically

significant relationship between social/economic attachment and the various life-cycle stages. Contrary to the research expectation, life cycle does not appear to be statistically associated with social/economic attachment. Mean response values ranged from a low of 30.41 for those ages 50-64 to a high of 30.87 for those 65 and older. Social/economic attachment appears to be rather stable and strong throughout the life cycle stages of respondents.

Table 11: Mean response values and ANOVA results comparing life cycle stage to social/economic and natural environment dimensions of attachment

	Life Cycle Stage					F
	18-29 ^A	30-39 ^B	40-49 ^C	50-64 ^D	65 and older ^E	
Social/Economic Attachment	31.59	30.74	30.51	30.41	30.87	.14
N	32	43	59	96	70	
Natural Environment Attachment	20.28 ^{B,E}	19.28 ^C	20.23 ^{B,E}	19.84 ^E	19.01 ^{A,C,D}	4.01**
N	32	43	62	99	74	

Letters following means indicate respondents with mean response values that are significantly different ($p < .05$) from those for a particular life cycle stage, based on Fisher's least significant difference tests.

** Significant at $p < .01$

Natural environment attachment has more variation across the life cycle and the relationship achieves statistical significance. For respondents ages 18-29, the mean natural environment attachment is 20.28, the highest of all five life cycle stages. This is statistically different at the .05 levels from the mean for those ages 30-39 and 65 and older, based on Fisher's least significant difference tests. One explanation for

the high mean value for natural environment attachment for this life cycle stage is that it is related to higher levels of outdoor activity and recreation during these younger years. Respondents ages 18-29 are less likely to have families and children, who when present, may somewhat hinder parent's levels of activity and interest in the natural environment.

Another explanation may be cohort differences that relate to important events that occur at crucial adolescent or young adult phases that can permanently influence a cohort. For example, those respondents ages 18-29 grew up during a period where environmentally oriented activities such as recycling and academic courses in environmental studies were commonplace. Furthermore, outdoor recreation activities such as mountain biking and climbing increasingly became mainstream sports, which may have increased awareness and exposure to the natural environment. These occurrences and contexts may have influenced this cohort's stronger attachment to the natural environment. Previous empirical work on environmental concern and values has found similar cohort differences, where the younger cohorts demonstrate stronger environmental concern (Buttel 1979; Honnold 1984).

For respondents ages 30-39, the mean response value for natural environment attachment was 19.28, the second lowest mean response value. This is statistically different from only one other life cycle category; those ages 40-49, based on Fisher's least significant difference tests. For respondents ages 40-49, the mean value increases to 20.23, the second highest. This may also reflect cohort differences that result from this cohort being young adults during the first "Earth Day" and experiencing a surge in

pro-environmental movements and legislation such as the Clean Water Act and the Endangered Species Act. The mean for this age category is significantly different from those ages 30-39 and 65 and older, based on Fisher's least significant difference tests. For respondents in the 50-64-age range, the mean response value was 19.84, which is also statistically different from respondents who were 65 and older, again based on the Fisher's least significant difference tests.

Finally, for those 65 and older, the mean value for natural environment attachment was 19.01, the lowest value for all five categories. The mean value for those 65 and older is significantly different from those in the 18-29, 40-49, and 50-64 age brackets. There is no significant difference between those in the 30-39 age category, which may be attributed to this being the life stage in which people commonly have children and family-based life styles, which may lead to a temporary diminishment of their involvement in natural environment aspects. The significantly lower natural environment attachment for those 65 and older may be attributed to simple aging processes. As people enter into this final life stage, their ability to recreate and enjoy the natural environment begins to diminish, and they are also less willing to take risks and support anti-establishment movements such as extreme environmental perspectives.

However, another plausible explanation may again be attributed to cohort differences. Mohai and Twight (1987) argue that a cohort effects explanation of the observed decrease in environmental concern with chronological age is very likely. Respondents 65 and older can be argued to be part of a cohort that tends to view the

environment from a more utilitarian perspective that emphasizes use of nature for support of human communities. They did not experience the thrust of the environmental movement until they were adults.

Table 12 presents the mean response values and t-test results for relationships between the dependent variables and the presence of children in the home. Overall, the results support the research expectation. For the variable measuring social/economic attachment, respondents with children in the home differ significantly from respondents without children in the home. The mean social/economic attachment value for those with children in the home is 32.02 compared to 29.73 for those without children in the home. The stronger social/economic attachment for those with children in the home may reflect the fact that the school system and school-related activities are important aspects of local social networks in most rural communities. Having children in the home provides a natural linkage and connection to local social networks and activities, while not having them in the home may actually diminish those social connections.

For the variable measuring natural environment attachment, respondents with children in the home do not differ significantly from those without children in the home. For those with children in the home, the mean natural environment attachment value is 19.61, compared to 19.64 for those without children in the home. These values demonstrate an almost identical strength of natural environment attachment, regardless of the presence of children in the home. These findings are somewhat in contrast to the findings involving life cycle stage, which demonstrated that there was a

statistically significant difference for natural environment attachment based on life cycle stage. The results pertaining to presence of children in the home suggest that the differences across age categories may be attributed to something other than the presence of children.

Table 12: Mean response values and t-test results comparing presence of children in the home to social/economic and natural environment dimensions of attachment

Presence of Children in the Home			t (unequal variances assumed)
	Yes	No	
Social/Economic Attachment	32.02	29.73	-2.46**
N	136	172	
Natural Environment Attachment	19.61	19.64	.11
N	140	181	

** Significant at $p < .01$

The findings in Table 13, which represent the mean response values and t-test results for the dependent variables by historical roots to an area, provide support for the research expectation. For the variables measuring both social/economic attachment and natural environment attachment, respondents with historical roots to an area differ significantly from those without historical roots to an area. In the case of social/economic attachment, the mean value for those with historical roots to an area was 34.74 compared to only 27.89 for those who did not have historical roots to the area. These findings are consistent with expected results and past empirical work, suggesting that historical social ties and connections do positively influence a

respondent's current level of social/economic attachment. Even if a person has left an area for a period of time, the results suggest that the social networks and connections established during their first period of residence are positively associated with their current social connections.

Table 13: Mean response values and t-test results comparing historical roots to an area to social/economic and natural environment dimensions of attachment

Historical Roots to an Area			t
	Yes	No	(unequal variances assumed)
Social/Economic Attachment	34.74	27.89	-8.09***
<i>N</i>	127	180	
Natural Environment Attachment	19.19	19.96	2.83**
<i>N</i>	129	191	

** Significant at $p < .01$; ***Significant at $p < .001$

By comparison, the mean natural environment attachment value for those with historical roots to an area was 19.19, compared to 19.96 for those without such historical roots to an area. This is the opposite of the relationship for social/economic attachment, with a stronger natural environment attachment for those that do NOT have any pre-existing social networks or connections to the area, therefore supporting the research expectation.

The results in Table 14, representing the mean response values and t-test results for the dependent variables by religious affiliation, are consistent with the research expectation. Given the predominance of the LDS faith within the two study

sites (68 percent overall), these results are not unexpected. For both social/economic attachment and natural environment attachment, respondents who are LDS differ significantly from respondents of some other (or no) faith. For social/economic attachment, the mean response value for LDS respondents was 33.69, compared to a much lower mean value of 24.44 for non-LDS respondents. This result is consistent with previous empirical work on the Mormon Culture Region (LDS), which argued that belonging to the Mormon Church provides an instant social network and connection to residents, regardless of their length of residence.

Table 14: Mean response values and t-test results comparing religious affiliation to social/economic and natural environment dimensions of attachment

Religious Affiliation	t (unequal variances assumed)		
	LDS	Non-LDS	
Social/Economic Attachment	33.69	24.44	-9.86***
<i>N</i>	209	97	
Natural Environment Attachment	19.31	20.34	4.86***
<i>N</i>	215	103	

*** Significant at $p < .001$

In comparison, the mean values for natural environment attachment are lower for those who are LDS compared to non-LDS respondents. For those that are LDS, the mean value for natural environment attachment was 19.31, compared to 20.34 for non-LDS respondents, suggesting that those who are of the LDS faith have a weaker attachment to the natural environment compared to non-LDS respondents. One

explanation for the weaker natural environment attachment among LDS church members may be that the LDS church focuses very heavily on social aspects of the community and encourages high levels of social engagement by its members. This may come at the expense of other activities that may focus more attention on aspects of the natural environment. Furthermore, some research has argued that Mormon leaders and church members promote a belief in the importance of dominion over the environment and an anti-environmental stance (Foltz 2000). However, and in contrast, recent research has found that Mormons within Utah actually tended to express greater levels of environmental concern when compared to a national sample, though their level of environmentally oriented behavior was substantially lower (Hunter and Toney Forthcoming).

In sum, the support for the third research expectation is mixed, but fairly strong overall. Contrary to expectations, respondents did not differ significantly by life cycle stage on social/economic attachment, but there was a statistically significant difference across life-cycle stages on natural environment attachment. In support of the expectation, there was a statistically significant difference between those with children in the home and those without children on social/economic attachment, with respondents who had children in the home exhibiting a stronger mean value for social economic attachment. For historical roots to an area, there was a difference between the two groups on both social/economic attachment and natural environment attachment. Those with historical roots to an area had a higher mean value for social/economic attachment compared to those without historical roots to an area. But

those with historical roots to an area had a lower mean value for natural environment attachment compared to those without historical roots to an area. A similar result was observed for religious affiliation.

REGRESSION ANALYSIS

The next section uses the two analytical approaches to address the fourth research expectation.

RE # 4 - Natural environment and social dimensions of attachment will be correlated with two specific aspects of well-being: collective action and perceptions of open communication.

Multivariate regression analysis and logistic regression are used to examine specific indicators of well-being (collective action and perceptions of open communication) as predictors of the two dimensions of attachment. Due to the lack of variation in the natural environment dimension of attachment, this variable was recoded as a dichotomy, which necessitated the use of logistic regression. Natural environment attachment was recoded with scores of 19-21 coded as 1 (high) and 3-18 coded as 0 (low). This reflects the natural break point in the distribution, with the score of 19 having the second highest percentage of respondents.

