Dauphin Island Birders: An examination of specialization, place attachment, satisfaction, and amenity migration.

by

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Abstract

Dauphin Island is a small barrier island off the coast of Alabama. The island sets in a major migratory flyway and annually hundreds of species descend upon the island during the spring and fall migrations. This has caused the island to become a popular destination among birdwatching locals and tourists. Through survey we examined the relationship between three constructs: specialization, place attachment, and satisfaction. The results of our analysis indicated that specialization, a measure of activity involvement, could be used as an adequate predictor of place attachment, but not satisfaction. Furthermore, we saw that place attachment could be an appropriate predictor of satisfaction. We also administered semi-structured to examine trends in the motivations that birdwatcher and non-birdwatchers had to move to the island. Those that identified that they were birdwatchers prior to moving to the island indicated that birdwatching was the primary motive for moving to the island. Trends among the other islanders indicated that lifestyle, rural idealization, and return migration were important concepts.

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Chapter 1. Introduction

Dauphin Island is a small barrier island off the coast of Alabama with a tourism driven economy. The 14 mile long island is home to almost 1300 permanent residents, in addition to several species of resident birds. Twice a year it is the refueling station for migratory birds as the island is situated in a large corridor that many migratory species use during their long journey across the Gulf of Mexico. Given the number of transient species that move through the area and the presence of an Audubon sanctuary, it is no surprise that it has become a popular destination for birdwatching tourists.

While the island offers tourist attractions that are common along the coast, such as beach fronts fishing, and historic forts, birdwatching is of particular importance to Dauphin Island. Each year two types of bird watching tourists flock to the island, those who will stay for months as long-term visitors and those that will stay days or up to a few weeks as short-term visitors. The importance of these tourists is reflected in the strategic plan the Dauphin Island community has developed for their growth over the next 20 years. One of the six key factors listed for the economic revitalization of the island rests in nature based tourism founded in natural resource protection. The plan identifies birdwatchers as the primary target of nature based tourism.

Ecotourism

Ecotourism is a term that is surrounded in confusion (Cater 1994). The International Ecotourism Society defines ecotourism as “responsible travel to natural areas that conserves the

environment and improves the well-being of local people" (TIES 2010). Yet this definition has not been universally accepted by researchers since its inception, and much of the literature concerning ecotourism has been dedicated to the semantics of the term (Kruger 2005). The inconsistence of this definition has led to ecotourism being used to represent a multitude of activities that involve any nature based recreation (Wall 1999). This problem has been compounded by the "buzz" surrounding the term and that those within the tourism industry look to capitalize off its use and cover impacts with the ambiguity surrounding the topic.

Regardless of misuse or ambiguity there are still some that argue that ecotourism is a wolf in sheep's clothing that degrades the environment (Wall 1997, Cater 1994, Wheeller 1992). Examples such as coral reef impacts, camping site and trail erosion are cited as impacts to the environment that cannot be repaired with increased tourism. Still, some purists argue ecotourism is a win-win that allows residents of an area to experience sustained economic growth while preserving natural areas (Hvenegaard 1994, Scheyvens 1999, Gossling 1999). Goodwin (1996) points out that while the tourism industry is not "smokeless" its importance to the economy and its policies to minimize impacts make it an important alternative. He continues to state that ecotourism, when properly executed, increases environmental awareness, creates a sustainable economy and incentivizes preservation of resources by locals (Goodwin 1996).

Those researchers that view ecotourism as a positive potential to promote sustainable tourism consistently stress the importance of planning and stakeholder input (Hvenegaard 1994, Scheyvens 1999, Goodwin 1996). While much stress is placed on community involvement, the needs of the tourists are equally important. Proper understanding of the needs and motivations of those traveling to an area are essential to developing a successful ecotourism economy. The Dauphin Island strategic growth plan has addressed the issues of community involvement and

has targeted birdwatchers, but little is known about this particular subpopulation of birdwatchers. One of the objectives of this research plan will address this need by distinguishing the demographics, specialization level and residency status (permanent, long-term or short-term visitor) of the birdwatchers on the island.

Birdwatching

Interest in birds as more than a commodity was little seen before the 20th century (Cordell & Herbert 2002). Non-consumptive interest prior to 1900 was limited to ornithologists, field naturalists and artists (Cordell, Herbert & Pandolfi 1999). The turn of the century saw an increased interest in birdwatching. This is evident from the creation of several bird clubs, notably The Audubon Society, publication of bird guides and the Migratory Bird Treaty Act (Cordell & Herbert 2002). Interest in birdwatching has continually increased and currently represents a substantial part of wildlife watching. In 2006, 71.1 million residents over the age of 16 participated in wildlife watching, of these 47.7 million (66%) watched birds (US Department of the Interior 2007). This is a 3.7% increase over the 46 million participants who watched birds in 2001 (US Department of the Interior 2003) and a 13.7% increase when compared to the 1996 results (US Department of the Interior 1997). Conversely, the number of people participating in fishing and hunting activities decreased from 37.8 million participants in 2001 (US Department of the Interior, 2001) to 33.9 million in 2006 (US Department of the Interior 2007). These numbers are the continuation of a 20 year trend in outdoor recreation (Cordell & Overdevest 2001). This trend is expected to continue as the population ages and consumptive wildlife activities become too strenuous for an aging population (Moore, Scott & Moore 2008). Acknowledgment of this shift toward non-consumptive stakeholders and away from traditional

rod and gun stakeholders is important for proper wildlife management, especially as this trend continues.

Due to the ubiquity of birds it is not uncommon for people to question what they have seen at a bird feeder or heard in a tree. Zoos, television programs and the Internet allow citizens to observe birds at any hour and people self-identify themselves as birdwatchers based on casual observation grounds (Scott *et al.* 2005). Kellert (1985) was first to point out that early discrepancies in demographics were likely due to the difficulties associated with defining the activity of birdwatching. To combat inconsistency in identification as a birdwatcher the NRSE devised a standard definition. This describes a birdwatcher as someone who "has participated in observing, feeding or photographing wild birds and traveled away from home at least one mile to do so within the last 12 months (US Department of Interior 2007)." This definition has been adopted by several researchers to produce consistent and comparable data. Those birdwatchers that have achieved the greatest skill in the activity are known as "birders" (Connell 2009).

Early research concerning birdwatchers was often not consistent in gender description (Kerlinger 1993). With a consensual definition of birdwatching fewer discrepancies in demographic characteristics of US birdwatchers have been noted. Hvenegaard (2002) stated that birdwatchers tend to be male, well-educated, and wealthy. This conflicts with the results of Scott and Thigpen (2004) that suggested birdwatchers are overwhelmingly female college graduates from upper middle class backgrounds. Scott and Thigpen's results are consistent with the results published from the 2006 NRSE and others (Cordell 1999, 2002; Eubanks, Stoll & Ditton 2004; Scott *et al.* 2005). Research discrepancies among gender composition are mostly due to the type of population sampled. Participants at birding competitions tend to be male, while more general populations of birdwatchers tend to be more evenly split among gender, but with slightly more

females (Moore *et al.2008*). Results are generally consistent when comparing education and income. The trend is for birdwatchers to possess a higher education and income than non-birdwatchers (Kellert 1985; Kerlinger and Wiedner 1991; Wiedner and Kerlinger 1990; Cordell 2000,2002; Eubanks, Stoll & Ditton 2004; Scott *et al.* 2005). While there are few significant demographic differences in birdwatcher subpopulations; motivations and specialization can differ greatly among groups (Eubanks, Stoll and Ditton 2004).

Specialization

Hobson Bryan (1977) created specialization to help researchers understand involvement and sophistication among recreation users. His original research on anglers resulted in defining specialization as "a continuum of behavior from the general to the particular, reflected by equipment and skills used in the sport, and activity setting preferences (Bryan 1977)." Bryan goes on to clarify that as a recreationist progresses through their career they will move through stages. These stages represent techniques, equipment and motivations that can influence social groups. A simplified illustration of the specialization process is represented by examining the stages the occasional fisher would endure to become a bassmaster. The occasional fisherman has low specialization because he does not have much invested in fishing (time, money, social groups). Conversely, a bassmaster would have high specialization which could be characterized by a boat, specialized equipment, and social groups dependent on the activity such as "fishing buddies". While Bryan's original work focused on anglers it has been applied to a variety of outdoor recreations (Scott & Thigpen 2003). Because specialization is an indicator of involvement it has been used to evaluate motivations and demographics (McFarlane 1994), place attachment (Bricker & Kerstetter 2000) and conservation effort (Ditton et al. 1992; Boxall &

McFarlane 1993). These studies have illustrated the importance that specialization can have in understanding the characteristics of a particular birdwatcher population.

However, the application of specialization to so many aspects of recreational use has not been without controversy. Researchers disagree on the exact means by which to measure specialization (Scott & Thigpen 2003). In his original description of specialization, Bryan (1977) was somewhat vague in describing whether behavior or attitudinal measures were most central in properly evaluating specialization (Scott & Shafer 2001). This led some researchers to focus on attitudinal indicators that measure attachment or devotion to birdwatching such as commitment or centrality to life. Others focused on behavioral indicators such as experience and participation level. By the time Bryan revisited the topic in 2000 to clarify that both aspects should be measured, most researchers were already in agreement that the construct was multidimensional and should measure both attitudinal & behavioral indicators (Scott *et al.* 2005). Still difficulties exist in drawing comparisons between studies because of the variety of indicators used to measure specialization. For example, Scott & Thigpen (2003) used commitment (enrollment in a birdwathing organization) as a behavioral indicator, while McFarlane (1994) used economic commitment (equipment value & pieces of equipment).

To address these problems Scott and Shafer (2001) argued that specialization should be understood as a developmental process that entails *progression.* This progression begins with focusing of behavior, accompanied by the acquisition of skills and knowledge, and results in personal and behavioral commitment. Using cluster analysis Hvenegaard (2002) noted that these corresponded with experience, economic investment, and lifestyle centrality indicators. Consequently, recent research has used cluster analysis and a somewhat standardized set of indicators for these three components.

Conservation & Specialization

The correlation between birdwatching specialization and resource conservation is a positive one (Hvenegaard 2002; Boxall & McFarlane 1993). As birdwatchers increase in specialization there is a similar increase in efforts to conserve birds or their habitat. This relationship is consistent with other forms of recreation (Chipman & Helfrich 1988; Ditton *et al.* 1992; Virden & Schreyer 1988). This correlation is explained by an increased dependency on a resource. As specialization increases, a higher level of commitment, involvement and dependency upon the resource is noted (Hvenegaard 2002). Consider the previous bassmaster example: as this person increased their level of specialization they acquired more equipment, purchased a boat, and devoted less time to other hobbies so they could fish. They are making sacrifices and investing their resources for recreation only on fishing. The activity is important to them and to continue fishing they will need to make an attempt to preserve waterways because conservation of water resources is necessary to ensure it can be enjoyed. Birdwatcher conservation is measured by participation in a birdwatching club/organization or by measuring donations to bird conservation groups.

Sense of Place

Sense of place encompasses all you know, feel and experience with a location. "It is the collection of meanings, beliefs, symbols, values, and feelings that individuals or groups associate with a particular locality" (Williams & Stewart 1998). Examining these attachments that people place on outdoor settings is important for properly managing resources (Schroeder, 1996). The primary components of sense of place are place identity and place dependence (Rogan *et al.*

2005). Place dependence is the level of association a person feels they have with a place (Stokols & Schumaker 1981). Place identity is the emotions, meanings and behaviors that are inherent in the use of places (Proshansky *et al.* 1983). Place has great potential to help managers evaluate their plans during the decision making process (Rogan *et al.* 2005).

Bricker and Kersetter (2000) have published the only article that addresses both sense of place and specialization. The results of their research indicated that rafters who had high specialization had greater sense of attachment to the river. The relationship was strongest between skill level, involvement and place identity. This would indicate that those who spend the most time on the water have the greatest sense of attachment to the river.

Rational and Significance

The economy of Dauphin Island is driven by tourism. The island possesses many attractions that draw tourists each year, but one of the most abundant resources on the island is the diversity of resident birds and those that frequent it during migration. With this in mind the island community has developed a 20 year growth plan that heavily incorporates tourism and caters to birdwatchers. Research that identifies the demographics and specialization level of those that visit the island would offer insight for managers and business owners so they can properly address the needs of these stakeholders.

Previous research concerning birdwatchers has typically focused on birdwatchers at festivals (Scott & Thigpen 2003, Scott *et al.* 2005), those that participate in bird surveys (McFarlane 1994, Boxall & McFarlane 1993, Scott *et al.* 2005), and birdwatchers who are members of the American Birding Association (Lee & Scott 2004). These groups tend to be more specialized than casual birdwatchers and the use of these results are somewhat limited to

the subpopulations that were examined. Because Dauphin Island possesses more attractions than just those aimed at birdwatchers (*i.e.* beaches, fishing, and historic forts) we expected to encounter a more representative sample of the birdwatching population.

While much research has focused on specialization and demographics of American birdwatchers little research has been done on the motivations to adopt birdwatching as a recreation. The goals of this research were to address this gap in the literature and examine the role birdwatching had as a motivation to move to Dauphin Island. Additionally we sought to identify demographics of those that birdwatched on the island and examine the relationships among specialization, sense of place, and satisfaction for these users.