Predicting Social/Economic Attachment

Table 15 represents the results of three separate multivariate regression analyses predicting levels of social/economic attachment. Three separate models of prediction were used primarily due to Wilkinson's (1991) distinction between collective action and perceptions of open communication as separate and unique

elements of well-being. Therefore, the analyses first examined the significance of collective action elements as independent predictors of social/economic attachment, and then examined the predictive quality of perceptions of open communication. Finally, it examined both in concert with five key socio-demographic variables: length of residence, religious affiliation, historical roots to an area, presence of children in the home, and life cycle. The inclusion of these five socio-demographic variables was based in part on past empirical work and also for consistency with previous bivariate analyses.

The first model incorporates the independent variables used to address collective action. The results indicate that respondents' levels of civic/social involvement had the strongest statistical association with social/economic attachment. This is consistent with other research on social attachment that has focused on the interaction of family and friends within social networks like church or school groups. The measure addressing attitudes about the importance of involvement was also a statistically significant predictor of the strength of social/economic attachment, and had the next highest association with social/economic attachment. This relationship indicates that when the level of importance respondents place on community involvement is high, the strength of their social/economic attachment is also high. Involvement in land-based production groups was also a statistically significant predictor of strength of social/economic attachment, though weaker than civic/social involvement. This may reflect the inherent agricultural nature of these two areas and the added social significance of organizations that focus on land-based production

issues. Overall, Model 1 accounted for 22 percent ($R^2 = .222$) of the variance in the strength of social/economic attachment.

Table 15: Ordinary least squares regression analysis of predictors of social/economic attachment

	Model 1: Collective Action Variables		Model 2: Open Communication and Civic Engagement Variables		Model 3: Combined Models and Socio- Demographic Variables	
	b	β	b	β	b	β
Civic/Social Involvement	.546***	.322***			.138	.084
Economic/Development Involvement	-.121	-.053			-1.490	-.007
Land-Based Production Involvement	.222*	.185*			.106	.090
Involved in Community Decisions	-.465	-.089			-.120	-.024
Importance of Involvement	.952***	.209***			.323	.073
Interest in Knowing What Goes On			-4.143***	-.318***	-2.732***	-.218***
Satisfaction-Freedom to Express Opinions			.543*	.116*	1.361	.003
Importance-Freedom to Express Opinions			.676*	.107*	.686*	.111*
Religion (1 = LDS)					5.261***	.296***
Length of Residence					3.942**	.147**
Historical Roots (1=yes)					2.775**	.167**
Children in Home (1=yes)					1.567	.095
Life Cycle (Age)					1.107	.021
Constant	20.667***		30.064***		19.557***	
N	260		302		238	
R ²	.222		.143		.426	

* $p < .05$; ** $p < .01$ *** $p < .001$

Model 2 examined the association between three variables addressing perceptions of open communication, attitudes towards civic engagement, and levels of

social/economic attachment. Overall, this model accounts for a lower proportion of the variance in social/economic attachment ($R^2 = .143$) than was the case with Model 1. Interest in knowing what goes on, satisfaction with the freedom to express opinions about community affairs, and importance of the freedom to express opinions about community affairs were all statistically significant predictors of social/economic attachment. Interest in knowing what goes on was reverse coded, therefore the negative association ($b = -4.143$) indicates that as a respondents' interest in knowing what goes on increases, so does the strength of social/economic attachment. This highlights the importance of civic engagement for integrating people into the community and enhancing their social attachments.

The final model incorporates the measures of both collective action and perceptions of open communication, along with respondents' length of residence, religion, historical roots to an area, presence of children in the home, and life cycle (measured as continuous age). Overall, model three explains the largest proportion of the variance in social/economic attachment ($R^2 = .426$). In this model, the statistically significant predictors of social/economic attachment were religion, length of residence, historical roots, beliefs about how important it is to be involved in community decisions, and interest in knowing what goes on in the community. As with Model 2, interest in knowing what goes on was negatively correlated with social/economic attachment ($b = -2.732$) due to the reverse coding, suggesting that interest is associated with strong social/economic attachment. Overall, the associations involving a sociodemographic variable (religion) and attitudes about the broader issue of civic

engagement (interest in knowing what goes on) are the strongest, independent of beliefs about collective action or perceptions of open communication. The significance of religion in our study is consistent with past research on the Mormon culture region, which has argued that membership in the LDS church provides an instant social connection to a community (Toney, Stinner, and Byun 1997). Interest in knowing what goes on may reflect a desire to be socially connected to the community through awareness of local issues. To have strong social/economic attachment, it is presumed that a respondent must also possess a certain level of interest in or desire for involvement, which is reflected in these findings.

Predicting Natural Environment Attachment

Table 16 shows the results of three separate logistic regression analyses predicting levels of natural environment attachment. The same three separate models of prediction are used for natural environment attachment for the previous analyses of social/economic attachment predictors. The first model, which incorporates as independent variables the five measures used to address aspects of collective action, indicates that the importance of involvement measure had the strongest association with natural environment attachment, and that the association is statistically significant at the .01 probability level. None of the three specific types of involvement or overall levels of involvement were significant predictors of natural environment attachment. Overall, Model 1 explains a very small proportion of the variance in natural environment attachment (Pseudo $R^2 = .032$).

Table 16: Logistic regression on natural environment attachment on selected predictor variables

	Model 1: Collective Action Variables		Model 2: Open Communication and Civic Engagement Variables		Model 3: Combined Models and Socio- Demographic Variables	
	<i>Odds Ratio</i>	<i>Parameter Estimates</i>	<i>Odds Ratio</i>	<i>Parameter Estimates</i>	<i>Odds Ratio</i>	<i>Parameter Estimates</i>
Civic/Social Involvement	.987	-.013			1.015	.015
Economic/ Development Involvement	1.070	.068			1.070	.067
Land-Based Production Involvement	.982	-.018			1.023	.023
Involved in Community Decisions	.929	-.074			.859	-.152
Importance of Involvement	1.268**	.238**			1.107	.101
Interest in Knowing What Goes On			.712	-.339	.847	-.166
Satisfaction– Freedom to Express Opinions			.927	-.076	1.008	.008
Importance– Freedom to Express Opinions			1.327**	.283**	1.372**	.316**
Religion (1 = LDS)					.775	-.255
Length of Residence					1.000	.000
Historical Roots (1=yes)					.780	-.249
Presence of Children (1=yes)					.577	-.550
Life Cycle (age)					.970*	-.030*
<i>N</i>	263		305		238	
Pseudo R ²	.032		.044		.133	

* $p < .05$; ** $p < .01$ *** $p < .001$

The second model incorporates the three variables that measure perceptions of open communication. Compared to Model 1, perceptions of open communication

explain only a slightly greater proportion of the variance in natural environment attachment (Pseudo $R^2 = .044$). The importance that respondents place on their freedom to express opinions was the only variable that was a statistically significant predictor of natural environment attachment.

The final model combines both measures of collective action and perceptions of open communication with the five socio-demographic variables. Model 3 further improves the proportion of the variance explained in natural environment attachment, but it is still low (Pseudo $R^2 = .133$). As with Model 2, the variable that emerged as having the strongest statistically significant relationship with natural environment attachment was importance of the freedom to express opinions about community affairs. Life cycle also reached statistical significance, though only at the .05 probability level. Neither the relationship between length of residence or religion attained statistical significance. This is in direct contrast to social/economic attachment, where both length of residence and religion were statistically significant predictors. This difference in relationships further reinforces the distinctiveness of these two dimensions of attachment.

In sum, regression analyses provide partial support for the fourth research expectation: that there would be a correlation between natural environment and social dimensions of attachment and two specific aspects of well-being: collective action and perceptions of open communication. In the analysis of predictors of social/economic attachment, indicators of both collective action and perceptions of open communication were moderate predictors of social/economic attachment when

examined alone. This indicates that social/economic attachment and well-being are linked in significant ways. However, when religion and length of residence were included in the analysis, the indicators of well-being became much weaker predictors of social/economic attachment. As past empirical work has demonstrated, length of residence and religion are strongly associated with social attachment.

In the analysis of predictors of natural environment attachment, indicators of collective action and perceptions of open communication were weaker predictors, although there was evidence of a link between dimensions of natural environment attachment and well-being. When the five socio-demographic variables were included in the model, only life cycle and importance of the freedom to express opinions reached statistical significance as predictors of natural environment attachment. This demonstrates that the natural environment dimension of attachment is rather distinct from the social dimension, further supporting the initial factor analysis results.

CONFIRMATORY FACTOR ANALYSIS

The final analysis section presents the results from the Structural Equation Modeling (SEM) data analyses procedures described in Chapter III. This analysis was designed to explore conceivable causal linkages between well-being outcomes as a direct result of the two dimensions of attachment. Regression analysis demonstrated that a correlation between the two dimensions of attachment and well-being does exist and is stronger for social/economic attachment than for natural environment attachment. Based on these findings, SEM was employed to explore the nature of these correlations in terms of a causal relationship. Although not presented

specifically in the form of a research expectation, I suggest that it is logical to assert a causal relationship between community attachment and community well-being.

However, the direction of this causal relationship is still unclear. Therefore, the initial assumption presented in an a-priori theoretical model in Chapter II (see Figure 2) suggests that the causal relationship may actually occur in both directions. Therefore, the following two causal relationships were explored through the use of Structural Equation Modeling:

Natural environment and social/economic dimensions of community attachment contribute directly to dimensions of community well-being.

Dimensions of community well-being contribute directly to natural environment and social/economic dimensions of community attachment.

Given the theorized causal relationships between attachment and community well-being, SEM is the most appropriate way to actually test this theoretical expectation with the empirical data. Models produced using SEM provide an explanation of why two or more variables are or are not related, what relationships to expect in the data, and what relationships are not expected to emerge. In this theoretical model, the expected relationships between the two dimensions of attachment and community well-being are described. SEM is used in addition to regression analyses because SEM works from the assumption that every theory implies a set of correlations. If the theory is valid, then the theory should be supported by the patterns of correlations found in the empirical data (Kelloway 1998).

All analyses were completed using the LISREL computer software program, version 8.03 for Windows. Models were tested in two separate phases. A total of four

"a priori" models were tested on the data in phase one. The first model theorized that the two observed constructs of attachment (social/economic and natural environment) had a direct causal link to observed measures of the latent construct of well-being. Three observed indicators of collective action and three observed indicators of open communication measured well-being. Three additional models were also tested that incorporated observed socio-demographic measures and additional observed measures of both attachment and well-being. In a second phase, three alternative models were tested based on model respecification guided by output from the LISREL program and by logical analysis. The LISREL output included modification indices that identified possible relationships between and among the indicator variables and factors that were not specified in the initial models in phase one. All model tests were based on the covariance matrix and used maximum likelihood estimation as implemented in LISREL 8.03 for Windows.