Research Approach

Due to the nature of the objectives chosen a field research method employing mixed methods will be used to acquire the data. A quantitative approach consistent with previous research was used to collect data concerning demographics, specialization, sense of place, and satisfaction. This information was collected using the Dillman *et al.* (2009) survey method and was accomplished through creation of a questionnaire (Appendix 2) that adapted questions from previous research. The questionnaire was administered during peak birdwatching times in 2011 (*i.e.* spring and fall migrations). Two hundred surveys, 100 during each migration, were distributed to birdwatchers that were entering the three most popular birdwatching areas on the island, and a total of 175 surveys were returned. The motivations for adopting birdwatching as a recreation and motivations to move to Dauphin Island were obtained using a qualitative approach. A series of open ended questions (Table 2.1 and 2.2) were used in semi-structured interviews to examine these motivations. Interviews were done till saturation had occurred and

ended with a total of 17 interviews. Approval by the Human Assurance Internal Review Board approval was acquired before field work began, and informed consent forms (Appendix 4) were acquired from all interviewees.

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Chapter II. Binoculars & backpacks: An examination of the relationships between specialization, place attachment, and satisfaction of birdwatchers on Dauphin Island, Alabama

Abstract

This study used structural equation modeling to understand the relationships between the specialization, place attachment, and place satisfaction of Dauphin Island birdwatchers. A sample of 149 birdwatchers was acquired by administering a survey during the 2011 spring and fall migrations. The survey measured three components of specialization (behavior, commitment, and skill), two components of place attachment (identity and dependence), and three components of satisfaction (birding, ecosystem health, and crowding). We found that commitment had positive direct effects on identity and dependence, while skill negatively impacted dependence. The second-order latent variable place attachment had a positive effect on satisfaction.

Introduction

In 2006, birdwatchers comprised the majority of wildlife viewers and represented 66% of all wildlife watching in the United States (U.S. Department of the Interior, 2007). Birdwatchers spent 14 days birdwatching more than 1 mile from their home and a remarkable 124 days around their home in 2006 (U.S. Department of the Interior, 2007). They spent $36 billion on trip and equipment expenditures in 2006 generating $82 billion in industry output (U.S. Fish & Wildlife Service, 2009). A 20 year growth trend in birdwatching has been documented (Cordell &

Overdest, 2001) leading to 47.7 million US residents over the age of 16 having participated in birdwatching, an increase of 3.7% since 2001 (U.S. Department of the Interior, 2007). This trend is expected to continue as the population ages and participation in more strenuous activities will be reduced among older recreationists (Moore, Scott & Moore, 2008).

While preliminary studies of birdwatchers showed inconsistencies in the demographics of the typical birdwatcher (Kellert, 1985), recent studies suggest more homogeneity. Scott and Thigpen's (2004) results indicated that birdwatchers are more likely to be female, a finding that is consistent with others (Cordell, Herbert, & Pandolfi, 1999; Eubanks, Stoll, & Ditton, 2004; Scott, Ditton, Stoll, & Eubanks, 2005). Birdwatchers also tend to be older, possess a higher education, and greater income than non-birdwatchers (Kellert, 1985; Cordell *et al.* 1999; Eubanks *et al.*, 2004; Scott *et al.*, 2005). While there are few significant differences within the demographics of the overall birdwatcher population, motivations and specialization can differ greatly among groups (Eubanks *et al.*, 2004). Additionally, birdwatchers can be segmented by their degree of specialization or level of involvement as differentiated by their behavior, their skill level, and their commitment to the activity (Moore *et al.*, 2008; Scott *et al.*, 2005).

To manage the natural resources that birdwatchers use, it is important to understand the demographic make-up of a particular recreation population and their motivations for participation. However, for land managers it is equally important to understand characteristics of the places that the recreationists go and how satisfied they are with their experiences and with the natural settings. Sense of place is a term used to describe the bonds, feelings and relationships people have with particular places (Stedman, 2002). Sense of place is a composite of how people identify with a place and how dependent they are on that place for their desired experience (Williams & Vaske, 2003). Place-based planning is a term used to describe how understandings

of the relationships and connections people have with a particular place can have impacts for management (Cheng, Kruger, & Daniels, 2003). Satisfaction for a place can come in many forms from a recreation experience, including satisfaction from the experience itself, satisfaction from the natural setting, and satisfaction with the number of participants (Kyle, Graefe, & Manning, 2003; Manning, 2011). The proper management of public natural resources requires understanding the characteristics of these users, their places, and what leads to their satisfaction. The purpose of this study was to examine birdwatchers on Dauphin Island, Alabama and examine the relationships between three recreation constructs: specialization, place attachment and place satisfaction.

Literature Review

Specialization

Bryan (1977) conceptualized specialization as a way to help researchers understand involvement and sophistication among recreation users. His original research on anglers resulted in defining specialization as "a continuum of behavior from the general to the particular, reflected by equipment and skills used in the sport, and activity setting preferences" (Bryan, 1977). Bryan suggested that as recreationists progress through their careers they will move through stages. These stages represent techniques, equipment, and motivations that can influence social groups. A simplified illustration of the specialization process is represented by comparing the occasional angler to a bassmaster. The occasional fisherman has low specialization because he has not invested heavily in fishing and likely has little equipment, few contacts that are based solely on the activity, participates only occasionally, and would not focus on a singular species of fish. Conversely, a bassmaster would have high specialization characterized by high

investment in equipment, participates frequently, and has relationships constructed around fishing for a particular species. While Bryan's (1977) original work focused on anglers, it has been applied to a variety of outdoor recreations (Scott & Thigpen, 2003; Manning, 2011). Because specialization is an indicator of involvement, it has been used to understand a variety of recreation aspects including the evaluation of motivations and demographics (McFarlane, 1994), place attachment (Bricker & Kerstetter, 2000) and conservation effort (Ditton *et al.*, 1992; Boxall & McFarlane, 1993). These studies have illustrated the importance that specialization has in understanding the characteristics of a particular population of recreationists.

However, the application of specialization to so many aspects of recreational use has resulted in an inconsistency in the constructs used to measure specialization. In his original description of specialization, Bryan (1977) was somewhat vague in describing whether behavior or attitudinal measures were most central in properly evaluating specialization (Scott & Shafer, 2001). This has led some researchers to focus on attitudinal indicators that measure attachment or devotion to birding, such as commitment or centrality to life, while others have focused on behavioral indicators such as experience and participation level. Bryan (2000) clarified that both aspects should be measured. Most researchers agreed that the construct was multidimensional and should be measured using both attitudinal and behavioral indicators (Scott *et al.*, 2005). Still, difficulties exist in drawing comparisons between studies that incorporate both aspects of specialization because of the variety of indicators used to measure specialization. For example, Scott and Thigpen (2003) and McFarlane (1994) both measured commitment, but Scott and Thigpen (2003) felt it was best measured by enrollment in a birding organization, while McFarlane (1994) measured equipment value and pieces of equipment.

To address these problems, Scott and Shafer (2001) argued that specialization should be understood as a developmental process that entails progression. This progression begins with the focusing of behavior, accompanied by the acquisition of skills and knowledge, and results in personal and behavioral commitment (Scott & Shafer, 2001). Using cluster analysis, Hvenegaard (2002) noted that the components (behavior, commitment, and skill) corresponded with experience, economic investment and lifestyle centrality indicators. Lee and Scott (2004) used factor analysis to demonstrate that an additive approach to examining specialization was less effective than a multidimensional approach. Their results indicate that progression through specialization did not necessarily occur in a lock step fashion and that the components of specialization do not strongly covary. This implies that one can increase in a component such as skill without necessarily increasing in commitment. This could be seen in a birdwatcher that enjoys birdwatching alone. The component of skill might increase overtime, but the preference to birdwatch alone prevents an increase in social groups based on the activity. Kuentzel and Heberlein (2006) documented this non-lock step trend of progression in boaters, which showed that progression thorough specialization occurs infrequently and that most boaters were content to remain fixed at a lower level of specialization.

Place Attachment

Sense of place is a construct designed to help understand the relationships, feelings and connections people have to a location or place. Examining the attachments that people place on outdoor settings is important for properly managing resources (Schroeder, 1996) and has great potential to help managers evaluate their plans during the decision making process (Rogan *et al*.,

2005). Williams and Stewart (1998) define sense of place as "the collection of meanings, beliefs, symbols, values, and feelings that individuals or groups associate with a particular locality."

Symbolic meanings are the beliefs people possess about a place and are qualitative by nature. They describe the relationship a person applies has to a place has to a person, rather than quantitatively measuring how great of importance a place is to them (Stedman, 2002). Williams and Vaske (2003) describe symbolic meanings as "what a place signifies or stands for and may range from the very personal (coming of age in a favored childhood stomping ground) or publicly shared (American heritage symbolized by national parks). The symbolic meanings that people attribute to the landscape determine the attachment a person has to an area; attachment is the bond between people and the environment (Moore & Graefe, 1994). Stedman (2002, 2003) translates this as a multidimensional concept represented by symbolic meanings which influence place attachment.

The importance attributed to a place influences a person's attachment and may manifest itself as being part of a person's identity (Stedman, 2002; 2003). The focus is placed on the concept that a place is part of a person's identity and it is how they want others to think of them (Trentelman, 2009). Identity represents an emotional bond to a place and how people use a place to describe themselves (Trentelman, 2009) and is a primary component of attachment (Stedman, 2003). Place dependence is the second component of attachment (Trentelman, 2009). It represents how one place compares to another and illustrates behavioral commitment to a place (Jorgensen & Stedman, 2006; Trentelman, 2009). Williams and Vaske (2003) verified a two component model of sense of place that includes identity and dependence using a set of twelve measures (Table 1.2).

Early research examining the multidimensional relationships of both specialization and sense of place focused on rafter and kayakers. Bricker and Kerstetter's (2000) examination of white water rafters indicated that rafters who possessed the highest specialization had the lowest sense of attachment to the river. The relationship was strongest between skill level, involvement and place identity, but not dependence (Bricker & Kerstetter, 2000). This indicates that those who spend the most time on the water have the least dependence on the river but had a higher place identity. However, their results were not robust, and they recommended that specialization and sense of place be examined in multiple outdoor recreation settings and across activities for comparison.

Satisfaction

Research concerning satisfaction has been used as a measure of the quality of a recreationist's experience (Manning, 2011). It is assumed that managers want to offer the highest quality of experience and recreationists will seek out those opportunities that offer the highest level of satisfaction. There is much discrepancy however, on which indicators of satisfaction are best and research has shown that broad indicators of satisfaction are ineffectual (Manning, 2011). Key to most satisfaction research is a recreationist's perception of the number of users or crowding. Research has consistently shown that crowding has a significant impact user's experience and negatively impacts their level of satisfaction (Manning, 2011).

Satisfaction also represents the perceived quality of a setting (Jorgenson & Stedman, 2006; Stedman, 2002). While place satisfaction has largely been ignored in sense of place literature it has been shown to have independent effects on behavior (Stedman, 2002). Because one can be attached to a place but not satisfied with it, satisfaction should be distinguished from

attachment (Brown, 1993). Stedman's (2003) examination of the impacts of physical environment on satisfaction and attachment illustrates the importance of using a multidimensional approach that includes satisfaction. The results demonstrated that both place attachment and place satisfaction can be highly affected by landscape characteristics, but to differing degrees. Satisfaction was directly impacted by shoreline development, but the effects on levels of place attachment were significantly moderated by the effects of symbolic meaning of a place (Stedman, 2003).

Previous research has also linked specialization to satisfaction (Kyle *et al*., 2003). In this research, the authors focused on experiential satisfaction with a trip on the Appalachian Trail (Kyle *et al*. 2003). Their results indicated that the attachment component of involvement was a significant indicator of satisfaction. Kyle *et al.* (2003) noted that a higher level of attachment resulted in higher level of experiential satisfaction, which effected their overall visit satisfaction. Hvenegaard (2002) notes that the primary concerns of recreationists with higher specialization are related to conservation. He suggests that higher levels of specialization may lead to heightened concern about the environment and a higher standard for what qualifies as quality environment. This could result in a decreased satisfaction with the environment as specialization increases.

Methods

Study Site

Dauphin Island is a small barrier island off the coast of Alabama with a tourism driven economy. The 14 mile long island is home to almost 1300 permanent residents and a variety of resident waterbirds and woodland bird species. However, the island is popular among

birdwatchers because twice a year it is the refueling station and temporary stop for hundreds of migratory species. The island attracts such a diversity of species because it is situated in a large migratory corridor and is one of the first land masses birds crossing the Gulf of Mexico encounter, the island is also prone to "fall outs". These "fall outs" occur when birds exhausted from their spring flight descend upon Dauphin Island in the hundreds or thousands. While this is not a yearly event and is heavily weather dependent, it along with the diversity of species that stop on the island has garnered the attention of the birding community and annually thousands of birdwatchers flock to Dauphin Island. The importance of these tourists is reflected in the strategic plan the Dauphin Island community has developed for its growth over the next 20 years. One of the six key elements listed for the economic revitalization of the island rests in nature-based tourism founded in natural resource protection. The plan identifies birdwatchers as the primary target of nature-based tourism. The island offers many tourist attractions that are common along the coast *e.g.* fishing, historic sites, and beaches, and we believe that these attractions will entice casual birdwatchers to the island they may not come to the island just to bird watch. The result of which will be a population of birdwatchers with varying degrees of specialization and attachment to the island. Indeed, each year some tourists stay for only a day while others birdwatch on the island and surrounding natural areas for weeks.

Data Collection Process and Response Rate

The sampling process required the identification of the most popular birding areas, and before sampling began we visited each site identified by the Department of Tourism as areas for birdwatching. Based upon which sites local birdwatchers indicated as popular and the observed number of tourists entering the sites, the Audubon Bird Sanctuary, Shell Mounds, and the

Dauphin Island airport were identified as the primary areas to sample. I stood at the entrance to these areas and used a scripted narrative to initiate contact with the first person in each group that entered the area. All groups were sampled. Tourists that indicated that they were attempting to birdwatch were asked to participate in a survey about birdwatching. To reduce sample bias and ensure consistency, participation was limited to the first member of each group entering the area and no more than one survey was ever given to a group. I rotated sampling sites and times of day randomly throughout the sampling period. Contact information, group size, residency, and age were collected for examining non-response trends. Participants were given a numbered survey that was self-addressed and stamped.

The sampling process was broken into two extended seasons that corresponded with the migration of birds through the area. The first was the spring of 2011 and took four weeks to complete: April 28 – May 21, 2011. Samples were collected on weekends and began each Friday at sunrise and ended on Monday at sundown. The lead researcher was present at the entrance to one of the birding areas each morning 15 minutes before sunrise and collected samples all day until the areas closed at sundown. This process was repeated each week until a total of 100 surveys were distributed for the spring season. The same process was repeated for the fall season, but occurred on every Friday –Sunday from September 30 to October 23, 2011. The total number of surveys distributed over both seasons was 200.

Following Dillman *et al*. (2009), a two-step reminder process was employed during the spring and fall to solicit responses from participants. Within 10-14 days of receiving their initial survey, a postcard reminder was sent to the provided address of all participants. The postcard served as a thank you to participants that had returned completed surveys and contained a reminder and contact information for participants that had not returned completed surveys. A

second self-addressed and stamped survey along with a cover letter was sent to all participants who had not responded 10-14 days after the mailing of the postcard reminder. This process resulted in the returning of a total of 172 of the 200 surveys distributed. A total of 149 of these surveys were usable and resulted in a 75% response rate.

Measurement of Major Constructs

Following previous research of Lee and Scott (2006), the three components of the specialization constructs measured in this research were behavior, skill, and commitment (Hvenegaard, 2002; Lee & Scott, 2006). Behavior was measured through the use of three variables that were acquired by using four open ended questions. The first variable measured was a combination of the two questions "How many trips did you make to birdwatch in the last 12 months?" and "What percentage of these trips required at least one mile of travel from home?" These were combined to determine the number of trips away from home to produce results consistent with those in the literature. The second variable used to measure behavior was the number of miles they had traveled to participate in birdwatching. The third was "How many days did you travel to participate in birdwatching?"

Skill was measured through the use of two open ended and one closed question. These questions were borrowed from previous birdwatching research (Hvenegaard, 2002; Lee & Scott, 2003; Moore *et al.*, 2008). The open ended questions were "How many birds can you identify by sight without use of a printed or electronic field guide?" and "Without aid how many birds can you identify by sound?" Respondents were finally asked to identify their level of skill in birdwatching by selecting novice, intermediate, or expert.

Commitment data were collected through the use of four variables that were measured on a Likert scale with (1) being strongly disagree and (7) corresponding to strongly agree. The variables were the combination statements used in the previous work of Lee and Scott (2006) and Hvenegaard (2002). While data were collected on eight variables, only four were used in analysis. These variables measured how committed to birding participants were in light of other activities and how well birding defined their identity. The statements "Birding is an important part of my identity" and "Most of my friends are connected to birdwatching" measured the identity commitment. "I would rather birdwatch than any other activity" and "I plan my free time around birdwatching" were used as indicators of behavioral commitment.

Measures of place attachment and its components, dependence and identity, are fairly well standardized (Manning, 2011) and to be consistent with the literature we adopted the 12 statements (Table 1.2) used by Williams and Vaske (2003). Participants were asked to rate their level of agreement with the statements as they applied to Dauphin Island. The responses were measured on a Likert scale of 1-7 with (1) being strongly disagree and (7) being strongly agree.

The components of satisfaction were measured in a similar manner to place attachment. Participants were asked to identify their level of satisfaction with various aspects of Dauphin Island. A Likert scale of 1-7 was used with (1) indicating extremely dissatisfied and (7) indicating extremely satisfied. A total of 14 variables were used to measure satisfaction. Seven of these were adapted from the work of Stedman (2003). While the satisfaction measures developed by Stedman (2003) were an amalgamation of items particular to that study, a number were applicable broadly to other recreation experiences such as birding. To address whether birdwatchers were satisfied with the quality of birdwatching and quality of the environment on the island we measured to additional aspects of satisfaction. The level of satisfaction

birdwatchers had with the activity of birdwatching on Dauphin Island were measured using: "Number of places to birdwatch on Dauphin Island", "Quality of areas to birdwatch on Dauphin Island", and "Diversity of birds". The final construct of satisfaction measured dealt with the satisfaction regarding the environmental health of the island. Four variables were used to measure satisfaction with the maritime forest, marsh, dune, and freshwater habitats on the island.

Statistical Methodology

The results of the open ended questions used to measure skill and behavior are highly variable, and an examination of their normality showed strong positive skewing and kurtosis. While some would feel that the outliers should be removed we felt that their inclusion is a better representation of the population of birdwatchers on Dauphin Island. To address this problem, these variables were natural log transformed.

A varimax rotated factor reduction was used to examine whether our groupings for satisfaction were valid. The variables used to indicate ecosystem satisfaction emerged as a single component with no cross loading. However, three of Stedman's (2003) satisfaction variables (scenery, water quality, and population of wildlife) cross loaded with the factors used to measure birdwatching satisfaction. Another factor analysis was used that had these three variables removed from the data set. The results of the subsequent factor analysis indicated three individual components with no cross loading among the variables. The remaining categories were best represented as birdwatching satisfaction, ecosystem health satisfaction, and crowding satisfaction.

Structural equation modeling (SEM) was used to test a model incorporating the latent constructs of specialization, place attachment, and satisfaction. SEM is similar to confirmatory

factor analysis in that it defines the relationship between latent variables and their corresponding observed measures. However, the SEM method expands this confirmatory approach by allowing *a priori* relationships between multiple latent variables to be defined (Byrne, 2010). The statistical software IBM SPPS AMOS 19 was used for this analysis.

The models were labeled using the method described by Byrne (2010), and consistent with the recommendations of Kline (2005), covariance matrices were used for analysis with all models. The approach taken to create the final model involved a series of model comparisons to determine whether a first-order or second-order factor analysis best fit the data. It was hypothesized that a purely first-order model as done by Kyle *et al.* (2003) would best fit the data and that no second-order variables would be necessary.

The literature on SEM contains numerous fit measures and each has multiple strengths and weaknesses. Because the sample size was small, and to be consistent the research of others, multiple fit indices were used. Comparisons of six goodness of fit indices were used to examine the models: chi-square, root mean square error of approximation (RMSEA),comparative fit index (CFI), standardized root square mean residual (SRMR), normed fit index (NFI), and Tucker-Lewis index (TLI). Because chi-square is highly influenced by sample size it is generally seen as a poor indicator, but it is almost always reported as a measure along with degrees of freedom and should be non-significant (Kline, 2005). RMSEA of 0.08 is considered a good fit while an SRMR score of less than 0.1 is said to indicate a better fit (Hu & Bentler, 1998; Kline 2005). The three remaining measures CFI, NFI, and TLI all vary between 0 and 1 (Kline, 2005). While all three measures should be higher than 0.90, it is suggested that a TLI of greater than 0.95 is a superb fit (Byrne, 2010; Kline, 2005).

We wanted to explore the relationships of specialization, sense of place and place satisfaction. To this end, we first built three SEM models exploring the different relationships: Specialization to Place (Figure 1.1), Place to Satisfaction (Figure 1.2), and Specialization to Satisfaction (Figure 1.3). From these three we built a model that explored the relationships among the three constructs (Figure 1.4).

Survey Results

The average age of the birdwatchers sampled was 55 (n=149, sd=13) years, 30% of the birdwatchers were over the age of 66, and 75% were over the age of 50. Respondents were about equally divided by gender, with 51% being women. The majority were well educated with ninety-three percent indicating they had at least some college and 75% having a bachelor's degree or higher. Thirty-four percent had an annual income between $50,000 and $99,999 and 24% had an annual income higher than $100,000. This is considerably higher than the national per capita income of $27,334 (US Census Bureau, 2012). These results of well educated, well-to-do and older population are consistent with previous studies of birdwatchers (Lee & Scott, 2003).

Table 1.1 summarizes the variables used to measure the specialization construct. Variation of the number of miles traveled is high and is caused by two different characteristics of the birdwatchers typical to Dauphin Island. First, there are some avid birdwatchers that take annual trips to other countries and live on or regularly visit Dauphin Island. There were a total of 10 birdwatchers that traveled over 10,000 miles to birdwatch in the previous year. The second is due to the number of local birdwatchers that live over 45 miles from Dauphin Island but visit on a regular basis. The average numbers of species identifiable by sight and sound were 158 and 47 respectively. Fifty percent of birdwatchers identified themselves as an intermediately skilled

birdwatcher, while 36% identified themselves as novice. Only 19 individuals (10%) identified themselves as an expert. The statements "Birding is an important part of my identity ($\bar{x}$=4.9, n=149, sd= 2.1)" and "I would rather birdwatch than any other recreation ($\bar{x}$=4.4, n=149, sd=2.1)" were mostly agreed upon. Though they tended to not plan their free time around birding and they disagreed with the statement "Most of my friends are birdwatchers ($\bar{x}$=2.5, n=149, sd=1.9)".

Table 1.2 summarizes the variables that were used to measure the place attachment construct. These variables were adopted from Williams and Vaske (2002) with minimal alteration. They measure two components of place attachment: identity and dependence. The responses to the variables that measured identity were rated higher than those that measured dependence. All measures of identity were viewed positively and had an average score of 4.4 or greater. The variables that measured dependence were seen less favorably since three questions were scored less than (4) on the Likert scale of 1-7. Respondents agreed most with the statement "The things I do at Dauphin Island I would enjoy doing just as much at a similar site".

Table 1.3 summarizes the variables used to measure satisfaction. The birdwatchers indicated that they were very pleased with the birdwatching experience on Dauphin Island. The table shows that birdwatchers are satisfied with the number of places to birdwatch ($\bar{x}$=5.7, n=149, sd=1.4), quality of these areas ($\bar{x}$=5.8, n=149, sd=1.3), and the diversity of birds ($\bar{x}$=5.8, n=149, sd=1.3). And those related to the variables used from also positively scored as all questions regarding the four ecosystems we inquired about scored an average of 4.5 or higher with satisfaction being lowest in dune health. The level of satisfaction using the variables from Stedman's (2002) study, were somewhat mixed. While birdwatchers were satisfied with the

number of user and level of solitude/peacefulness, they were less content with the level of shore development and other recreationists.

The best model to illustrate the relationship between specialization and place attachment (Figure 1) indicated that the components of specialization (behavior, commitment, and skill) had a direct effect on the components of place attachment: identity and dependence (χ^2=368, df=201, RMSEA = .075, SRMR= .069, CFI=.95, NFI=.897, TLI=.94). In this model there was an additional latent variable place attachment which also had direct effects on identity and dependence. This model contains the second-order latent variable "place attachment" that was an extra unmeasured variable effecting identity and dependence. This model was compared to two other models that could explain the effect of specialization's components on place attachment. The first of these models was structured so behavior, commitment, and skill had only a direct effect on the latent variable place attachment. The second of these models did not contain any second-order latent variables and was structured so that behavior, commitment and skill directly affected identity and dependence. To determine which of these models best explained the relationship between specialization and place attachment RMSEA, CFI, NFI, and TLI of each of these models were compared (Table 1.4).

The best model to explain the relationship between place attachment and satisfaction (Figure 2) showed the second-order latent variable place attachment had a direct effect on the second-order latent variable satisfaction (χ^2=467.26, df=226, RMSEA = .085, SRMR= .0811, CFI=.926, NFI=..867, TLI=.917). In this model the place attachment had significant direct effects on the first-order latent variables identity and dependence. Similarly, the second-order latent variable satisfaction had direct effects on the first-order latent variables birding, ecosystem, and Stedman's satisfaction. This model was chosen over three other models of the

relationship between place attachment and satisfaction because it had the best goodness of fit (Table 1.4). Two of the other models had identity and dependence directly affecting the birding, ecosystem, and Stedman's satisfaction (with and without a second-order latent variable for satisfaction). The other model had place attachment directly affecting the first-order latent variables birding, ecosystem, and Stedman's satisfaction.

Because the relationship between place attachment and satisfaction required the use of the second-order variable satisfaction, only two models were used to examine the relationship between specialization and satisfaction. In the best model, behavior, commitment, and skill had direct effects on birding, ecosystem, and Stedman's satisfaction (Figure 3). The other model had behavior, commitment, and skill only having indirect effects on these variables through the satisfaction variable.

The use of a first order model was found to inappropriate in explaining the relationships between specialization, place attachment, and satisfaction, the use of identity and dependence to describe satisfaction were not better than using the latent variables place attachment and satisfaction. The results summarized in Table 1.4 indicate that behavior, commitment and skill should have direct effects on the components of place attachment (identity and dependence). Behavior, commitment, and skill should also directly affect the components of satisfaction (birding, ecosystem, and Stedman's satisfaction). However, the relationship between satisfaction and place attachment is best explained by the use of the second-order factors place attachment and satisfaction.

This best model (Figure 1.4) is a combination of first-order and second-order factor analysis. This model was based on a total of 149 complete cases and was supported by the goodness of fit indices. Chi-square was 942.8 with 532 degrees of freedom, resulting in a lower

than desired ratio of 1.7. The CFI and NFI were .915 and .827 respectfully, with a RMSEA of .072 and SRMR of .0873. The RMSEA indicated a good fit (less than .08) as did the SRMR (less than .1). To compensate for the small sample size of 149, we used the Swain's correction as suggested by Herzog and Boomsma (2009). The use of the formula provided by Herzog and Boomsma (2009) resulted in Swain's correction factor of .915 an adjusted chi-square of 735.51, RMSEA of .062, and TLI of .942.