An important assumption underlying both SEM and factor analysis is that variables are normally distributed. Summary statistics run in SPSS version 10.1 for the eight continuous observed variables showed that three had distributions that were very skewed. Three variables; importance of protecting freedom to express opinions about community affairs, natural environment attachment, and social/economic attachment, were negatively skewed. Five variables; how involved in community decisions, how interested in knowing what goes on in the community, civic/social involvement, economic/development involvement, and land-based production involvement, were only slightly positively skewed. Even after the inverse,

logarithmic, and square root transformations were applied to the non-normal variables, the normality of the distributions was not improved. Therefore, the variables were retained in their original form.

Joreskog and Sorbom (1986) argue that the caution is necessary in evaluating the *absolute* model fit when using variables that do not meet the assumption of normality. However, when the objective is to evaluate the *relative* fit of competing models, variables with moderate to high non-normal distributions may be used (Joreskog and Sorbom 1986). The objective of this part of the research is to compare the goodness of fit of modified models, therefore the skewness associated with the majority of the indicators was not considered to be a significant barrier to the analyses.

Phase One

Four different fit statistics were used to evaluate the different models in the first phase. The chi-square/df ratio is a fit index that penalizes models that have a large number of parameters in favor of simpler models (Tanaka 1993). In contrast, the goodness-of-fit index (GFI) and adjusted goodness-of-fit index (AGFI) are both functions of chi-square but do not depend on sample size. They both measure how much better the specified model fits the data compared to no model at all and range between 0 and 1, with values closer to 1 indicating a better fit of the model to the data. The AGFI takes into account the degrees of freedom used in estimating the parameters (Knoke et al. 2002). GFIs above .90 and AGFIs above .80 are indicative of a good fitting model (Cole 1987). The root mean square error of approximation (RMSEA) measures the discrepancy per degree of freedom, and a value of $\epsilon \leq .05$ indicates a

“close” fit, while values up to .08 indicate “reasonable” errors of approximation in the population (Knoke et al. 2002).

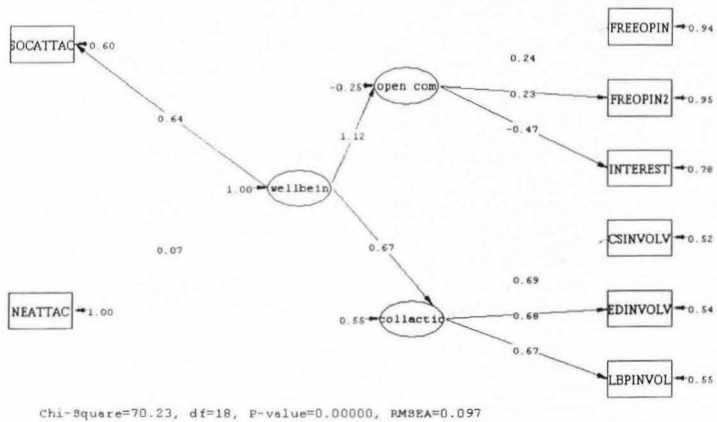
Table 17 provides an overview of the four goodness-of-fit statistics for the four models tested in phase one. To summarize, the smaller the chi-square/df ratio and RMSEA value, the better the fit. Conversely, larger GFI and AGFI values indicate a better fit. Model 1 (Figure 5) was one of the two best fitting models of all those tested. The RMSEA (.097) and the chi-square/df ratio (70.23/23) were the second lowest of all the models, and the GFI (.95) and the AGFI (.89) were the highest, indicating a good statistical fit of the model to the data. The standardized path values at the structural level of analysis are all significant at $p < .05$ or lower, with the exception of a non-significant path from well-being to natural environment attachment. Deleting the non-significant path from the model did not result in a significant change to the model fit (RMSEA=.094; GFI = .95; AGFI= .90). The path from open communication to interest is negative due to the reverse coding of that variable. The standardized coefficients suggest that social/economic attachment ($\beta = .64$) has a stronger influence on community well-being compared to natural environment attachment ($\beta = .04$).⁶

⁶ Due to the relatively small sample size, adding additional observed constructs significantly reduces the ability of the model to converge. This is another reason that only the two most significant socio-demographic variables were employed in the model.

Table 17: Summary of phase one model fit statistics

Model	Goodness of Fit Statistics			
	<i>Chi-square/df</i>	<i>RMSEA</i>	<i>GFI</i>	<i>AGFI</i>
1	70.23/18	.09	.95	.89
2*	-	-	-	-
3	63.00/33	.00	.89	.81
4*	-	-	-	-

*fit statistics were not generated because the model did not converge after 250 iterations. (N=300)

**Figure 5: Model 1**

Models 2 and 4 do not have any fit statistics because the models did not converge after 250 iterations. Model 2 was modified to allow for additional indicators of collective action; overall level of involvement and how important it is to be involved. This was done to mirror the previous regression analyses that included these two variables as measures of collective action. Theoretically, it was presumed that additional measures of collective action would actually improve the overall model fit to the data. Model 4 was modified to allow for the individual variables to act as the observed indicators of the latent constructs of the dimensions of attachment, types of collective action, and perceptions of open communication. From a theoretical perspective, it was presumed that allowing each indicator to act as the observed measure would allow for greater clarity and specifically the identification of indirect effects. However, neither of these approaches were successful. The lack of model fit implies that the models were empirically implausible. This may be due in part to the relatively small sample size ($N=300$), combined with the high correlation between the observed indicators of attachment, in essence measuring the same thing.

Model 3 (Figure 6) was modified from the initial Model 1 to allow for the influence of both religion and length of residence. This was done in part to mirror the previous regression analyses where religion and length of residence emerged as the strongest predictors of social/economic attachment, lessening the strength of the well-being indicators. The remaining three socio-demographic variables (historical roots, presence of children, and life cycle) were not included in the model due to either their

lack of statistical significance or their lower degree of association compared to religion and length of residence.

Model 3 provides a better fit to the data compared to the initial model based on the RMSEA statistic (.000), but a slightly weaker fit based the AGFI and GFI. The results imply that religion ($\beta = .61$) and length of residence ($\beta = .46$) take up a notable portion of the variance, and have a moderate influence on well-being. These results are consistent with the previous regression analyses which demonstrated that both religion and length of residence were strong predictors of social/economic attachment, but much weaker predictors of natural environment attachment. However, social/economic attachment retains the strongest influence on well-being ($\beta = .85$), while natural environment attachment actually has a small negative influence ($\beta = -.07$).

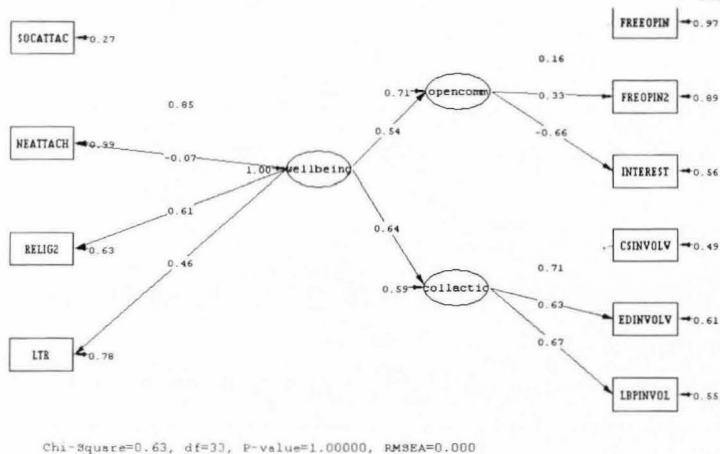


Figure 6: Model 3

Phase Two - Model 1 Modifications

Even though Model 3 provided the best overall model fit statistic based on the RMSEA, Model 1 was modified in phase two according to the modification indices that were generated and theoretical assumptions. This was done to allow for continued exploration of the nature of the original theoretical assumption that focused specifically on the causal relationship between attachment and community well-being. Joreskog and Sorbom (1993) emphasize the importance of using the LISREL output in conjunction with logical analysis to assure that meaningful and interpretable changes are made. In post hoc readjustment procedures, it is important to only modify

parameters when there is a logical or theoretical justification because modification information from programs such as LISREL can be the result of random errors of measurement (Bentler 1980).

Table 18 provides an overview of the goodness-of-fit statistics for the two model modifications that were tested. Model 1.1 (Figure 7) was the best-modified fit to the data (RMSEA= .075; GFI= .97; AGFI= .92). This model allowed for error covariance between two types of involvement, economic development involvement and land-based production involvement, and also between the importance of the freedom to express one's opinion about community issues and the level of interest in what is going on in the community. This modification did not substantially alter the influence of either social/economic attachment ($\beta = .59$) or natural environment attachment ($\beta = .02$) on well-being.

The error covariance between the two types of involvement makes logical sense because both types of involvement are related to underlying economic concerns. For example, land-based production groups have a focus on the economic viability of agricultural operations. At the same time, economic/development groups may not focus specifically on agriculture-related economic development, but they do emphasize broader economic development issues which may also be of interest to those involved in land-based production organizations. The error covariance between interest in knowing what goes on and the importance of protecting the freedom to express your opinion about community affairs makes logical sense as well. Those

respondents who have a strong interest in community affairs would logically consider it important to protect their freedom to express their opinion about community issues.