The correlations between the three exogenous variables (behavior, commitment, and skill) were considered strong since they were all above 0.7. This model showed several statistically significant relationships between specialization and place attachment, but none between specialization and satisfaction (Table 1.5). Behavior was not found to have a significant effect on any of the other latent variables in the model. Commitment had moderate positive effects on identity (β=.542 ±.175, p=.002) and dependence (β=.474 ±.157, p=.002), but did not have a significant effect on any of the latent variables of satisfaction. Skill had a moderately negative effect on dependence (β=.-593 ±.194, p=.002). Place attachment had a moderate positive effect on satisfaction (β=.310 ±.081, p<.001).

Discussion

We found that specialization was a poor direct predictor of satisfaction, but can be a good direct predictor of place attachment. However, place attachment can be a good direct predictor of satisfaction which indicates specialization can be an indirect indicator of satisfaction when examined through place attachment. This model has also shown that the commitment dimension of specialization is a good predictor of the two dimensions of place attachment, identity and dependence. The skill dimension of specialization is also a good predictor of dependence;

however, the relationship is negative. These results further demonstrate the importance of viewing specialization as a multidimensional process because the individual dimensions of specialization have both positive and negative relationships with identity and dependence.

Our results indicate that the relationship between specialization and place attachment is more complex than the statement "As specialization increases so does place attachment to Dauphin Island". The relationship between skill and dependence indicates that as birdwatchers increase their ability to identify bird species their dependence on Dauphin Island decreases. This result supports the assertion made by Bricker and Kerstetter (2000) that individuals with high skill level are less likely to agree with the dependence variable than those with lower skill levels. This implies in the case of Dauphin Island that those with the greatest skill in identification are not as dependent on this site for birdwatching. Helpful in understanding this relationship is the fact that about 300 species of bird have been observed on Dauphin Island. While this represents a large diversity of birds, those birdwatchers with the highest level of skill, (can identify the most species) are less dependent on the island. It is probable that those birdwatchers that can identify a large number of species place importance on the acquiring new species for their life lists and are dependent on a number of areas rather than just Dauphin Island.

Interestingly, only the dimension commitment (which most closely approximates the centrality dimension of involvement studies) had a significant relationship with place identity. Previous research (Bricker & Kerstetter, 2000; Kyle *et al*., 2003) found that the dimensions of involvement and specialization were better indicators of identity than dependence. Our results support the conclusions that this variable influences place identity (Bricker & Kerstetter, 2000; Kyle *et al*., 2003; Moore & Graefe, 1994), but neither skill nor behavior had a significant relationship with identity. It should be noted that at a significance of $p<0.1$ that skill had a

negative influence on place identity. The implication of these results is that as birdwatching increases in importance as a recreational activity, birdwatchers are more likely to identify themselves with Dauphin Island. This suggests that there is a birdwatching specific quality to Dauphin Island with which birdwatchers can identify. However, as skill increases they are less likely to identify themselves with Dauphin Island and more importance is likely placed on the activity rather than a particular place.

Commitment, which was a measure of how central the activity was to the participant's life *e.g.* "I plan my spare time around birding", was also found to have a significant positive influence on dependence. While this relationship was not seen in Kyle *et al.*'s (2003) study, it was expected. Because place dependence measures the value recreationists place on an area for participating in a specific activity, one expects a link between dependence and commitment (Kyle *et al*., 2003). Our results indicate that as birding commitment increases, the birdwatchers become increasingly dependent on a particular site for the activity. This highlights the uniqueness and importance that birdwatchers place on Dauphin Island.

The lack of a relationship of behavior to identity and dependence is surprising. It was expected that those birdwatchers that participated in birdwatching the most would have high attachment to Dauphin Island, due to its relatively high species and habitat diversity. Because the island contains numerous areas for viewing different groups of birds *e.g.* shorebirds, waterfowl, and songbirds it was expected that those birdwatchers that participate frequently in the activity would place a greater dependence. It may be that the relationship between behavior and the components of place attachment are not linear. A nonlinear relationship implies that as behavior increases dependence and identity also increase until a threshold is reached. After this point the relationship starts to decline and birdwatchers are less likely to identify with or depend on

Dauphin Island. This implies that as a birdwatcher participates more in the activity they become more dependent and identify more with Dauphin Island, but eventually they participate so frequently that Dauphin Island is just one of many areas in which they birdwatch.

We expected to notice a positive relationship between specialization and birdwatching satisfaction, but none was identified. We also expected that there would be a negative relationship between the specialization and ecosystem health. As noted by Kyle *et al*. (2003), as specialization increases the ability of an area to meet the specific needs of an individual should be reduced. While their results showed the opposite for attraction and satisfaction, we expected to notice this trend. The absence of a significant direct relationship between any of components of specialization and satisfaction may indicate the lack of a relationship between them. It could also be interpreted that our satisfaction variables did not properly capture the aspect we desired to measure.

The examination of place attachment and satisfaction indicated that place attachment had a moderate positive effect on satisfaction. This implies that as one becomes more attached to Dauphin Island they are generally more content with the birding experience, number of users, and ecosystem health of the island. This supports the results of the Kyle *et al*. (2003) which indicated that identity had a moderate influence on satisfaction. We were surprised that the relationship between place attachment and satisfaction was more appropriately modeled through the use of second-level variables rather than a direct relationship. This implies that there are additional factors that contribute to place attachment and satisfaction that we did not measure, and they are more appropriate measures of the relationship.

Conclusion

This study was intended to examine the relationship between specialization, place attachment, and satisfaction. Our results indicate that specialization does have a significant effect on place attachment. This supports the findings of others studies that noted a relationship between commitment positively effects identity. It also demonstrates the positive relationship between commitment and dependence expected in other recreation studies. The negative relationship between skill and dependence offers support for the theory that more highly skilled recreationists are less dependent on one single area for an activity. The relationship between place attachment and satisfaction was positive, but only significant through the use of a second-order latent variables. Further examinations of the direct and indirect effects between variables may lead to better representations of the relationships between place attachment and satisfaction.

The high level of attachment that Dauphin Island birdwatchers have to island is directly tied to ability to view birds on the island, and the presence of these birds is dependent on the availability of habitat. While Dauphin Island has numerous bird sanctuaries and protected areas, it should be noted that there are many privately held vacant lots providing additional bird habitat. While this study was being conducted, numerous lots were cleared for home construction. The loss of this habitat will reduce the number of birds stopping on the island and their length of stay. To keep this of highly attached group of users at their current level of satisfaction it is recommended that the city actively manage protected to maximize the carrying capacity of the island. To compensate for the influx of birds each year managers should consider maximizing the number of food sources available to target species.

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Table 1.1 Means and Standard Deviations of the Variables used to Measure Birdwatching Specialization (n=149)

Specialization Dimension	Variable Symbol	Variable Label	Mean	SD
Behavior	V33	Approximately how many trips did you make to birdwatch in the last 12 months?	27	89
	V35	Approximately how many miles did you travel to participate in birdwatching in the last 12 months?	2716	6144
	V36	Approximately how many days did you spend on birdwatching trips during the last 12 months?	30	50
Skill	V37	Without the aid of a printed or electronic aid approximately how many birds can you identify by sight?	158	228
	V39	Without aid, approximately how many birds can you identify by sound?	47	79
	V41	Which best describes your skill in identifying bird species?	0.75	0.6
Commitment	V47a	Birding is an important part of my identity	4.9	2.0
	V47b	I would rather birdwatch than any other recreation	4.4	2.1
	V47c	Most of my friends are birdwatchers	2.8	1.9
	V47d	I plan my free time around birdwatching	2.5	1.7

Table 1.2. Means and Standard Deviations of the Variables used to Measure Place Attachment to Dauphin Island (n=149)

Attachment Dimension	Variable Symbol	Variable Label	Mean	SD
Identity	V50a	I feel Dauphin Island is a part of me.	4.9	2.1
	V50b	Dauphin Island is very special to me.	5.3	2.0
	V50c	I identify strongly with Dauphin Island.	4.8	2.0
	V50d	I am very attached to Dauphin Island.	4.9	2.0
	V50e	Visiting Dauphin Island says a lot about who I am.	4.4	2.0
	V50f	Dauphin Island means a lot to me.	5.1	2.0
Dependence	V50g	Dauphin Island is the best place for what I like to do.	4.5	1.9
	V50h	No other place can compare to Dauphin Island.	4.0	2.1
	V50i	I get more satisfaction out of visiting Dauphin Island than any other.	3.6	1.8
	V50j	Doing what I do at dauphin Island is more important than doing it at any other place.	3.5	1.9
	V50k	I wouldn't substitute any other area for doing the things I do at Dauphin Island.	3.4	2.0
	V50l	The things I do at Dauphin Island I would enjoy doing just as much at a similar site.	4.9	1.7

Table 1.3. Means and Standard Deviations of the Variables used to Measure Satisfaction with Birdwatching and to Dauphin Island (n=149)

Satisfaction Dimension	Variable Symbol	Variable Label	Mean	SD
Crowding	V51c	Solitude/Peacefulness	5.6	1.3
	V51e	Level of shore development	3.9	1.8
	V51f	Others' recreational activity	4.2	1.4
	V51g	Number of users	4.8	1.3
Birding	V51h	Number of places to birdwatch	5.7	1.4
	V51i	Quality of areas to birdwatch	5.8	1.3
	V51j	Diversity of birds	5.8	1.4
Ecosystem	V51k	Health of maritime forest ecosystems	4.9	1.4
	V51l	Health of marsh ecosystems	4.9	1.3
	V51m	Health of dune ecosystems	4.5	1.6
	V51n	Health of freshwater ecosystems	4.6	1.4

Table 1.4. Goodness of fit indices for comparisons of first-order and second-order models.

Model Description	Chi Square	DF	RMSEA	CFI	NFI	TLI
Behavior, Commitment, and Skill to Place Attachment	441	201	.075	.95	.897	.94
Behavior, Commitment, and Skill to Identity and Dependence.	368	200	.074	.952	.87	.917
Place Attachment to Satisfaction	606	292	.085	.91	.844	.911
Place Attachment to Birding, Ecosystem, & Crowding Satisfaction	595	289	.085	.91	.846	.903
Identity and Dependence to Satisfaction	709	293	.098	.884	.817	.883
Identity and Dependence to Birding, Ecosystem, & Crowding Satisfaction	674	264	.103	.91	.825	.884
Behavior, Commitment, and Skill to Satisfaction	496	220	.092	.88	.818	.888
Behavior, Commitment, and Skill to Birding, Ecosystem, & Crowding Satisfaction	466	233	.082	.91	.837	.893

Table 1.5. Direct effects of the best model .

Direct Effects	**Estimate**	**S.E.**	**P**
Behavior →Identity	.199	.237	.181
Behavior →Dependence	.238	.210	.130
Behavior →Birding Satisfaction	-.110	.150	.235
Behavior →Crowding Satisfaction	.011	.129	.487
Behavior →Ecosystem Satisfaction	-.197	.157	.955
Commitment →Identity	.478	.177	.002
Commitment →Dependence	.499	.158	.003
Commitment →Birding Satisfaction	.232	.110	.156
Commitment →Crowding Satisfaction	-.099	.090	.607
Commitment →Ecosystem Satisfaction	.043	.126	.797
Skill →Identity	-.239	.216	.113
Skill →Dependence	-.479	.195	.003
Skill →Birding Satisfaction	.248	.138	.125
Skill →Crowding Satisfaction	-.249	.129	.955
Skill →Ecosystem Satisfaction	-.050	.157	.762
Place Attachment→Satisfaction	.363	.104	.002

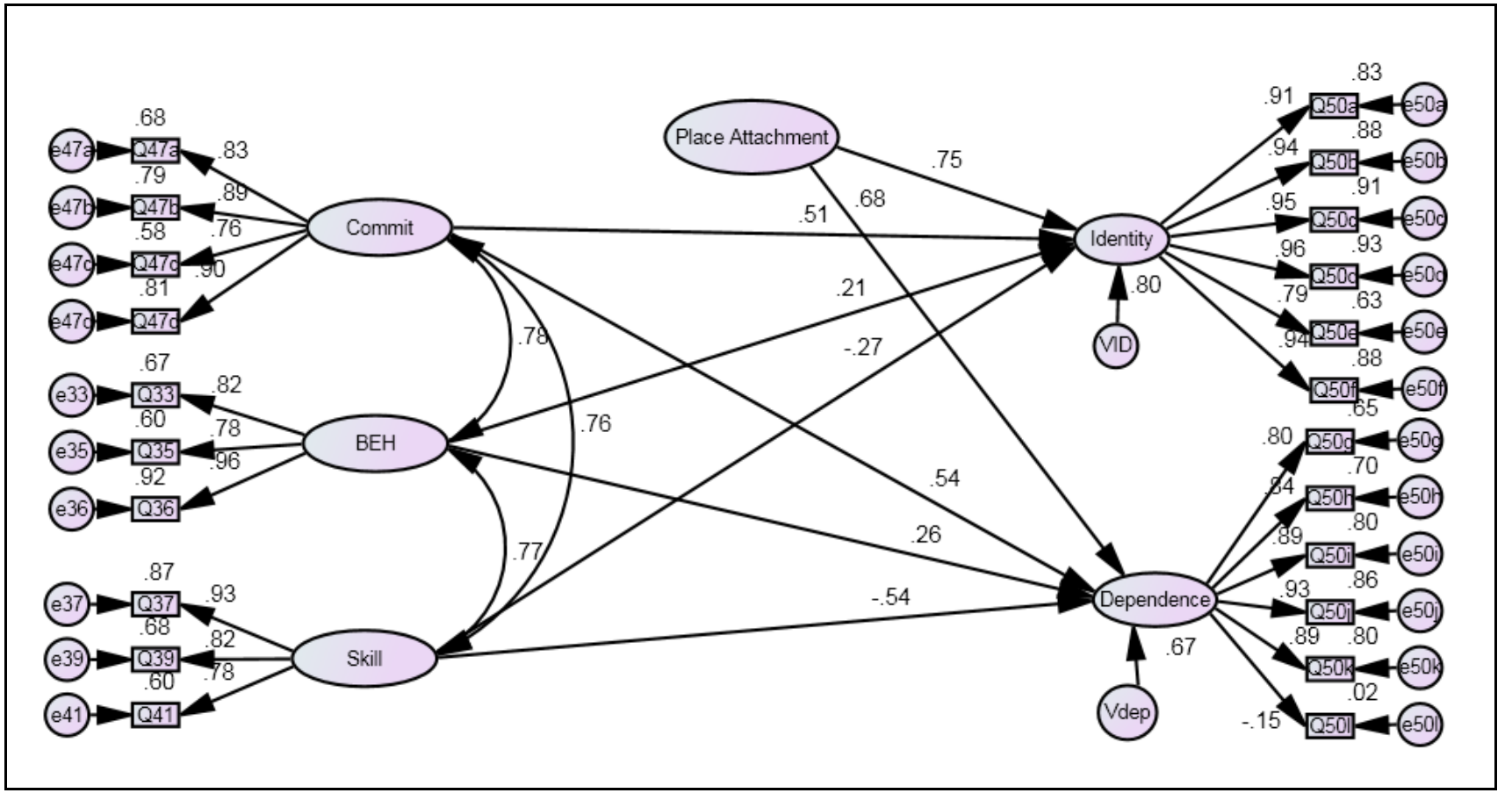

Figure 1.1. Best fitting model of the relationship between specialization and place attachment.