Table 18: Summary of phase two model fit statistics

Model	Goodness-of-Fit Statistics			
	Chi-square/df	RMSEA	GFI	AGFI
1.1	43.67/16	.075	.97	.92
1.2	86.22/18	.111	.93	.87

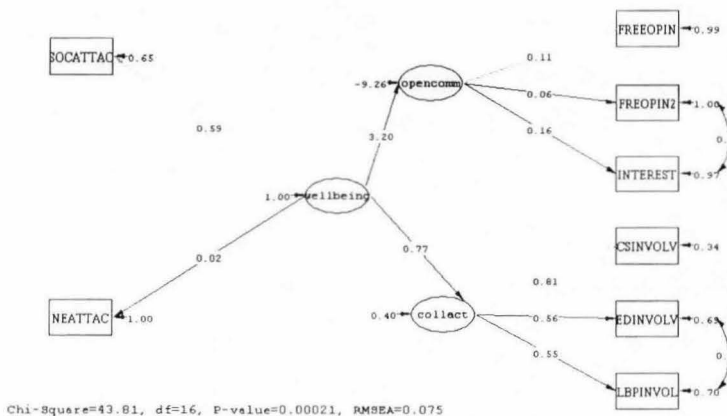


Figure 7: Model 1.1

The second revised model, Model 1.2, was modified to reverse the relationship between attachment and community well-being (see Figure 8). This was done primarily to investigate the theoretical assumption that well-being may have a greater influence on attachment as compared to the influence of attachment on well-being. The goodness-of-fit statistics (RMSEA = .111; GFI= .93; AGFI= .87) indicate that this model is actually a worse fit to the data, compared to the initial theoretical model (Model 1). However, the standardized coefficients suggest that community well-being actually has more influence on social/economic attachment ($\beta = 2.60$) than social/economic attachment has on well-being. Furthermore, the influence of community well-being on natural environment attachment is also stronger ($\beta = .14$) compared to natural environment attachment's influence on community well-being. These results imply that although the theoretical assumption that attachment influences community well-being (Model 1) is supported by the overall goodness-of-fit statistics, there is sufficient evidence to also argue the converse, that well-being actually causes attachment.

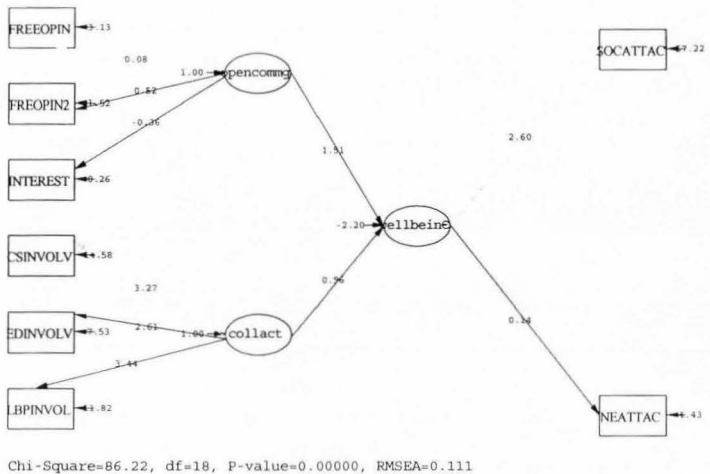


Figure 8: Model 1.2

In sum, both the theoretical model proposed in this research, with minor modifications for covariance (Model 1.1), and Model 3, which allowed for the effects of religion and length of residence, provided strong overall fits based on the patterns of correlations found in the empirical data (Figure 6 and 7). In Model 1.1 there is support for a causal relationship between the two dimensions of attachment and two measures of community well-being, collective action and perceptions of open communication. Model 3 indicates that both length of residence and religion have a strong influence on

community well-being. This is consistent with previous empirical work and demonstrates the complexity of factors that may cause community well-being. The weak influence of natural environment attachment dimension in all the models is likely a result of the lack of variation in the measurement.

In Model 1.2 (Figure 8) the theoretical causal relationship was reversed and the assumption that community well-being causes attachment was tested. Even though the goodness-of-fit statistics are acceptable (GFI = .93; AGFI = .87) the theoretical model that attachment causes well-being, with covariance modifications, provides a better overall fit (GFI = .97; AGFI = .92). However, when comparing the first causal model, minus modifications (Model 1) with the reverse relationship model (Model 1.2) there is little difference in the goodness of fit statistics (Model 1: RMSEA = .09; GFI = .95; AGFI = .89. Model 1.2 RMSEA = .111; GFI = .93; AGFI = .87). These statistics imply that without modifications for covariance, there does appear to be an equally strong causal relationship in both directions. The standardized coefficients in Model 1.2 also support the assertion that there is a strong causal relationship from community well-being to attachment. These findings indicate that there is no distinct causal relationship between attachment and well-being in one direction versus another. This, in essence, disproves my initial theoretical assumption of a distinct causal relationship that favors one direction over the other.

CHAPTER V

DISCUSSION AND CONCLUSIONS

Attachment and well-being by themselves have been the subjects of significant empirical research, but very few studies have examined the relationships between these two constructs. Furthermore, most previous empirical work has focused solely on social attachment, with little consideration of natural environment aspects of attachment. This chapter highlights the major findings of the study which addresses these issues, in three major sections. The first section summarizes the key findings as they relate to the four specific research expectations. The second section discusses the implications of the findings in relation to community development and policy. The third section discusses limitations of the study and presents suggestions for further research.

SUMMARY OF RESEARCH EXPECTATIONS

There were four specific research expectations for this research. First, it was presumed that it was possible to distinguish and measure both social and natural environment dimensions of overall community attachment. Second, it was presumed that long-term residents' community attachment would be more influenced by variables related to social aspects, such as friends, family, and social groups, while recent in-migrants' community attachment would be more likely to be influenced by variables related to the natural environment, such as the landscape, clean air and water,

and outdoor recreational opportunities. Third, it was presumed that life cycle stages, the presence of children in the home, historical roots to an area, and religious affiliation would be more strongly related to community attachment involving social dimensions than natural environment dimensions. Finally, it was presumed that natural environment and social dimensions of attachment would be correlated with two specific aspects of well-being: collective action and perceptions of open communication.

Two Dimensions of Attachment

The first research expectation argued that community attachment could be expanded beyond previous conceptualizations to allow for both social *and* natural environment dimensions. Factor analysis of 15 attachment items produced two distinct dimensions of attachment, social and natural environment, with very little correlation between the two dimensions. Elements of the natural environment clearly play a significant role in the overall emotional and sentimental attachment to a community, particularly amongst residents of these high-amenity rural communities in the Rocky Mountain West. However, it is important to note social/economic attachment *also* emerged as a separate and significant dimension of community attachment, supporting past empirical work. It is clear from this analysis that community attachment is much more complex than simply the social relationships that occur in a locality. These findings support the argument to expand the conception of community attachment to incorporate aspects of the natural environment.

The second research expectation examined the differences in dimensions of attachment based on length of residence. The data provide only partial support for this expectation. The results for social/economic attachment are consistent with previous empirical work that suggests a strong correlation between length of residence and social ties and attachment (Beggs et al. 1996, Goudy 1990; Kasarda and Janowitz 1974). In this study, the relationship between length of residence and social/economic attachment is statistically significant; long-term residents have a stronger social/economic attachment compared to newcomers.

However, when considering differences on natural environment attachment, the data do not support the research expectation. There is no statistically significant difference between long-term residents and newcomers with respect to the strength of natural environment attachment. Therefore, the specific expectation that newcomers' community attachment will be more influenced by natural environment variables compared to long-term residents is not supported by the data. It appears that the strength of attachment to the natural environment is almost equally shared amongst respondents, regardless of their length of residence, and that length of residence does not play a significant role in differentiating between strong natural environment attachments.

The third research expectation focused on variations in attachment on four key independent variables; life stage, presence of children in the home, historical roots to an area, and religious affiliation. There was not a statistically significant relationship between social/economic attachment and life cycle stage. Social/economic attachment

appears to be strong and remains rather stable throughout the life cycle. In comparison, natural environment attachment has a higher degree of variation across the five life cycle stages, and the relationship reaches statistical significance, although the overall level of attachment was also high regardless of life cycle stage. Those 65 and older are statistically different from three of the four remaining life cycle stages, based on Fisher's least significant difference tests. These findings parallel earlier work that has found age to be one of the best indicators of environmental concern (Buttel 1979; Honnold 1984; Mohai and Twight 1987).

One explanation for the significant difference for those 65 and older may be cohort differences. Honnold (1984) argued that important events that occur during the crucial adolescent and young adult phases could permanently affect a cohort. For example, those respondents 65 and older grew up in an era that preceded such environmental movements as "Earth Day" and also included such influential events as the Great Depression. These life-events may have influenced their lower level of attachment to the natural environment by framing their relationship to the environment more in terms of a utilitarian perspective focused on the "use" of nature to support human life. In contrast, those in the lowest age category (18-29) consist of a cohort that grew up in a period when environmentally oriented activities such as recycling were more commonplace and a social concern for the environment was broadly accepted and promoted through "green consumerism" and college courses.

A final explanation for the differences in natural environment attachment among the five age categories is the aging process. Honnold (1984) found that aging

processes might play a critical role at transitional life stages in levels of environmental concern. Differences on environmental attitudes may be the result of differences in the sociobiological process of aging, meaning that the young are often more willing to take risks and support antiestablishment movements (Honnold 1984). This would imply that those in the younger age categories are more likely to express stronger attachment to the natural environment due in part to their stronger propensity to show environmental concern. Although the data do not present a straight linear decline in natural environment attachment from youngest to oldest, the strongest natural environment attachment does occur for the youngest age category and the weakest is for the oldest age category. It is likely that aging processes, along with cohort differences, play a role in the differences in natural environment attachment among respondents in this study.

For the variable presence of children in the home, the data support the third research expectation. On social/economic attachment, respondents with children differ significantly from respondents without children in the home. Those with children in the home had a stronger social/economic attachment compared to those without children in the home. The presence of children in the home may provide a natural link to social aspects of the community through networks tied to the school system and other extracurricular activities. In contrast, the lack of children in the home appears to diminish such social attachments. However, there is no statistically significant difference between respondents with children in the home and those without children in the home on natural environment attachment. The data support the third research

expectation and demonstrates that presence of children in the home has a much greater association with social/economic attachment than with natural environment attachment.

When considering historical roots to an area, the data support the third research expectation. There was a statistically significant difference between groups of respondents for both social/economic attachment and natural environment attachment. As expected, those with historical roots to an area had a significantly stronger social/economic attachment compared to those without such historical roots. Past empirical work has suggested that historical ties and connections positively influence current levels of social attachment (Kasarda and Janowitz 1974). The data support this and suggest that previous connections to an area are positively associated with current levels of social/economic attachment. These results are logical, since many respondents with historical roots to an area will have maintained some level of social connection during their absence, which would only enhance the strength of such attachments upon their return.

There was also a statistically significant difference between respondents when compared on natural environment attachment. However, the relationship was in the opposite direction of that for social/economic attachment, with a weaker natural environment attachment for those with historical roots to an area compared to those without historical roots to an area. In sum, the data demonstrate that historical roots to an area are associated with increased social/economic attachment, but not natural environment attachment, therefore supporting the research expectation.