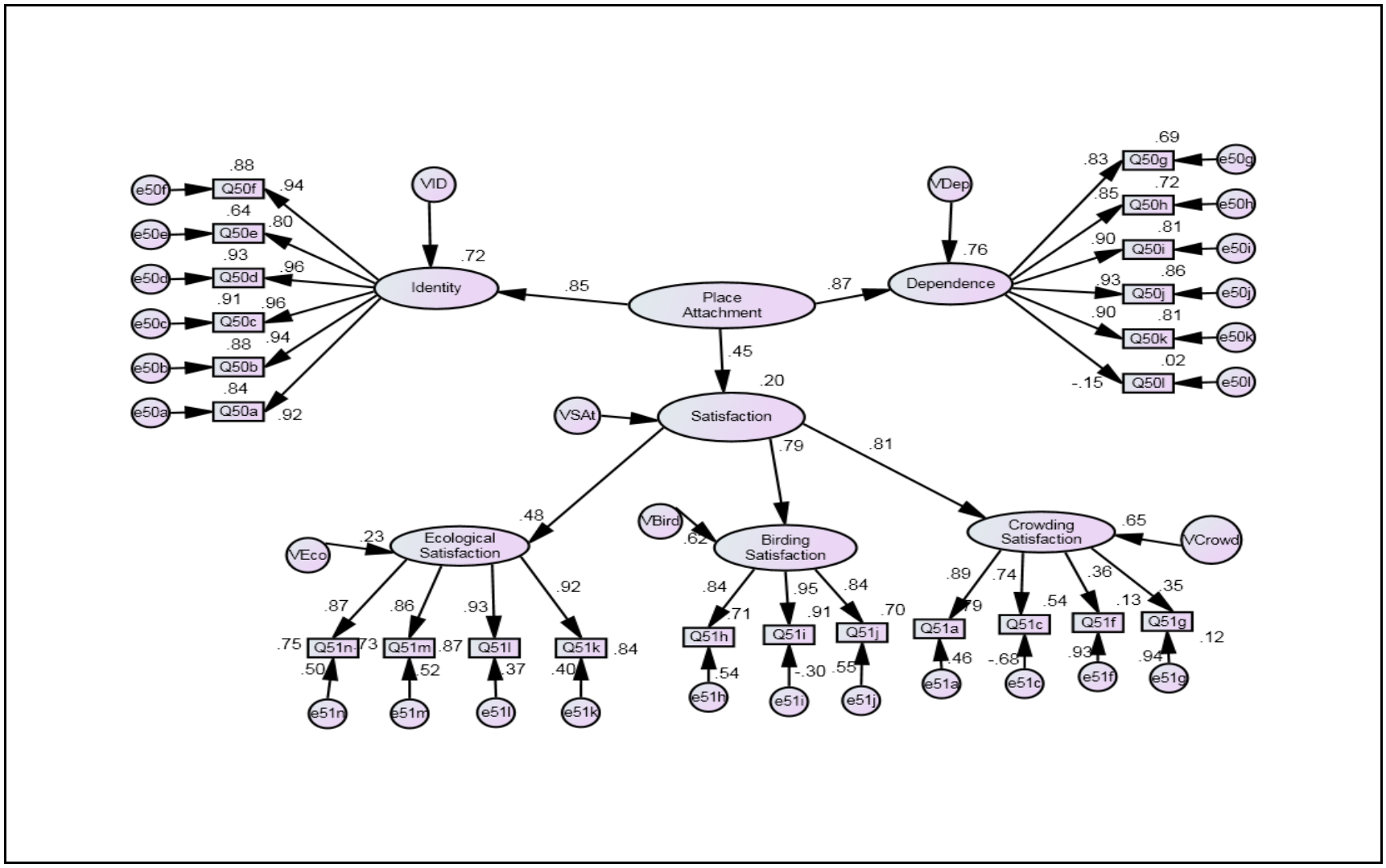

Figure 1.2. The best fitting model explaining the relationship between place attachment and satisfaction.

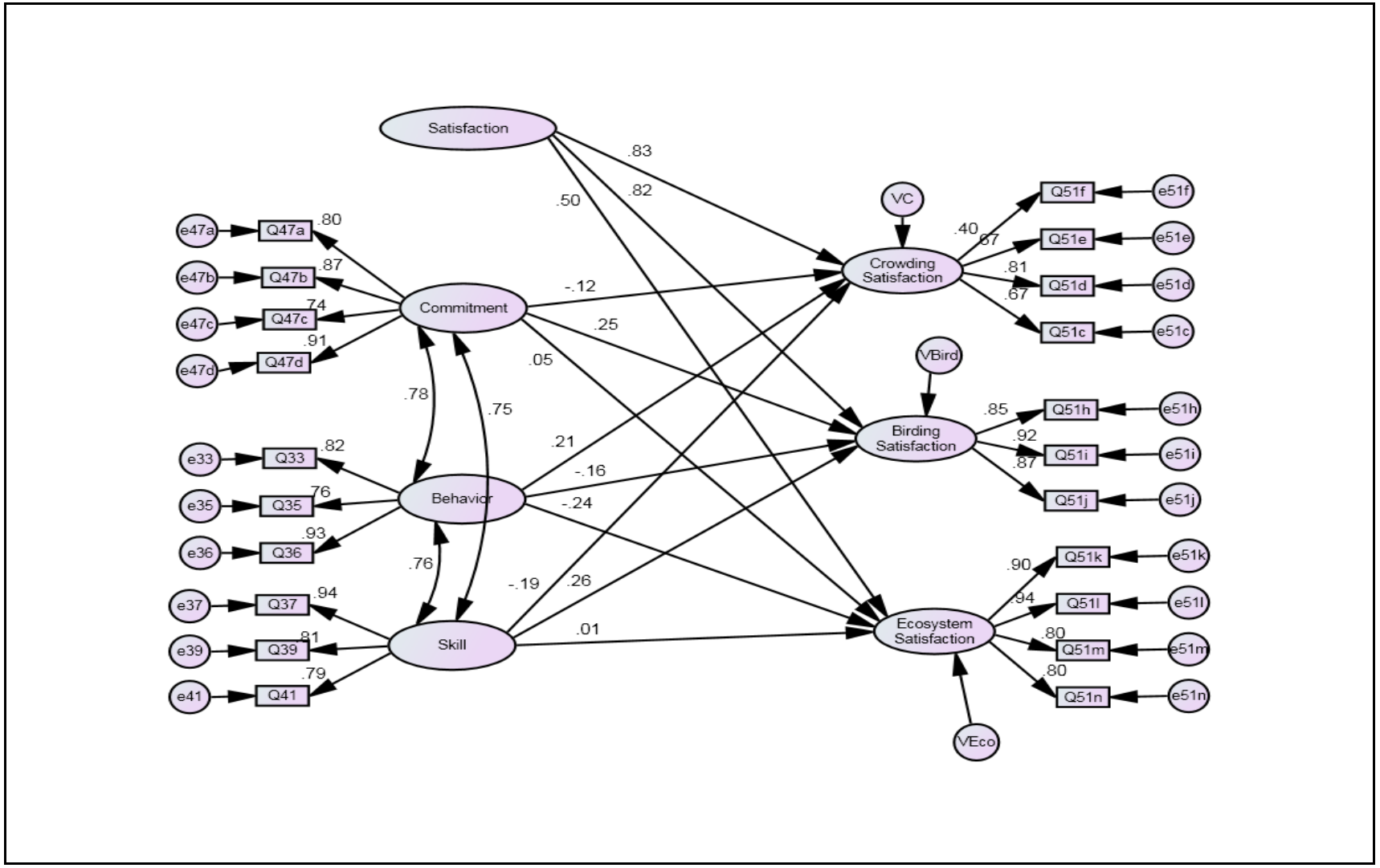

Figure 1.3. Best fitting model of the relationship between specialization and satisfaction.

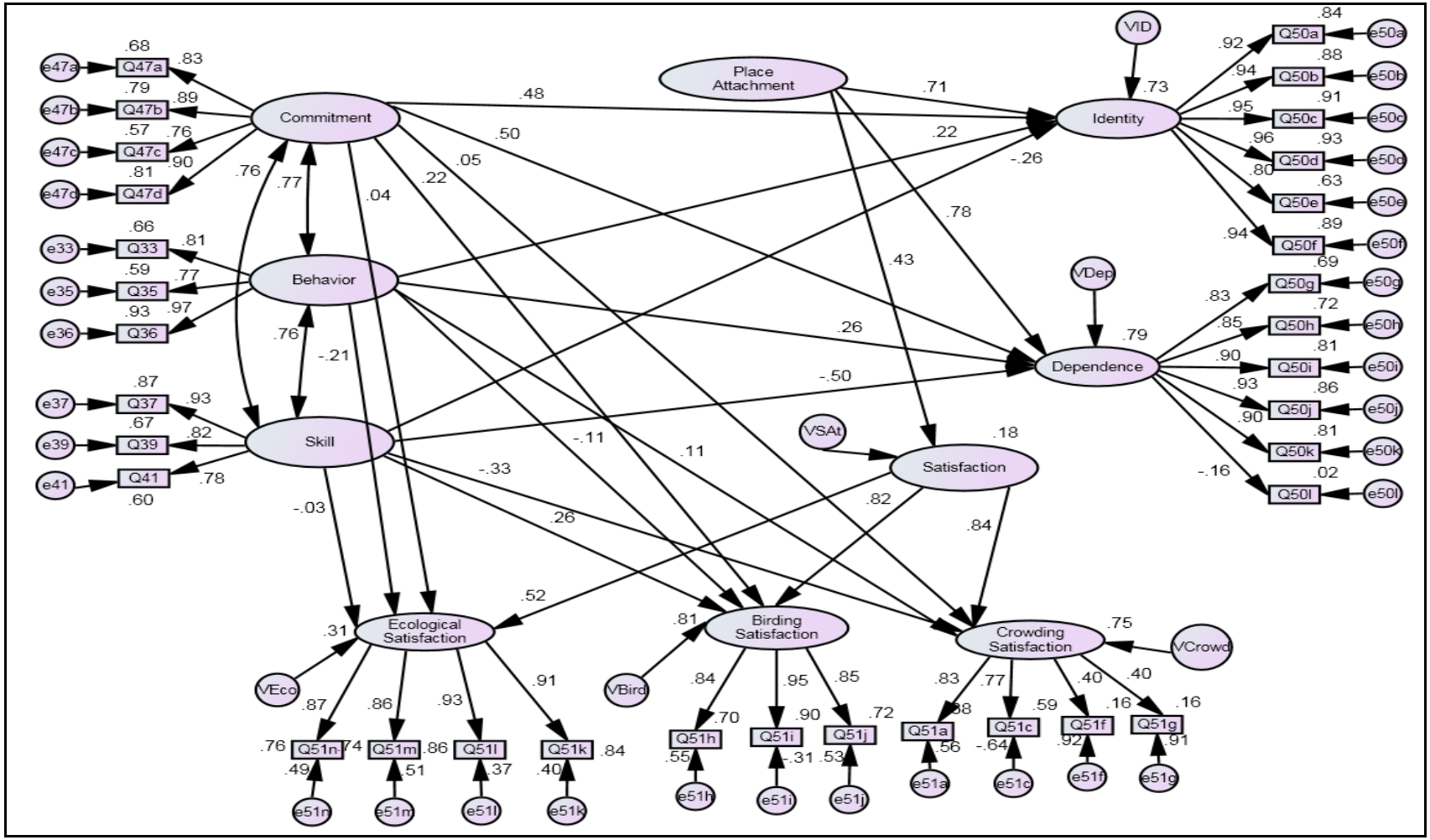

Figure 1.4. Best fitting model of the relationships between specialization, place attachment, and satisfaction.

Amenity specific migration: The case of Dauphin Island

Abstract

Dauphin Island is a small barrier island popular among tourists. The island is known as a stop for a wide diversity and great abundance of birds during migration. Using a referral sampling method we conducted semistructured interviews with residents that had moved to Dauphin Island. We identified the trends in motivations for moving to the island among birdwatchers and non-birdwatchers. Those we talked with that birdwatched prior to moving to the island indicated that birdwatching was the primary motivation for coming to the island. Societal amenities were noted as the major trend among non-birdwatching residents.

Introduction

The search for a peaceful and pristine piece of land is an age old and integral part of the American psyche (Jones, Fly, Talley, and Cordell 2003), and the residents of Dauphin Island, Alabama feel they have found it. The notion of seeking escape from the complexities associated with urban centers is not a new idea (Woods 2011). Indeed, as Woods (2011) pointed out this trend has existed since the time of ancient Romans and societal elite have historically pursued refuge in peaceful rural areas that are rich in amenities. While this ideal has deep roots in the societal elite, Hoey (2006) noted the importance of the rural landscape as a place for an increasing number of disillusioned middle-class Americans seeking a “fresh start”.

Literature review

Migrations to rural areas a brief history

Traditionally, this movement to the rural from urban centers was an exception rather than the rule. While the growth and sprawl of the urban landscape is still the dominant migration trend (Brown, Johnson, Loveland, and Theobald 2005), since the 1970's the outmigration from rural areas has slowed and migration to rural areas has been increasing (Johnson and Beale 1999, 2002). This outmigration is often referred to as counter-urbanization or rural gentrification (Gosnell and Abrams 2011), and is not limited to the United States, (Robbins *et al.* 2009) as the majority of westernized countries have experienced it (Gurran 2008). In the United States, the "American West" or "New West" has received the greatest level of growth, (Robbins, Meehan, Gosnell, and Gilbertz 2009; Travis 2007) and counties that contain federal land have had a significantly larger growth than those counties that do not (Frentz, Farmer, Guldin, and Smith 2004). Nationally, the trend has been for a higher level of immigration to occur in coastal areas and lands adjacent to national forests and parks (English, Marcouilier, and Cordell 2000; Johnson and Beale 1999).

The diverse and numerous amenities available in such areas have led this movement to be labeled amenity migration. It is defined to be the non-economic motivated movement of people from urban to rural landscapes that are rich in recreational, cultural, and/or environmental resources (Chipenuik 2006; Kruger, Mazza, and Stiefel 2008; Moss 1994). However, motivations for participating in this global trend are key to distinguishing amenity migrants among all those who move to rural areas (Gunnar 2008). The driver for amenity migrant

movements is based on a desire for a lifestyle, rather than a job (Gurran 2008). As Kruger *et al.* (2008) note amenity migrants do not follow jobs; jobs follow the amenity migrants. Kruger *et al.* (2008) cite increases in middle class disposable income, tax code reform, that rural economies are increasingly more dependent on the service industry rather than manufacturing, and the growth of the outdoor travel industry as four major reasons for this shift from the historical precedent.

Why they are moving: the push and pull

While these events explain what has afforded these amenity migrants the ability to move they provide limited insight into the reasons for the movement. The amenities that draw migrants to rural areas are often referred to as "pull factors" (Grosnell and Abrams 2011). As indicated by the growth surrounding national forests and public lands, there is a strong pull from natural amenities (Frentz *et al*. 2004; Rasker 2006). Natural amenities offered by rural areas often concern multiple recreation opportunities, an abundance of public lands, clean air, and pure waters (Woods 2006, Jones *et al*. 2003). Migrants seek not only these natural amenities, but a host of societal amenities categorized as "rural idyll" as well (Grosnell and Abrams 2011). Migrants often seek idealized areas that provide a "Mayberry-esque" way of life (Jones *et al*. 2003). They desire a place with low population density, laid back lifestyles, low crime, and a slower pace of life (Jones *et al*. 2003; Gurran 2008). These pull factors are often complemented by a series of negative "push factors" associated with perceived problems of urban life such as pollution, lack of green areas, and high crime and crowding.

Case Studies

Several studies have examined the expectations and perceptions migrants have about rural areas. Crump (2003) found that Sonoma County residents that resided further from cities (exurban vs suburban) placed greater importance on attractive natural environment, clean air, and proximity to open spaces. These results were consistent with Rudzitis' (1999) study Mountain West migrants indicated environmental quality, pace of life, and outdoor recreation opportunity were more important than economic motivations. Open space communities in Michigan placed importance on sense of community and natural features (Kaplan and Austin 2004). In Australia, the pull factor of coastal regions is so great that "sea change" has dominated the amenity migration literature (Gurran 2008). A strong desire to live close to water, scenic beauty, leisure pursuits, and a place for retirement have been identified as primary motives for the purchase of coastal second homes (Kelly and Hosking 2009). Other pull factors include solitude in nature, escape from city pressures, easy access to outdoor activities, and social status. Motive examination of baby boomers has shown that this more affluent and older population place highest importance on environmental quality (Nelson, Nicholson, *et al.* 2004).

Who has moved: individuals who can (wealth), workers who can (commuters, telecommuters), return migrants, and retirees

As indicated earlier, increases in disposable income play an important role in affording migrants the ability to live in areas they desire. Urban professionals with adequate income can afford to drive the long distances to work or use combinations of mass transportation. Of particular interest is the rise of telecommuting, which has diminished the need for some

professionals (especially those in information technology) to be present at a job site. These changes are illustrated by the fact that young professionals not retirees represent the majority of suburban/rural migrants (Beyers and Nelson 2000). The small and often overlooked group, return migrants, plays a contentious role in rural migration (Ni Laoire 2007).These migrants are heavily influenced by the rural idyll (Ni Laoire 2007), and their story is disparate of the majority of amenity migrants (Halfacree 2001). Retirees represent an important group of migrants and are poised to become the most influential group over the next few decades (Cromartie and Nelson 2010). Within the next 20 years, nearly 80 million baby boomers (a group prone to moving to amenity rich areas) will retire (Nelson and Nelson 2010). This suggests that the next big change in amenity migration will involve retirement migrants.

The relationship between tourism and amenity migration can be a confusing one as the same amenities that draw migrants to an area also entice tourists. Tourism is often seen to be an important step in amenity migration (Moss 2006; Stewart 2002, Chipeniuk 2004). In these instances, an increase in visit frequency results in the purchase of a seasonal or second home and culminates in the purchase of a permanent residence. This pattern has been noted as the dominant trend in retirement migration. In these instances retirees are initially tourists to an area, they consequently become attached to the community and/or area and purchase a seasonal home or lot (Kruger *et al* 2008). This process typically ends in the permanent migration of the retiree (Cromartie and Nelson 2010). While the possession of a second home presents an arguable gray area in this process (Gosnell and Abrams, 2011) most authors will agree that the actual purchase of a permanent home a defining moment in amenity migration (Ni Laoire 2007, Chipenuik 2004). Some authors argue the step should begin with the purchase of a seasonal home (Nam and

Sato 2010). Keuntzel and Ramswamy (2005) found that tourism amenities played a secondary role to economic considerations when transitioning from second home owner to resident.

Birdwatching tourism

Tourism is the largest and fastest growing industry in the world, and currently the most touted and fastest growing tourism sector is nature based. While the impacts associated with nature based tourism are often debated there is no doubt that an abundance of natural amenities is attractive tourists. In the United States, every state has identified wildlife recreation as an economic catalyst (Montgomery and Blalock 2010). Trends in wildlife recreation participation have shown that traditional wildlife activities such as hunting and fishing have declined while wildlife viewing has increased. Of particular interest is the growth of birdwatching (Maple, Eagles, and Rolfe 2010). Birdwatching is a niche tourism market that has seen unprecedented growth since the early 1980's. Since then the number of birdwatchers has increased by over 200% to become the fastest growing wildlife related activity. Birdwatchers in the United States tend to be more educated, older, and wealthier than the general public. In 2006, birdwatching represented 66% of all wildlife watching in United States and generated $82 billion in economic growth (U.S. Fish & Wildlife Service, 2009).

Research has shown that demographic differences among birdwatchers are associated with their level of involvement. Level of involvement is measured by a construct termed specialization; a multidimensional construct that measures the level of skill, social commitment, and activity behavior. This allows researchers to place birdwatchers on a comparative scale of involvement. Those birdwatchers that can identify the most species, participate often and have

social groups comprised mostly of birdwatchers have the highest level of specialization and are often referred to as “birders”. Not surprisingly, birdwatchers that identify themselves as “birders” typically have long “lists” of the species they have seen, arrange their leisure time around the activity, and travel long distances to participate in the activity (Connell 2009). Because of their extreme interest in the activity “birders” tend to possess an extensive ecological knowledge and concern regarding environmental issues (Connell 2009). The level of exuberance that some” birders” display in their quests for new species has led some researchers to describe it as frenzy (Oddie 1995). When rare birds are found in their area “birders” are willing to spend large sums and travel long distance with little notice (Oddie 1995).

In this article we explore the cycle of tourism through the context of amenity migration to Dauphin Island. In particular, we examine how birdwatching, as a specific activity, factored into the decision making process of migrants. Furthermore, we were interested in how local residents adopted birdwatching as a recreational activity. To this end, we examined the adoption trends among those that were birdwatching before moving to the island and those that adopted birdwatching after moving to the island. To help understand the impacts of the tourists on the community we inquired about the perceptions and interactions residents had with birdwatching and non-birdwatching tourists that visit the island.

Study Site

This research was conducted as part of a larger study concerning birdwatchers on Dauphin Island. Dauphin Island is a small barrier island off the coast of Alabama and is the self-proclaimed “birdiest” coastal city in the United States. This title is due to the high diversity of

migratory species that stop over on the island during migration periods, and has put Dauphin Island on the birdwatching map. While much research has been done on amenity migration and the general drivers little research has focused on the effects of specific recreation such as birdwatching. Because of the island's birdwatching popularity we chose to explore whether this form of tourism was an important motivation for residents to move to the island. We conducted 17 interviews with residents on the island to understand the relationship between birdwatching on Dauphin Island and migration of residents to the island

In the context of this study birdwatchers were identified as anyone that regularly traveled at least one mile from their home to identify bird species by sight or sound. The island's history has caused the island to a unique feature along Alabama's coast. Dauphin Island is a small barrier island that is situated 3 miles off the coast of Alabama's Mobile Bay. The island has a land mass of 6.2 square miles and is 14 miles long. Before the European settlement of the island, Dauphin Island was used by indigenous tribes along the Mobile-Tenesaw Delta. Their influence on the island can still be seen at the Indian Mound Park. This Nationally Registered Historic Place is a series of oyster shell middens that attest to the islands importance to native tribes during wintering months. The park is popular among all tourists and a preferred spot for birdwatching on the island.

During the early 20th century the majority of the island was held by a private harbor company that sold the land to the Mobile Chamber Commerce. While the island was a destination for vacationers at the time, access was only available through ferry, and hurricanes limited construction on the island. It was not until 1950's that a bridge connected the island to the mainland. This draw bridge was financed by selling 1500 lots on the island by lottery. However, in 1979 hurricane Frederick destroyed the bridge and many of the homes on the island.

It was not until 1982 that a new bridge was constructed which allowed many residents and businesses to rebuild.

Dauphin Island has a tourism driven economy. The majority of housing units on the island are used as rental and seasonal home, and only 582 (32%) of the 1818 housing units on the island are households for the 1238 island residents (US Census Bureau 2010). The island is convenient to its county seat, Mobile, which has a population of 195,000 residents and within a 45 minute drive. The island has multiple public and private beaches and is home to the Dauphin Island Sea Lab (DISL), a research facility. The DISL focuses on marine research, outreach, and runs an estuarium for public education. The island's park board maintains a campground, multiple walking and birdwatching parks, Fort Gaines, an Audubon Bird Sanctuary, and multiple beaches of "sugar white" sand. The island is home to eight publicly accessible sites that are part of the Alabama Coastal Birding Trail. It is known as a sun and fun destination and is busiest during the summer months as tourists descend upon the island to take advantage of coastal and deep water fishing and as well as lounge on the public and private beaches. The tourism highlight each summer is a deep sea fishing rodeo. The summer tourism season is book-ended in the fall and spring by the arrival of birdwatchers, which follow migrating birds.

The island sets in a large migratory corridor and is important to migrating birds because it is one of the first land masses encountered on their return flights that cross the Gulf of Mexico. Migrating birds use the island in both spring and fall migrations, but it is the spring migration that garners the most attention. In the spring, as the birds rush back to breeding grounds, in full breeding color, they stop on the island to escape weather events and to recover from the exhaustive flight across the Gulf. In extreme cases, known as fallouts, the birds descend upon the island in the thousands. These events, while rare, are very popular among birdwatchers.

Thousands of these niche tourists flock to island annually to see the birds that rely on it as they migrate. Local residents say there are many absentee land owners, which accounts for the numerous vacant lots on the east end of the island. These lots are highly valued by the birdwatching community that prizes these areas as habitat for neotropical migrants.

Methods

Sample Selection

We conducted semi-structured interviews using the questions found in Tables 2.1 and 2.2. We began conducting interviews in October of 2011 and the last interview was completed in April of 2012. A previous study on the island had identified two residents that were birdwatchers and willing to participate in interviews. Using snowball sampling (Singleton and Straits 2010), we asked our initial interviewees to provide the name of one birdwatcher and one non-birdwatcher that would they thought would be willing to participate in the study. Referral sampling, such as the snowball procedure, are often used when a small subgroup of a population (*e.g.* birdwatchers) are the target of audience (Singleton and Straits, 2010). In our research, the first referral chain ended with the addition of three more birdwatchers, and two non-birdwatchers. To identify additional participants we inquired at the local real estate office for names of two non-birdwatching island residents. Interviews were conducted until the point of saturation and additional interviews were expected to provide redundant information.