The last variable examined in the third research expectation was religion. The data supported the research expectation, with statistically significant differences on religion for both social/economic attachment and natural environment attachment. Those respondents that were LDS had a significantly stronger social/economic attachment compared to those that were not LDS. These results further support previous empirical work that argued that membership in the Mormon (LDS) Church provides enhanced social connections in a community, regardless of how long a person has lived there. These results are not unusual given that the two study sites are historic Mormon settlements, and the LDS faith is still adhered to by a majority among respondents (68 percent overall).

Differences in religion were also statistically significant on natural environment attachment, but in the opposite direction. LDS respondents had a weaker natural environment attachment compared to non-LDS respondents. One explanation for lower attachment to the natural environment among LDS church members may be that the church places a great emphasis on social aspects of the community and encourages high levels of social engagement by its members. The focus is placed on social aspects of the community such as family, friends, and other social ties therefore heightening levels of attachment to these dimensions. Another perspective argues that Mormon beliefs perpetuate a more utilitarian view of nature and the environment, one that focuses on dominance of the land to sustain the people (Foltz 2000; Jackson 1972). Since this research used a measure of natural environment attachment that focused on more emotional and aesthetic aspects of the natural environment, such as

natural landscapes/views and the presence of wildlife, this utilitarian view of the natural environment may be reflected in the lower natural environment attachment value in this study compared to non-LDS respondents. I suspect that if more utilitarian measures of natural environment attachment were used, such as the ability to farm the land or harvest natural resources, that the strength of natural environment attachment would be greater among LDS respondents.

Linking Attachment and Community Well-Being

The fourth research expectation focused on determining how variations in attachment may be linked to the broader well-being of rural communities. Specifically, I argued that social and natural environment dimensions of attachment would be correlated with two specific aspects of community well-being: collective action and perceptions of open communication. In the analysis of predictors of social/economic attachment, indicators of both collective action and perceptions of open communication were moderate predictors of levels of social/economic attachment when examined alone. This indicates that social/economic attachment and community well-being are linked in significant ways. When the five socio-demographic variables (length of residence, religion, historical roots, presence of children, and life cycle) were included in the analysis, the indicators of community well-being became weaker predictors of social/economic attachment, but remained statistically significant. Religion, length of residence, and interest in knowing what goes on emerged as the strongest predictors of social/economic attachment, with historical roots having a weaker but still statistically significant association. These

findings are consistent with past empirical work, which has demonstrated that length of residence and religion are strongly associated with social attachment.

In the analysis of predictors of natural environment attachment, indicators of collective action and perceptions of open communication were weaker predictors than they were in models predicting the strength of social/economic attachment. Again, this indicates that there is an important difference between these dimensions of community attachment. Also, when the five socio-demographic variables (length of residence, religion, historical roots, presence of children, and life cycle) were included in the model, only life cycle and importance of the freedom to express opinions reached statistical significance as predictors of natural environment attachment. This further demonstrates that the natural environment and social dimensions of attachment are truly distinct from the social dimension, and that they are associated with different attributes and orientations of local community residents.

Structural Equation Modeling (SEM) was also used to examine specific causal relationships between the dimensions of attachment and community well-being. After various models were tested for their goodness-of-fit, the data best supported two models, the initial theoretical model proposed in Chapter II with only minor modifications (see Model 1.1, Figure 7) and the model that included both length of residence and religion as having a causal relationship with community well-being (see Model 3, Figure 6). The initial theoretical model supports the fourth premise that natural environment and social dimensions of attachment will be correlated with two specific aspects of community well-being: collective action and perceptions of open

communication. However, Model 3 demonstrates that there is a much greater complexity of variables that influence community well-being than simply attachment, which is also demonstrated by the regression analyses.

Model 1.1 represents the theoretical assumption that there is a causal relationship between the two dimensions of attachment and community well-being— in short, that both social and natural environment dimensions of attachment cause well-being. The goodness of fit statistics supports this theoretical assumption. However, when the model was reversed—testing the theory that community well-being causes increased social/economic and natural environment attachment—the standardized coefficients provide strong evidence for that theoretical assertion. In sum, Structural Equation Modeling results suggest that there is a causal relationship between the two dimensions of attachment and community well-being, but the direction of that causal relationship is not clear and open to more investigation.

COMMUNITY DEVELOPMENT AND POLICY IMPLICATIONS

This research supports the need to focus additional attention on identifying and measuring multiple dimensions of attachment, and to further explicate their associations with levels of community well-being. Furthermore, these findings have several implications for both community development and policy considerations, especially within the rural Rocky Mountain West. First, these findings have significance for community development efforts that seek to enhance attachment, particularly in rapidly growing, high natural amenity rural communities. Efforts that have previously focused on building social networks and linkages as a means of

enhancing attachment would benefit from consideration of the role that the natural environment plays in attachment. This is an especially important consideration in communities where growth and development may threaten the very natural environment attributes that people are attracted by and attached to.

In communities where vast amounts of public land dominate the landscape, such as the two areas in this study, consideration of the role of the natural environment becomes even more significant. Public lands are an integral part of these communities and provide a crucial link to their identity and survival. Past research on attachments to special places on public lands has clearly identified the need to incorporate considerations of social factors into the management of public lands (Eisenhauer et al. 2000; Mitchell et al 1993; Williams et al. 1992). It is therefore logical to assert that the significance of attachment to these natural landscapes and public lands needs to be incorporated into efforts to enhance overall community attachment and well-being.

In addition, past empirical work has demonstrated a linkage between attachment to a local natural resource and environmentally responsible behavior. Vaske and Kobrin (2001) found that encouraging an individual's connection to a natural setting actually facilitated the development of general environmentally responsible behavior. Based on this past work, and findings in this study, I suggest that acknowledgement and encouragement of natural environment dimensions of attachment may enhance the ability of communities to pursue more sustainable development efforts for the future by encouraging environmentally responsible behavior and awareness amongst their residents.

Second, these findings identify potential areas of converging interest that could foster local collective action. In the high natural-amenity communities examined in our study, length of residence was not statistically significant in relationship to natural environment attachment. This is understandable, given that the high level of natural resource amenities is a key factor influencing both population retention and immigration in these communities. The fact that only two variables emerged as statistically significant predictors, even when natural environment attachment was dichotomized, reinforces the observation that strength of attachment to the natural environment is broadly shared amongst respondents in the study population. Natural environment aspects appear to be important to virtually all residents' attachment, regardless of how long they have lived there.

This convergence of interest in and attachment to the natural environment provides a potential "common ground" for local collective actions. When conflict arises over community change or land use, it may be the natural environment aspects that will provide the focal point for collective action, regardless of how long a person has lived in the community. As Kemmis (1990) states, it is precisely this shared emphasis on the natural environment that forms the foundation for future collective action in many locales. Wilkinson argued that "models of social well-being for the future clearly must consider ecological well-being as a parameter" (1991: 69-70), a point further advanced in Stedman's recent work on community sustainability (Stedman 1999).

LIMITATIONS AND SUGGESTIONS FOR FURTHER RESEARCH

While these findings have several important limitations, they also highlight potential areas for improved and expanded research in the future. First, although this research has demonstrated that natural environment attachment is a distinct and unique dimension of attachment, it also raises questions about measurement of that dimension. Natural environment attachment was measured in a somewhat limited manner in this study, and little response variation was evident. The measures of natural environment attachment in this study are focused on aesthetic and idealistic aspects and could easily be expanded to allow for more variability. The results from this study provide justification for further work and revision on measuring natural environment attachment, with a goal of more effectively capturing the variability that is undoubtedly present in types and degrees of attachment to the natural environment context.

A next logical step would be to expand the measurement of this dimension to include additional variables. This would also address the lack of variability on natural environment attachment that was found in relation to the five independent variables: length of residence, life cycle, presence of children in the home, historical roots to an area, and religion. Part of the lack of association with these independent variables is a direct result of the highly skewed natural environment dimension itself. Revising the measurement of natural environment attachment and capturing a greater degree of variability may also allow for more effective delineation of how such attachment may

vary across types of residents such as was represented by the independent variables considered in this study.

In order to more fully allow for variability within natural environment attachment, it may be useful to more clearly distinguish between the different dimensions and contexts that are likely to influence natural environment attachment. For example, additional measures of natural environment attachment may include clearly distinguishing between types of activities that pertain to the natural environment such as providing sustenance for themselves and their families (ranching, logging, farming, etc.) and various types of more recreational activities. It may also be useful to ask respondents to reflect on the more spiritual or emotional attachments they may have to the natural environment, such as “the landscape provides me with a sense of peace” or reflections on specific natural features of the landscape.

Another limitation is that the two study areas examined here are somewhat unique in their abundance of natural amenities, specifically public lands, which may also influence the degree of importance that respondents place on them. These two areas are widely recognized for these natural amenities, and their rapid growth rates between 1990 and 2000 are a reflection of this. Due to this, it is unclear from this study whether or not the natural environment dimension of attachment is something that can be generalized beyond areas that possess this unique amenity resource abundance. Machlis, Field, and Campbell (1981) found that national park visitation was more closely correlated with social characteristics than with the abundance of opportunities. This suggests that the simple abundance of natural amenities may in

fact not be as influential on attachment by itself. It would be valuable to expand the focus of future research to include areas and communities that have a wider range of natural amenities and a greater variety of land ownership patterns.

In addition to the unique abundance of natural amenities in these two study sites, both communities also share the atypical characteristic of being historic Mormon settlements and retaining an LDS majority in the population. The dominance of the LDS religion creates distinctive social structures, networks, and processes. These conditions limit the generalizability of the findings to other rural communities that have a more diverse and broad religious representation.

One logical approach to address these issues would be to expand the existing analysis to include a more diverse representation of high natural amenity rural communities. Expansion of the analysis to include communities outside of the Rocky Mountain West would allow for a greater understanding of the diverse nature of natural environment attachment and its potential relationship to well-being. It would be beneficial to also expand the contextual nature of the communities to include communities that have a broader representation of ethnicities, religious affiliation, growth rates, and other socio-demographic variables. For example, Jones, Fly, Talley, and Cordell (2003) used communities in southern Appalachia to examine the linkage between amenity-based in-migration and rising environmental values. Although much of the migration-related growth in these communities is based on the presence of natural amenities, the growth in this region began to exceed national rates as early as the 1970s and the region is much more ethnically diverse than the "Mormon Culture

Region.” Inclusion of such communities would shed some additional light on the nature of natural environment attachment and how it may vary across different community contexts.