The interviews consisted of both open and closed-ended lead and follow-up questions that focused on the motivations of residents to move to the island, method of acquiring birdwatching as a recreation, and perceptions and contact with island tourists. Each interviewee

gave approval for recording of the interviews, which were later transcribed and then entered into QSR NVIVO 8.0 for analysis. Interviews were organized and coded to identify themes among interviewee responses. Emergent coding was used to understand how birdwatching fit into the decision to migrate to the island.

In total, 17 interviews were conducted with residents which had moved to the island. Eight of the interviewees were identified as birdwatchers and nine were non-birdwatchers, and both groups consisted of five females. The range of residency for birdwatchers was 3-38 years and the range of residency for non-birdwatchers was 2-36 years. The interviews lasted an average of 36 minutes, were audio recorded, and the interviews were transcribed. While interviews offer insights that are often not obtainable through survey methodologies, it should be noted that referral sampling creates unequal sampling biases that make it imprudent to apply the results to an entire population (Singleton and Straits 2010).

Results

Moving to the Island

One of the main goals of this research was to identify what role birdwatching played in the decisions making process of migrants that had moved to the island. This first section discusses the trends that were noted in the participant's motivations to move to the island. These results were examined in context of whether the migrant was a birdwatcher or not, for those interviewees that were birdwatchers we examined whether they birdwatched before moving to the island. The results of the examination are presented in an order that identifies the trends that were exclusive to those which birdwatched before moving to the island, followed by trends that

were common among all three groups, and concludes with the trends that were common among those that adopted birding after moving to the island and respondents that did not participate in birdwatching.

Residents that were birdwatchers before moving to Dauphin Island

There were many themes that were identified regarding the decision to move to the island, but after talking with residents it became clear that those that live on Dauphin and birdwatch are avid 'birders".

> Well, my motivation is strictly about birds, okay. Birds motivate me to do a lot of things in life. But Dauphin Island is a great spot on the Northern gulf coast to watch the birds from. It's a congregate of birds being a bare Island […] So it is all about birds for me, and that is the reason we live on the Island, it's because of the birds

This sentiment was strongest among those that had been birdwatchers before moving to the island, though it was a reoccurring theme among all but one of the study participants who were birdwatchers that lived on island. The influence that the birds on Dauphin Island have on those that birdwatch there cannot be overemphasized. The birds on Dauphin Island have caused life altering affects for some of the islands birdwatchers. When asked how Dauphin Island had affected their motivations to birdwatch one resident explained it hadn't changed their motivations but had altered their life. They explained before retiring to the island, it had drawn them from Tennessee to a community closer to this birdwatching destination.

> [W]e would have certainly not ended living in Fairhope, if it wasn't for Dauphin Island, having been down here and being exposed to it. So it certainly changed that. It changed our lives, not necessarily our motivation [to bird has] changed, but our life.

This recreation has had a strong influence on some of the birdwatchers we interviewed and was identified as the main motivation for those who birdwatched prior to moving onto the island. There were two trends identified in this group. The first was that birdwatching was the primary motivation for their move to Dauphin Island. The second was the previously mentioned migration trend. However, there was one amenity migrant that stated their sole motivation for living on the island was the birds, and that they had never visited the island before they bought their home.

> Well I bought the house the first time I was ever on the island to come birding. There was a fallout, and I bought the house. […] I came at the insistence of an Aunt, this was the first time I'd paid money to take a trip to go birding. [The house] was over grown and they had just put a sign in the yard the day before and I went in and I saw the floors in the windows and I said, 'I like it'. Then I made a ridiculous offer on it and they took it, it had no closets, no fence.

The motivation for this birdwatcher to move to the island was based solely on birds and occurred the first time they came to the island. While this case is obviously representative of the motives for residents to migrate to the island it should be seen as a special case. This birdwatcher is what the local birdwatching community calls a "world birder". The title is used to describe those who have extensive life lists due to their world travels in search of birds. This particular birdwatcher quit recording a life list once they had identified 5000 species in the wild and continues to make annual trips abroad. Giving special notice to this case is not intended to diminish its influence as a sample, but to highlight how the island has drawn an avid birder.

> We were here twice a year for birding anyway. And we have little dogs and we had to bring them with us. […]and we rented, we always got the scroungiest places and it was so expensive too. It got more and more expensive to pay deposits, and we have 3 dogs, so that is the reason why [we moved to Dauphin Island].

This pattern was the noted among the other birdwatchers that had adopted birdwatching as a recreation before moving to the island. Each had made multiple trips to Dauphin Island for

the primary purpose of birdwatching over the years. Their individual stories were quiet different and each had been coming to the island for different lengths of times, but they all followed the retirement trend seen in previous research (Kruger *et al*. 2008; Cromartie and Nelson 2009.) In these cases the participants had been coming to Dauphin Island for years for the birdwatching. This resulted in the purchase of a second home for the purposes of retirement. This trend however was not limited to those who were birdwatchers before coming to the island. A participant that had moved to the island primarily for life style noted that:

> We came here on our way to Florida in 1962 and we just fell in love with the place and we started coming back here year after year after year and finally my husband said, you know we could have bought a place with the money that we spent. So….

One birdwatcher stated that birds were the only motivation for their living on the island, they were the only one to mention that birds were the sole factor for living on the island. The trend among the other birdwatchers that had experience birdwatching before moving to the island was for birdwatching to be the primary motivation, but other amenities had persuaded them to live on Dauphin Island instead of other birdwatching areas. The other additional amenities that motivated this group were also noted in those that adopted birdwatching after moving to the island and those that had never adopted birdwatching.

Island Life

> It is accessible from land, by car. I would live on Horn Island if I could, in Mississippi, but the infrastructure is really bad, out there….I am definitely, and my wife is too, drawn to islands it is just something about island, island life, island people.

The desire for the island life was a common trend to all three groups though it was mentioned most often in those who had never birdwatched. For those who birdwatched prior to

moving to the island lifestyle was a motivation that made Dauphin Island more appealing than surrounding areas. The island life mentality is a societal amenity and is part of the rural ideal.

> The reason that we stay here is because we like the lifestyle, we like the unhurried atmosphere, you have to drive to get into a traffic jam […] We said that the risk of dying because of that [living far from hospitals] is insignificant compared to the lifestyle that Dauphin Island affords you otherwise. We like the lifestyle, you can get out and you can walk, there's never a day, not even in the deepest of winter that you can't go out in the afternoon without a light jacket on.

When residents explained what they meant by island life, the descriptions were generally composed of two key elements. The first was a reference to passage of time. Emphasis was placed on how slow time moves on the island and that the residents love being laid back and never in a hurry. The second concept concerned more traditional idealizations of rural life. These included the idea that everyone knew and trusted everyone else on the island.

> You don't have to worry so much about letting your kid ride the bike the road it's kind of isolated. It's not like being in the big city where you have to fear for them going from one block to the next. I think that's a comfort zone for people are that they don't have to worry about that over here.

This summary of the island life places emphasis on safety for rearing children. It suggests that life on the island of a much higher quality than in urban areas, by emphasizing not only the pull of island life, but the push of the urban center. In addition to pull of birds, Dauphin Island has a economic pull for baby boomers that want to purchase a second home. The lastly mentioned trend of those who were birdwatchers before moving to the island was due to tax code.

> Because it is a stopover. Dauphin Island and High Island Texas are probably the two top migratory birding areas in the south. I would think the top. I guess fort Pickens or whatever that other place I guess they have a lot of birds over there too. But we never do go over there. See Dauphin Island is in Alabama so property taxes are not as much here as… we have had a condo in Florida before and it is out of sight. Taxes, and… because Georgia don't get the birds. There are birds here and that is why we came here.

Motivations for residents who adopted birdwatching after moving to the island.

There was a common trend that was seen among both those that adopted birdwatching after moving to the island and those that had never birdwatched that did appear in the conversations with those that had been birdwatching before moving to the island.

> My ancestry goes back to my great-grandparents over here.[…] at one time we lived with our grandmother and went to the little school over here so when I got married and had children it was like the place to come raise my children and them to get to know their great-grandmother because she was still alive at the time. [It is] a unique area to raise children, a small school, and being near family. Lots of memories, good memories.

Many of the migrants on the island had family ties to the island, some that went back before the lots were sold on the island. These people expressed a sentiment common among return migrants, a desire to be near loved ones particularly parents or grandparents. The desire is to strengthen family bonds and spend time with loved ones before their passing.

Many of the participants had immediate familial ties to the island that drew them back to the island after leaving, but for others the decision to return to Dauphin Island was because of a spouse.

> Because my wife was born and raised over here and my daddy was born and raise over here. You know, I was in the sea food business. I come up here and stayed a lot. Before me and my wife got married. She lived here when I married her, in 1955.

This participant had never birdwatched and was quite sure he never would, but his motivations for returning to the island were based very similarly to those of one who had adopted birdwatching after moving to the island.

Another trend identified in the data that was not seen among those who birdwatched prior to moving to the island but was present in both other groups was the pull of other outdoor recreations.

> Just enjoying the things on the Island. You know, we were not birding at all then; my husband has always fished since he was a little boy. And I just, you know, we would go out on the boat and the beach and just be outdoors. Enjoying looking at the water.

Fishing was often mentioned as the outdoor recreation that drew these residents to the island. Among those residents that eventually became birdwatchers, fishing was previously the preferred outdoor recreation before moving to the island. No trends were seen that were exclusive to those that had never adopted birdwatching as a recreation. The motivations identified by those that had never adopted birdwatching were mentioned as secondary and tertiary motivations of those that did birdwatch.

Comparison of motivations to adopt birdwatching

There were two main trends that were identified in the motivations to adopt birding among those that birdwatched prior to living on the island. The interviewees identified that they had been active in nature from an early age and that they had spent time outdoors or had always been drawn to nature. The other trend seen among this group was the introduction of birdwatching as a recreation by a friend or family member. It was the case among those we talked with that the person that introduced them ended up being somewhat of a mentor for them. The person that introduced them to the recreation often was responsible for not only guiding them during their early years of birdwatching, but also took them on trips to Dauphin Island. The

trends seen among those that adopted birdwatching after moving to the island identified that it was the presence of birds and birdwatchers that first peeked their interest in birdwatching.

Those that moved to island to birdwatch

Those that moved to the island to bird shared several key initiatives to start birdwatching. All in this group had been exposed to nature at a young age, but had some had no specific remembrance of birds.

> I had no clue, that birds that were even a part of it, all I remember is just running through the wooded areas and making little forts out there and you know, places to hid from people, dig holes

And some had been birdwatching since as long as they could remember.

> I have been a back yard birder my whole life, […] I have always been trapping voles and been looking at hawk my whole life, but just a back yard birder.

Both groups became birdwatchers before ever moving to the island but some had no recollection of birds from youth and the other did, however both groups had been involved in nature at early age. The trend that was consistent among all those that moved to the island to bird was that a friend or family member had introduced them to birdwatching. After introducing them to the recreation they went along with the novice birdwatchers and guided them, showing them the ropes.

> I had a mentor, her name was Judith Tutes and Judith is deceased now, she was from Gulfport Mississippi. She was a self-taught birder, and quite good. She was an incredible teacher. She would take us to, every Saturday and Sunday depending, you know, she would bird everyday if you wanted to go. She introduced me [to birdwatching].

Those that did not move to the island to birdwatch

> Interviewer: [In response to becoming a resident birdwatcher] Do you think things would have been different if y'all hadn't been living on the island?
>
> Interviewee: I doubt I would have been [a birdwatcher], that I would have done it. I mean, I just don't think I would have, because I wouldn't of had something that was so easily accessible and then where I can get it with, like riding my bike, because I enjoy riding my bike, you know.

Those that adopted birdwatching after they had moved to the island were influenced heavily by the presence and diversity of birds that they witnessed after their move to the island. They often mention the bright colors they had seen on the birds and generally remember the first species that caught their eye.

> The first spring that we were there, I saw a Scarlet Tanager. And then the next fall I saw a Black Throated Blue Warbler. So it was like, I was like on it, I was like, what is this all about. […] then the first spring that I started. We had a major fall out. Major! Fallout! So that is what, I mean that really got me hooked. Because there were birds everywhere. And I would hang out with the people that would visit from Tennessee [an elderly couple who stayed through each migration], coming through migration, and that is how I started to learn.

The occurrence of fallouts on the island was often mentioned during the conversations with residents of the island. Even those residents that did not birdwatch encouraged me to make repeat my spring visits for the chance to see this event. Though for this participant the abundance of birds was the primary motivation to start birdwatching for others it was the number of birdwatchers.

> We would see the cars here […] Every now and then we would see all the crowd of people that I have to walk through [and my husband would say] there's got to be something to it, or these people wouldn't keep coming. […] so all three of us came with this little pair of crummy binoculars and I am having a hard time even finding the things in the first place, […] and we see a bird up there. […] and it's this red thing, red and white and black, it's like, 'oh my goodness' I didn't know that kind of bird would be here. That hooked me, the Red Breasted Grosbeak.

Those that adopted birdwatching after moving to the island also note the importance of the birdwatching community. Rather than be left on their own, the birdwatching community on Dauphin Island pulled these novice birdwatchers into the fold.

What are your interactions with the tourists?

The residents we spoke with tended to state unless their work required it they had minimal contact with tourists of the island. The trend was that it was seldom that the island was overcrowded. Those we talked with felt that the tourists were an important and welcome part of life on the island. They stated that tourists were an expected and necessary part of life on island. Though when prompted to give insight about the various groups both birdwatchers and fisherman were seen more positively than the beach goers. The birdwatchers in this study indicated that they were likely to talk to other birdwatchers that they encountered in the field and that they shared what could be seen where on that particular day.

Interactions and perceptions of birdwatchers

With regards to perceptions of the birdwatching tourists there were no trends that distinguished the opinions of birdwatchers and non-birdwatchers on the island. However, non-birdwatching residents said they had very little interaction birdwatchers that did not live on the island.