Finally, although the Structural Equation Modeling analysis did support a causal relationship between attachment and community well-being, there is evidence that the relationship may in fact be non-recursive in nature. It would be valuable to extend the Structural Equation Modeling analysis to include more advanced techniques such as non-recursive models, which are beyond the scope of this study and the ability of this researcher. However, consideration of non-recursive models would provide a more definitive representation of the complex relationship between dimensions of attachment and community well-being and the various indirect effects on that relationship. Inclusion of other key socio-demographic variables such as length of residence and religion in the non-recursive models would also help to further elucidate the complexities of the relationship between attachment and well-being. Finally, community well-being was measured using only two observable dimensions: collective action and perceptions of open communication. Adding at least two of the remaining conditions of community well-being (distributive justice and tolerance) identified by Wilkinson (1991) may allow for greater clarity in model specification.

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APPENDICES

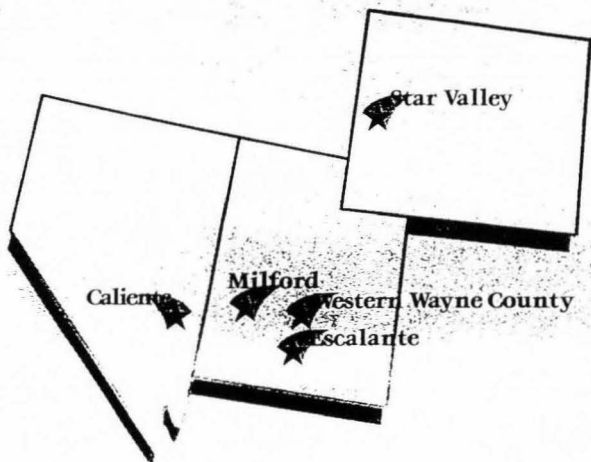
Appendix A
Map of Study Sites

MAP OF STUDY SITES



Appendix B
Survey Questionnaire

Rural Community Change in the Intermountain West



Institute for Social Science Research on Natural Resources

UtahState
UNIVERSITY

INSTITUTE FOR SOCIAL SCIENCE RESEARCH ON NATURAL RESOURCES
Logan UT 84322-0730
Telephone: (435) 797-1230
FAX: (435) 797-1240

Dear Resident,

The Institute for Social Science Research on Natural Resources at Utah State University is conducting a study that examines social and economic changes affecting small towns in the Rocky Mountain Region. A total of five communities throughout Utah, Nevada, and Wyoming have been selected to participate in this study. We are interested in how residents feel about their community and the changes that have been occurring, and how they are involved in community affairs and activities. The goal of this project is to help rural communities to better understand and respond to changes that are occurring throughout the region.

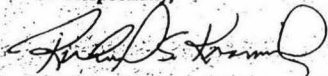
While your participation is voluntary, we hope that you will help us by completing this questionnaire. The overall results of the study (but no individual responses) will be provided to community leaders in all of our study areas.

A scientific random sample of households has been selected in your community. Every household has a chance to be included in the sample. If the results are to accurately reflect the views of persons in your area, we need to obtain responses from as many people as possible.

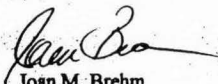
The questionnaire is divided into several major sections, each of which is of equal importance. Please answer each question in the manner specified. If you wish to make additional comments or explain your answer, feel free to use any blank space, or include a letter along with the completed questionnaire. All of your answers will remain completely confidential. So that the information you provide can not be identified with you in any manner, please do not put your name on the questionnaire.

When you have finished answering all of the questions, please seal the questionnaire in the envelope provided: a member of our research team will pick up the questionnaire within 48 hours. If you do not plan to be home, a plastic bag is provided so that you can hang the completed questionnaire on the outside of your door. If you have any questions, or if we can be of any assistance, please feel free to call Richard S. Krannich (project director) at (435) 797-1230.

Respectfully,



Richard S. Krannich
Professor of Sociology



Joan M. Brehm
Research Assistant

This questionnaire has four main sections. The first section asks about satisfaction with certain aspects of your community, and how important those aspects are to you. The second section asks about the types of groups that you are involved in and your participation in various community activities. The third section asks about social and sentimental attachment to your community. The final section asks some basic questions about your background and your history of moving.

The five communities of Star Valley, WY; Milford, UT; Escalante, UT; Western Wayne County, UT; and Caliente, NV were selected for this study because each is experiencing varying levels of change and transition. We want to know more about the types of changes that are occurring, how change is affecting residents of these places, and how people feel about such changes.

PLEASE READ THE FOLLOWING BEFORE STARTING THE QUESTIONNAIRE

When we refer to Star Valley, we mean the communities of Alpine Junction, Etna, Freedom, Grover, Thayne, Afton, and Smoot. When we refer to Western Wayne County, we mean the communities of Loa, Bicknell, Lyman, Torrey and Teasdale.

To make sure we have a random sample in our responses, we use the following method to select who fills out the questionnaire:

The person who fills out the questionnaire should be the person 18 years of age or older who has had the most recent birthday. This person must be a permanent resident of the household. This means the person is not a guest or someone who rents a room from you.

It is essential that only one person in the household fills out the questionnaire. This means that the person who starts the questionnaire should be the one who finishes it. It also means that all the opinions should be those of the person who completes the questionnaire. We do not want your spouse's or some other person's opinions. We need your opinions and your opinions alone. Remember, all of your answers are confidential. The information you provide will not be identified with you in any manner.

Please complete the questionnaire by circling the appropriate answer, checking the appropriate box, or filling in the blanks provided. If you do not know the answer to a question, simply write in DK for 'don't know' by it and go to the next question.

A member of our research team will pick up the questionnaire within 48 hours. If you do not plan to be home, a plastic bag is provided so that you can hang the completed questionnaire on the outside of your door.

PART 1: COMMUNITY SATISFACTION

The questions in this section deal with your views about a variety of community conditions.

1. Using a scale of 1 (COMPLETELY DISSATISFIED) to 7 (COMPLETELY SATISFIED), please circle the number that best indicates how you would rate your satisfaction with Star Valley on each of the items listed below.

	Completely Dis satisfied					Completely Satisfied	
a. Local shopping facilities	1	2	3	4	5	6	7
b. Availability of suitable housing	1	2	3	4	5	6	7
c. Opportunity to earn an adequate income	1	2	3	4	5	6	7
d. Senior citizen services or programs	1	2	3	4	5	6	7
e. Local schools	1	2	3	4	5	6	7
f. Recreational facilities within the community	1	2	3	4	5	6	7
g. Effectiveness of local government	1	2	3	4	5	6	7
h. Opportunities to be involved in local decision-making	1	2	3	4	5	6	7
i. Availability of information about local news or events	1	2	3	4	5	6	7
j. Quality of the natural environment (ie: clean air and water)	1	2	3	4	5	6	7
k. Opportunities for motorized recreation (ie: snowmobiles, ATV's)	1	2	3	4	5	6	7
l. Opportunities for outdoor recreation (ie: camping, hiking, fishing, hunting)	1	2	3	4	5	6	7
m. Adequacy of policies that protect local environmental quality	1	2	3	4	5	6	7
n. Freedom to express your opinion about community affairs	1	2	3	4	5	6	7
o. Friendliness of people in the community	1	2	3	4	5	6	7

2. Using a scale of 1 (NOT AT ALL IMPORTANT) to 7 (EXTREMELY IMPORTANT), please circle the number that best indicates how important you think each of the following items is for maintaining and improving the future quality of life in Star Valley.

	Not At All Important						Extremely Important
a. Improving local shopping facilities	1	2	3	4	5	6	7
b. Improving availability of suitable housing	1	2	3	4	5	6	7
c. Preserving traditional ways of life and values	1	2	3	4	5	6	7
d. Increasing opportunities to earn an adequate income	1	2	3	4	5	6	7
e. Increasing tourism as a means of economic opportunity	1	2	3	4	5	6	7
f. Improving senior citizen services or programs	1	2	3	4	5	6	7
g. Improving local schools	1	2	3	4	5	6	7
h. Maintaining clean air and water	1	2	3	4	5	6	7
i. Protecting agricultural land and open space	1	2	3	4	5	6	7
j. Limiting the rate of population increase	1	2	3	4	5	6	7
k. Preserving opportunities for motorized recreation (ie: snowmobiles, ATV's)	1	2	3	4	5	6	7
l. Preserving opportunities for outdoor recreation (ie: camping, hiking, hunting and fishing)	1	2	3	4	5	6	7
m. Preserving opportunities for traditional multiple-use activities like grazing or logging on public lands	1	2	3	4	5	6	7
n. Preserving roadless areas on public lands	1	2	3	4	5	6	7
o. Implementing new policies to better protect local environmental quality	1	2	3	4	5	6	7
p. Protecting freedom to express your opinion about community affairs	1	2	3	4	5	6	7
q. Encouraging a friendly atmosphere in the community	1	2	3	4	5	6	7

3. Using a scale that ranges from 1 (COMPLETELY DISSATISFIED) to 7 (COMPLETELY SATISFIED) please circle the number that best indicates how satisfied you are with Star Valley as a place to live.

Completely
Dissatisfied

Completely
Satisfied

1 2 3 4 5 6 7

- a. What do you like MOST about your community? _____

- b. What do you like LEAST about your community? _____

- c. What do you consider to be the single MOST IMPORTANT ISSUE currently facing your community? _____

4. Using a scale of 1 (NOT AT ALL IMPORTANT) to 7 (EXTREMELY IMPORTANT), please indicate how important the surrounding natural environment is to your quality of life in Star Valley.

Not At All
Important

Extremely
Important

1 2 3 4 5 6 7

What aspect of the surrounding natural environment is MOST important to your quality of life? _____

Part 2: Community Involvement

The next set of questions deal with your levels and types of involvement in community activities, and your views about community leadership and decision-making.

7. Using a scale of 1 (NOT INVOLVED AT ALL) to 7 (HIGHLY INVOLVED), please circle the number that best indicates how involved you are with the following types of local groups.

	Not Involved At All						Highly Involved
a. School board	1	2	3	4	5	6	7
b. Chamber of Commerce	1	2	3	4	5	6	7
c. Community planning group	1	2	3	4	5	6	7
d. Economic development group	1	2	3	4	5	6	7
e. Church groups	1	2	3	4	5	6	7
f. Youth/senior services groups	1	2	3	4	5	6	7
g. Arts councils	1	2	3	4	5	6	7
h. Local watershed council	1	2	3	4	5	6	7
i. Local RC&D group	1	2	3	4	5	6	7
j. Local irrigation district group	1	2	3	4	5	6	7
k. Water conservation district group	1	2	3	4	5	6	7
l. Local chapter of national conservation group (ie: Rocky Mtn. Elk Foundation; Ducks Unlimited, Audubon)	1	2	3	4	5	6	7
m. Local civic groups (ie: Lions, Rotary)	1	2	3	4	5	6	7
n. Recreation groups (ie: backcountry horsemen, hiking club, mountain biking club)	1	2	3	4	5	6	7
o. Production organizations (ie: Cattleman's Assoc.; Farm Bureau)	1	2	3	4	5	6	7

8. On average, about how many hours do you ordinarily spend in a normal month taking part in any kind of organized group activity (not associated with your work or job) that involves other members of this community?

- Less than 1 hour per month 6-10 hours per month
 1-5 hours per month 11 or more hours per month

9. Using a scale of 1 (NOT INVOLVED AT ALL) to 7 (HIGHLY INVOLVED), please indicate how involved you currently feel you are in community decisions in Star Valley.

Not Involved At All							Highly Involved
1	2	3	4	5	6	7	

10. Using a scale of 1 (NOT AT ALL IMPORTANT) to 7 (EXTREMELY IMPORTANT), please indicate how important it is to you that you have the opportunity to be personally involved in decisions that affect Star Valley as a community.

Not At All Important							Extremely Important
1	2	3	4	5	6	7	

11. What kinds of people tend to have the most influence over community decisions in Star Valley? _____

12. Using a scale of 1 (NOT AT ALL IMPORTANT) to 7 (EXTREMELY IMPORTANT), please circle the number that best describes how important each of the following sources of information are to you for receiving information about community news, events, activities, or meetings.

	Not At All Important						Extremely Important
a. Local weekly or daily newspaper	1	2	3	4	5	6	7
b. Local radio, television, or cable station	1	2	3	4	5	6	7
c. Community bulletin board	1	2	3	4	5	6	7
d. Church announcements	1	2	3	4	5	6	7
e. Community newsletter	1	2	3	4	5	6	7
f. Word of mouth	1	2	3	4	5	6	7

13. How interested are you in knowing what goes on in Star Valley?

- Very interested Not very interested
 Somewhat interested Not at all interested
 Neither interested nor disinterested

Part 3: Community Attachment

The next set of questions deal with your attachments to this area and community and your interactions with others in the community.

14. How many of your adult relatives live within an hour's drive from where you live?

- None (SKIP TO QUESTION 16) 6-10
 1-2 11-20
 3-5 20 or more

15. About how often do you see relatives who live within an hour's drive?

- Never 3-4 times a month
 Less than once a month 5 or more times a month
 1-2 times a month

16. How often do you join with any of your neighbors for informal social activities like playing cards, going to dinner, having picnics?

- Never 3-4 times a month
 Less than once a month 5 or more times a month
 1-2 times a month

17. Of the 10 houses closest to your home:

a. How many of these houses have you been in? _____

b. How many of the adults who live in these houses do you know on a first name basis? _____

18. Using a scale of 1 (NOT AT ALL HELPFUL) to 7 (EXTREMELY HELPFUL), please circle the number that best represents how helpful your neighbors would be if you had a personal emergency or crisis.

Not At All
Helpful

1

2

3

4

5

6

7

Extremely
Helpful

19. To what degree do you feel "at home" in Star Valley?

- Feel very much at home Feel slightly at home
 Feel somewhat at home Do not feel at home at all

20. Suppose that for some reason you had to move away from Star Valley. How sorry or pleased would you be to leave?

- Very sorry to leave Somewhat pleased to leave
 Somewhat sorry to leave Very pleased to leave
 Would not care one way or another

21. Please identify the 2 public places in your community or surrounding area that are the most important to you (ie: local coffee shop, post office, parks, national forest, etc.). Then, using a scale of 1 (NOT AT ALL IMPORTANT) to 7 (VERY IMPORTANT), indicate how important it is to you that these 2 places be protected and preserved despite other changes that may occur in the community.

Public Place	Not At All Important							Very Important
	1	2	3	4	5	6	7	
1. _____	1	2	3	4	5	6	7	
2. _____	1	2	3	4	5	6	7	

22. Using a scale of 1 (STRONGLY OPPOSE THE ACTION) to 7 (STRONGLY SUPPORT THE ACTION), please indicate your response to the following scenarios, assuming that these changes were to take place in your community within the next year.

	Strongly Oppose the Action				Neutral (Do Nothing)			Strongly Support the Action
a. If a 100 home subdivision was proposed within one mile of my property I would:	1	2	3	4	5	6	7	
b. If land use/zoning rules became more restrictive and prohibited me from selling my land for development of a subdivision I would:	1	2	3	4	5	6	7	
c. If 50% of local agricultural land was sold for development I would:	1	2	3	4	5	6	7	
d. If the number of properties owned by seasonal residents increased by 50% I would:	1	2	3	4	5	6	7	
e. If access to public lands adjacent to my community for motorized recreational use decreased by 50% I would:	1	2	3	4	5	6	7	
f. If there was a 50% increase in visitation by tourists/recreators in my community I would:	1	2	3	4	5	6	7	

23. Many aspects of an area/community can be important for one's **attachment to that place**. Using a scale of 1 (NOT AT ALL IMPORTANT) to 7 (EXTREMELY IMPORTANT), circle the number that **best represents how important these different aspects are to your sentimental and emotional attachment to this area/community**.

	Not At All Important							Extremely Important
a. Friends close by	1	2	3	4	5	6	7	
b. Family ties in the area	1	2	3	4	5	6	7	
c. Local culture and traditions	1	2	3	4	5	6	7	
d. Slow pace of life, quiet	1	2	3	4	5	6	7	
e. Economic opportunities	1	2	3	4	5	6	7	
f. Ability to earn a living off the land (ie: farming, logging)	1	2	3	4	5	6	7	
g. Natural landscapes/Views (ie: mountains, lakes, canyons)	1	2	3	4	5	6	7	
h. Presence of wildlife	1	2	3	4	5	6	7	
i. Opportunities for outdoor recreation (ie: hiking, camping, hunting, fishing)	1	2	3	4	5	6	7	
j. Opportunities for motorized recreation (ie: ATV's, snowmobiles)	1	2	3	4	5	6	7	
k. Opportunities to be involved in community projects or activities	1	2	3	4	5	6	7	
l. The area is not heavily developed (both commercially and residentially)	1	2	3	4	5	6	7	
m. There are few restrictions on what I can do with my own land/property	1	2	3	4	5	6	7	
n. Ability to freely express my opinion about community affairs	1	2	3	4	5	6	7	

26. In what size community did you spend most of your growing-up years?
- A large metropolitan city (over 100,000 population)
 - A medium-sized city (25,000 to 100,000 population)
 - A smaller city (5,000 to 25,000 population)
 - A small town or village (2,500 to 5,000 population)
 - In the country or a very small town (under 2,500 population)
27. Do you have any plans to move away from Star Valley in the next five years?
- Definitely will NOT move →
- Probably will not move →
- Why will you stay in your community?

- Probably will move →
- Definitely will move →
- Don't know
- Why do you think you will move? _____

28. Which of the following best describes your current residence status in this community?
- Permanent full-time resident
 - Seasonal resident (more than 6 months/year)
 - Seasonal resident (less than 6 months/ year)
29. Which of the following best describes the ownership arrangement of your residence?
- Own home (mortgage, contract, or own outright)
 - Renting or leasing by the month
 - Renting by the day or week
 - Other
30. What is your current marital status?
- | | |
|------------------------------------------------|----------------------------------------|
| <input type="checkbox"/> Married | <input type="checkbox"/> Separated |
| <input type="checkbox"/> Living with a partner | <input type="checkbox"/> Divorced |
| <input type="checkbox"/> Widowed | <input type="checkbox"/> Never Married |
31. Do you have any children living at home with you now?
- Yes
 - No

32. Do you have any children living outside your home but in Star Valley?

Yes

No

33. What is the total number of persons (including all children and adults) living in your household at the present time? _____

34. What is the highest level of education you have completed?

Did not finish high school

College bachelor's degree

Completed high school or GED

Some college graduate work

Some college but no degree

Completed graduate degree (Masters or Ph.D.)

Associates degree or Vocational degree

35. Which of the following BEST describes your current employment situation?

Employed for pay by a company/business

Retired

Self-employed

Homemaker

Unemployed, but looking for work

Other (please specify) _____

Unemployed, not looking for work

36. Are you the primary wage earner in your household?

Yes

No

- a. Please describe the occupation of the primary wage earner

Title: _____

Kind of work: _____

37. Does the primary wage earner drive more than 30 minutes to their place of employment?

Yes

No

38. In what year were you born? _____

39. What is your sex?

Male

Female

40. What, if any, is your religious affiliation?

- LDS Protestant
 Catholic None
 Other (please specify) _____

41. Which of the following best describes your political party orientation?

- Republican Independent
 Democrat None
 Other (please specify) _____

42. Which of the following best describes your political views?

- Liberal Moderately-conservative
 Moderately-liberal Conservative
 Moderate Don't know

43. Which of the following are currently significant sources of income in your household? (please check all that apply).

- Wages and/or salary Social security payments
 Income from business Retirement pension payments
 Interest and/or investment income Unemployment compensation
 Income from rental property Disability payments
 Public assistance (Food Stamps, TANF)
 Other (please explain) _____

44. Which of the following best describes your total household income before taxes in 2000?

- Under \$10,000 \$60,000 to \$69,999
 \$10,000 to \$19,999 \$70,000 to \$79,999
 \$20,000 to \$29,999 \$80,000 to \$89,999
 \$30,000 to \$39,999 \$90,000 to \$99,999
 \$40,000 to \$49,999 \$100,000 or higher
 \$50,000 to \$59,999

Thank you for your cooperation!

Please remember to seal the survey in the envelope provided. A member of our research team will pick up the completed questionnaire within 48 hours. If you will not be home, please remember to place the completed questionnaire in the plastic bag provided and place on your front door.

Please feel free to use any additional space in this questionnaire or in a separate letter to tell us any additional information you would like to share.

Joan M. Brehm

ADDRESS

Home -
187 East 500 North
Logan, UT 84321
 Tel: (435) 752-8748

Work -
Institute for Social Science Research
on Natural Resources, UMC 0730
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 (435) 797-1230 (office);
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 Email: jm.brehm@usu.edu

EDUCATION

Ph.D. - Utah State University, May 2003

Department of Sociology, Social Work and Anthropology
Areas of Specialization: Environmental/Natural Resource Sociology;
Demography/Migration

Dissertation: "Amenity Migration and Social Change: Expanding the Concept of Community Attachment and It's Relationship to Dimensions of Well-Being in the Rural Rocky Mountain West"

Interdisciplinary Graduate Certificate – Natural Resource and Environmental Policy

Utah State University, May 2003

M.A. - University of Montana, 1998

Department of Sociology
 Areas of Specialization: Rural and Environmental Change
Master's Thesis: "Reinventing Historical Networks? The Forest Service Rural Community Assistance Program in Darby, Montana."

B.A. - University of Minnesota, 1991

International Relations and Communications

RESEARCH GRANTS

Rural Sociological Society, Dissertation Research Fellowship – 2001

Grant of \$5,000 awarded for continuation of dissertation research: "Amenity Migration and Social Change: Linking Community Attachment and Well-Being in the Rural Rocky Mountain West"

INSTRUCTION EXPERIENCE

Social Problems, Sociology 1020

- 1999 spring semester, Utah State University

Rural Sociology, Sociology 3610

- 2000 fall semester, Utah State University
- 2002 summer semester, Distance Education, Utah State University

Social Research Methods, Sociology 3110

- 2002 spring semester, 2002 fall semester, Utah State University

Population and Society, Sociology 3200

- 2003 spring semester, Utah State University

PUBLICATIONS

Brehm, Joan M., Brian W. Eisenhauer, and Richard S. Krannich. 2002. **"Expanding the concept of community attachment and its relationship to well-being in the amenity-rich rural West."** Under Review with *Rural Sociology*.

Hunter, Lori M. and Joan M. Brehm. 2002. **"Qualitative insight into public knowledge of, and concern with, biodiversity."** Forthcoming in *Human Ecology: An Interdisciplinary Journal*. Summer 2003. Vol 31., No. 2

Daniels, Steven E. and Joan M. Brehm. 2002. **"Fur, fin, and feathers: Whose home is it anyway?"** Forthcoming in L. Swanson and D. Brown. *Challenges for Rural America in the Twenty First Century*. Pennsylvania State University Press/Rural Studies Series.

PROFESSIONAL PRESENTATIONS

"Linking Community Attachment and Well-Being in the Amenity-Rich Rocky Mountain West" Presented at the 65th Annual Rural Sociological Society Meeting, August 2002. Chicago, IL.

"Promotion of Rural Tourism – Another Form of Gendered Labor?" With Peggy Petzelka, Richard S. Krannich, Carla Trentelman and Tracey Williams. Presented at the 65th Annual Rural Sociological Society Meeting, August 2002. Chicago, IL.

- “The Multidimensional Nature of Community Attachment in a Changing Rural Landscape”** Presented at the 9th International Symposium on Society and Resource Management, June 2002. Bloomington, IN.
- “Linking National Monument Designation with Perceptions of Community: The Case of the Grand Staircase National Monument”** With Peggy Petzelka and Richard S. Krannich. Presented at the 9th International Symposium on Society and Resource Management, June 2002. Bloomington, IN.
- “Differential Attachments to Special Places: Associations Between Individual Characteristics and Attachments to Natural or Built Environmental Settings”** With Peggy Petzelka, Richard S. Krannich, and Brian W. Eisenhauer. Presented at the 9th International Symposium on Society and Resource Management, June 2002. Bloomington, IN.
- “Collaboration and Natural Resource Decision-Making: A Recipe for Long-Term Community Well-Being in the New West?”**
Presented at the 63rd Annual Meeting of the Rural Sociological Society, August 2000, Washington, D.C.
- “Biodiversity...What is it Again? Community Perception of Issues Related to Species Richness.”**
With Lori M. Hunter. Presented at the 8th International Symposium on Society and Resource Management, June 2000. Bellingham, WA.
- “The Wilderness Management Distance Education Program: 1997 Outstanding Credit Program Award Winner”**
Presented at the Annual Meeting - University Continuing Education Association, Region VII, 1998, Ashland, OR.
- “Reinventing Historical Networks? The Forest Service Rural Community Assistance Program in Darby, Montana.”**
Presented at the 7th International Symposium on Society and Resource Management, May 1998. Columbia, MO.

PROFESSIONAL EXPERIENCE

Research Assistant, Institute for Social Science Research on Natural Resources, Utah State University, Logan, UT (1999 to present)

- ◆ Project: “Social Change and Adaptation in Response to Shifting Sustenance Structures in Western Rural Communities.” Funded by the Utah Agricultural Experiment Station (Project UTA 00839). Institute for Social Science Research on Natural Resources, Utah State University.

- ◆ Assisted in the development of selection criteria for the study sites and final selection of five communities.
- ◆ Developed and designed content of the survey tool instrument, managed the selection of the sample from appropriate sampling frame.
- ◆ Managed administration of the survey to a total of 1,000 respondents in five rural communities using a drop-off/pick up method.
- ◆ Designed and drafted executive report of study data for each of the five communities.
- ◆ Analyzed completed survey data for presentation at a variety of professional meetings and publication in peer-reviewed journals.

Manager, Natural Resource Management (NRM) Division, Continuing Education, The University of Montana, Missoula, MT (March 1998 to July 1999)

- ◆ Represented NRM and Continuing Education as the primary contact for natural resource management related program development. Collaborated closely with a diverse network of partners and clients on the development of innovative programs that utilize advance technology and teaching techniques and support the natural resource and conservation mission of the Division. Examples of these programs include the Wilderness Management Distance Education Program, Global Fire Network, and the Wilderness Science in a Time of Change Conference.
- ◆ Planned, directed and sustained a viable, self-supporting NRM Division through financial forecasting, strategic planning, and budget oversight for an operating budget of \$500,000 annually.
- ◆ Custom designed a diversity of programs to ensure quality and integrity. Assessed program needs through evaluation and analysis to develop programs that met the diverse needs of NRM audiences.
- ◆ Responsible for all aspects of marketing for the NRM division. Networked with key leaders and positioned the Center to work collaboratively with multiple partners for mutual benefits.
- ◆ Managed and evaluated all NRM division staff.

Graduate Research Assistant, Bolle Center for People and Forests, School of Forestry, University of Montana, Missoula, MT (summer 1997)

- ◆ Assisted Center Director with research and final drafting of a grant proposal for the Interior Northwest Information and Collaboration Network. The Bolle Center received a \$200,000 award from the Ford Foundation in September 1997 to support the project.
- ◆ Performed various duties in preparation for the implementation of the Interior Northwest Information and Collaboration Network, including an initial inventory of community-based volunteer groups in potential partner communities and identifying key contacts and partners in other state and federal natural resource agencies and non-profit groups.

Graduate Teaching Assistant, Sociology Department, University of Montana, Missoula, MT (1996 - 1998)

- ◆ Assisted with various sociology classes such as Gender and Development, Theory, Methods, and Complex Organizations. Duties included leading discussion and study sections, objective grading of writing projects, and tutoring students.

Program Training Coordinator, United States Department of Agriculture, Foreign Agriculture Service, International Cooperation and Development (USDA/FAS/ICD), Washington, D.C. (1993-1996)

- ◆ Independently designed and implemented cost effective training programs for international participants from the Baltic countries and Eastern Europe under the auspices of the Cochran Fellowship Program.
- ◆ Traveled abroad to represent the Cochran Fellowship Program and USDA/FAS in Poland, Hungary, Latvia, Lithuania, and Estonia. Conducted assessments of training needs, in-country interviews, and selection of participants for the program and acted as liaison between foreign diplomats and USDA.
- ◆ Solicited training proposals from universities, various government agencies, and private sector companies and evaluated proposals for applicability to participant and program objectives. Developed and maintained collaborative working networks of training cooperators and served as key liaison.
- ◆ Managed and prepared all fiscal documents and budgets for program area, tracked spending, and reconciled accounts in accordance with allocated funds for a FY95 budget of \$544,000.

Training Technician, United States Department of Agriculture, Foreign Agriculture Service, International Cooperation and Development (USDA/FAS/ICD), Washington, D.C. (1992-1993)

- ◆ Coordinated, scheduled, and monitored international participants in training programs under the auspices of the Cochran Fellowship Program.
- ◆ Traveled abroad to represent the Cochran Fellowship Program and USDA/FAS in Poland and Hungary and assisted in the interviewing and selection of program candidates.
- ◆ Provided orientation sessions for all participants, including a clear explanation of monetary sponsorship, insurance, travel, and program itinerary. Handled all last minute changes and queries.

Assistant Field Training Advisor, United States Department of Agriculture, Foreign Agriculture Service, International Cooperation and Development (USDA/FAS/ICD), Washington, D.C. (1991-1992)

- ◆ Worked under the Cooperative Field Coordinators agreement at the Agency for International Development, Office of International Training (USAID/OIT) and provided guidance to the USAID Missions relating to training of foreign nationals.

- ◆ Assisted senior level staff in the development and implementation of orientation and re-entry guidelines and programs. Responded to queries from Regional Bureaus regarding policy interpretations.
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AWARDS

- ◆ **Research Assistant of the Year, College of Humanities, Arts and Social Sciences; Utah State University – 2000-2001**
 - ◆ **Joseph and Grace Geddes Research Scholarship – 2000, 2001, 2002**
For research performance in the study of environmental sociology at Utah State University.
 - ◆ **Lowry Nelson Fellowship - 1999**
For academic excellence at Utah State University.
 - ◆ **Utah State University Graduate Teaching and Research Assistantship, Department of Sociology, Social Work and Anthropology - 1999, 2000, 2001, 2002**
 - ◆ **University of Montana Graduate Teaching Assistantship – 1996, 1997**
 - ◆ **U.S. Department of Agriculture Outstanding Performance Appraisal – 1993, 1994, 1995, 1996**
 - ◆ **U.S. Department of Agriculture Certificate of Merit – 1996**
For outstanding performance in International Cooperation and Development
 - ◆ **U.S. Department of Agriculture Certificate of Merit – 1993**
For outstanding contribution to the expansion of the Cochran Fellowship Program in Eastern Europe and the Newly Independent States of the former Soviet Union
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PROFESSIONAL MEMBERSHIPS

- ◆ **American Sociological Association**
- ◆ **Rural Sociological Society**
- ◆ **International Association for Society and Natural Resources**