> Most of what I know about them is hearsay, I try not to have too much of an opinion if I don't have a personal interaction. […] I really can't say that they impact me they are just part of the scenery.

Birdwatchers on the island had much more interaction with birdwatching tourists as they often tell them where to go and what they can see.

> I mean you see the [Welcome Birders] sign up out there, that sign stays up a lot because I like to welcome people to the birding community on the island and to let them know that a lot of back yards maybe under private ownership [,but] are open to people.

From the conversations conducted it would seem as though the birdwatchers on the island are very connected and friendly group. They are very aware of what species are on the island and know where to see them due to an informal call list for the appearance of special birds.

> We are a pretty close knit bunch. If I see a good bird I pick up the phone and call one of them. It is just the domino [effect], and everybody shows up. If [a local birder] sees one when it's here he's calling me or calling this one or that one.

The birdwatchers we talked with said that they often talk with the birdwatchers that are in the field and it was common to share what they had seen and where they had seen it. When asked about the information they received from birdwatching tourists the trend was that tourists were more likely to need information about birding on the island rather than providing it.

Among those that did not birdwatch, birdwatchers were generally identified as a "group that keeps to themselves". All residents we talked with prescribed to the opinion that birdwatchers were a relatively benign environmental impact on the island. Many of the birdwatchers and non-birdwatchers expressed the opinion that birdwatching tourists are very environmentally conscious group and took care of the habitats on the island.

> Well, they are very conservation minded group. I have a lot of respect for all the bird watchers here on the Island because I know the extremes that they go to protect those areas, and I like that.

Members of both groups also expressed that birdwatching tourists were highly motivated by rare birds. The comment was generally associated with the complaint that birdwatcher tourists often

leave their vehicles in the middle of the road to chase birds. As one non-birdwatching resident explained:

> [T]hey don't really care if they are blocking traffic or not.

It should be noted that this goes against the ethics code of birdwatchers. This was the only complaint regarding birdwatchers and most felt that birdwatchers brought a positive environmental concern to the island.

When asked about the economic input of birdwatchers the comments were mixed with regards to the level of impact birdwatchers have on the local economy. In our interviews, some birdwatching residents felt that these tourists had a significant positive effect on the economy, and were an integral part of the tourist season. This idea was also identified among residents that did not birdwatch. However, both groups also had members express concern that birdwatchers were "cheap" and spent minimally when on the island.

Interactions and perceptions of non-birdwatcher tourists

When asked about their interactions with non-birdwatching tourists, residents indicated a trend that was similar to their interactions with birdwatchers. Interaction generally only occurred when a resident met someone participating in the same activity they were or when their job required it. Fishing was mentioned most often as the recreation that facilitated interaction. However, residents stated that conversations were limited to formalities and that they rarely informed tourists of their favorite or the best areas to fish. This is the opposite of the trend noticed among birdwatching residents interacting with birdwatching tourists, as they tend to readily share information. The differences are likely due to the consumptive nature of fishing, while birdwatching is a non-consumptive recreation.

The consensus among those residents interviewed was that fishermen (the most commonly mentioned tourist other than birdwatchers) were the most economically important tourists to visit the island. Indeed, because of their high economic impact, fishermen were indicated as the most influential tourists visiting the island. Both birdwatchers and non-birdwatchers mentioned the importance that fishermen play in the economy of the island. Residents of both groups mentioned that fishermen were not as environmentally conscience as birdwatchers, but they had a very low environmental impact.

This differs greatly from the view the residents had of beach goers, which were commonly identified as an inconsiderate group. Both birdwatchers and non-birdwatchers expressed concerns regarding the environmental and economic input associated with beach going tourists. These tourists were consistently mentioned as a group that placed a high demand on the island but one with mixed economic inputs. When birdwatchers were asked about beach goers a trend concerning trash disposal was noted. Birdwatching residents stated that beach goers tend to leave trash on beaches that can affect the birds and other wildlife. Furthermore, they felt it was their duty to remove it before it became a problem for an animal. Like birdwatchers the economic impacts of beachgoers were mixed. While some identified beachgoers as high economic inputter, the trend was to place emphasis on their impacts in relation to their economic impact.

Conclusion

This study highlights the importance that a specific recreation can have as a pull motivation among amenity migrants. The quality of birdwatching that is offered by Dauphin

Island has the ability to draw migrants who enjoy the activity. We found that a specific recreation can be enough of draw to pull migrants. Indeed, birdwatching was listed as the primary motivation for all migrants who were birdwatchers before moving to the island. However, birdwatching alone was not enough of an incentive to bring most of these migrants to the island. Instead, it was an amalgam of amenities that when combined with the quality of birdwatching, made Dauphin Island stand out to this group. This study highlighted the process by which many retirees chose for their movement. The primary lure of the island had led to multiple visits and eventually the purchase of a second home. The activity of birdwatching also presented some interesting trends among those that adopted it as a recreation after moving to the island. The sheer number of birds that descend on the island during migration seems to not only affect the movements of those interested in birdwatching, but also entices those living on the island. The abundance of diversity and coloration of the migrants that travel through each spring incites the curiosity of the islanders and can lead to involvement in the activity.

These narratives show that the birds are important to many of the amenity migrants that reside on Dauphin Island, not just the birdwatchers. As non-birdwatchers were asked about birds they often expressed surprise at their answers. They stated that before being asked they had never given much consideration to the birds, but that the birds were a part of their lives. Many of the non-birdwatchers mentioned keeping bird feeders and were able to share at least one story about birdwatching on the island, but insisted that they were not real birdwatchers. When asked why they were not "real" birdwatchers they often described traits seen in "birders". Non-birdwatching interviewees seemed to feel that only the most extremely skilled and devoted birdwatchers qualified as being a "real" birdwatcher. While they may not identify themselves as birdwatchers, these participants still demonstrated that birds were an important part of their lives.

Many of the residents expressed more traditional concerns associated with amenity migration when asked to provide additional comments regarding Dauphin Island. A trend among these comments was that Dauphin Island was perfect the way it was, and many expressed fears that the movement of "snow geese" to Dauphin Island could negatively impacting the area. Currently Dauphin Island has codes that prevent that limit the height of all buildings on the island to three stories. This is complemented by a restriction on the areas where condos can be built that has limited growth of hotels. The fear is that migrants will actively attempt to change the laws to promote business expansion on the island. The residents expressed a fear that more people would ruin the small charm that makes Dauphin Island so special. One resident even expressed that loss of the bridge to the island has been one of the best things to happen because it prevented Dauphin Island from becoming another tourist trap along the coast.

Additionally, the problems expressed concerning beachgoers should be more thoroughly examined. The residents we spoke with expressed concern over the impacts created by beachgoers in relation to economic contribution of this group. Shortly after the interviews were completed the city began charging for beach parking. This decision is a proper step in increasing the contribution of beachgoers. However, this will undoubtedly increase the traffic through the bird sanctuary on the east end and managers should consider what impacts this is likely to have on birdwatchers and the sanctuary. Because the sanctuary is used as free access to a public beach, managers should carefully consider methods to monitor users of the bird sanctuary. Increases in the number of beachgoers through the area may cause conflicts as travel through the sanctuary may disrupt birdwatcher activity.

The results of this study suggest that specific activities can be a significant draw and more case studies should examine the exact activities or types of recreation that draw migrants to

an area. Furthermore, these results illustrate the importance birds play as an amenity for Dauphin Island. The uniqueness of Dauphin Island is due in part to the diversity and abundance of bird species that frequent the island. Because these birds and lifestyle are so important to the residents of the island the land managers should pay particular attention to the loss of habitat for birds. While the birdwatchers on Dauphin Island are actively involved in obtaining habitat for birds, public lands should managed to maximize the number of birds accommodated during migrations.

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Table 2.1. Interview narrative for residents that were birdwatchers

To begin, how long have you lived on DI?
What were your motivations for moving here?
If birdwatching was not a motivation to move here would it be now?
Follow-up questions will include but not limited to:
Profession?
Are you a birdwatcher?

Yes:
How long have you been birdwatching?
How long have you been birdwatching on DI?
How would you categorize yourself as a birdwatcher (expert to beginner?)
What were your motivations/influences to begin birdwatching?
How did these change as you moved from beginner to current level of expertise
How do you feel this process would have been if you lived someplace else?
Where do you get your information regarding birdwatching?
Do you regularly discuss birdwatching with other people? Who (Social Groups)?
How would you describe the birdwatching community on DI?
Do you talk about birdwatching with tourists on the island?
Do you help out tourists that are birdwatching?
Have tourists helped you with your birdwatching?
Do you think there are too many birders (locals and tourists) on DI? (too crowded)
Where do you go most to birdwatching on DI?
What makes DI an important place to you?
How important is birdwatching to making DI a special place?
Are there other places that you think are comparable to DI? Why or why not? (Would you describe it as unique?)
What other information would you like to share about birdwatching or the island?
If it is unclear from the interview you must clarify what influence birdwatching had in moving to island or how the island influenced their birdwatching.

Table 2.2. Interview Narrative for those residents that were not birdwatchers.

To begin, how long have you lived on DI?
What were your motivations for moving here?
If birdwatching was not a motivation to move here would it be now?
Follow-up questions will include but not limited to:
Profession?
Are you a birdwatcher?
No:
Do you sometimes enjoy looking at the birds on DI? How or when do you do this?
Were you familiar with birdwatching before you moved to DI?
What are your thoughts about birdwatching groups that live on DI?
What are your thoughts about the birdwatching visitors on DI?
How would you describe the birdwatching community on DI?
How does the birding community impact your life?
Do you think there are too many birdwatching (locals and tourists) on DI? (too crowded)
What value do you feel that the birdwatchers bring to DI?
Do you think they are the same for other groups (Anglers, vacationers, etc)? How so or different?
Do you talk about birdwatching with tourists on the island? Regarding?
Do you help out tourists that are birdwatching? How?
Do you feel living on the island makes people prone to birdwatch? Why?
Do you feel that the birdwatching is a hobby that you will participate in someday?
What would influence you to do such?
How important is birdwatching to making DI a special place?
Are there other places that you think are comparable to DI? Why or why not? (Would you describe it as unique?)
What other information would you like to share about birdwatching or the island?

Epilogue

Dauphin Island is small barrier island off the coast of Alabama, and like many coastal areas along the Gulf of Mexico, it plays an important role in annual bird migrations. However, Dauphin Island has a unique history that is characterized by limited development which has resulted in the establishment of several protected areas and empty lots readily used by resident and migratory birds. The quantity and diversity of species that frequent the island coupled with the numerous easy access viewing sites, has made Dauphin Island a destination for birdwatchers in the southeastern United States. The use of both qualitative and quantitative methods offered a more comprehensive understanding of relationships among the birds, birdwatchers, the island, and its residents.

This study sought to understand how different levels of involvement in birdwatching affected attachment to the island. The results illustrated the strong relationships people develop to the areas where they participate in their favorite recreation. The results of this study indicated that birdwatchers have a high attachment to Dauphin Island and that the bond is due to birdwatching. As birdwatchers identify more with the activity they have a greater bond to the island and are more committed to using it for birdwatching. The examination of satisfaction showed that birdwatchers are content with the island and interviews confirmed that birdwatchers do not want change. This resistance to change was echoed by most residents during the interviews, and is an important concern for Dauphin Island. The outmigration of people to amenity rich areas such as Dauphin Island is expected to increase greatly as the baby boomer generation retires.

The birdwatchers that live on Dauphin Island expressed great concern about the loss of overgrown vacant lots that have become vital areas for birds on the island. Residents that are not birdwatchers are also concerned about the possible increase of new residents. Currently, Dauphin Island has minimal development and many residents expressed concern that new residents will want to bring conveniences of metropolitan areas to the island. While the economic feasibility of opening a chain store on the island will likely prevent any such places from opening, residents should still take precautions to ensure that the proper regulations are instated to prevent problems in the future. A more realistic problem is the expansion of condominiums on the island. While current laws prohibit expansion, many residents expressed fear of "outsiders" coming in and changing the laws.

The interviews also offered insight into the impact birds have on the lives of islanders. Resident birdwatchers identified birds as a driving factor in their daily lives. The influence of birds was illustrated best by those residents that were birdwatchers before moving to the island. Among this group birds were always identified as the primary motive for moving to the island. The spectacle of migratory events had led several residents to adopt birdwatching as a recreation after moving to the island. Residents that did not identify themselves as birdwatchers often expressed surprise at how attached to the birds they had become since living on the island. Most residents felt that the presence of birds was an important part of their lives and that they looked forward to migration events each year. The spring migration was highly anticipated by almost all residents, even among non-birdwatchers commented on the abundance and diversity of color signifying the end of winter.

On a personal note, I was astonished by the incredible friendliness and willingness to help of every islander I met. The birdwatching community that has developed around Dauphin

Island is very welcoming, and it was impressive to see the lengths they go to for the birds that use Dauphin Island. Local birdwatchers have installed several water drips on the island, trap feral cats, and actively support Alabama Coastal Birding which uses funds from annual birding events to purchase vacant lots on the island. Hopefully, by properly planning for future growth, the island will protect the birds that have played such an integral part in making Dauphin Island a unique place.

Appendix 1. Questionnaire Initial Contact Narrative

"Hi, my name is Brent Williams and I am working with Auburn University to understand a little about people who visit Dauphin Island and go birding. We have a mail-in survey that we request you take home with you and fill out at a later time and mail back to us. It is already stamped and addressed (show them the survey stamp). The survey will be completely confidential and your name will not be associated with the answers you give us. Would you be willing to volunteer to help us out with this survey?"

If the respondent says "No", politely thank them and mark on your form that you had a refusal.
If they say "Yes" and agree to participate, then hand them the questionnaire.

Continue dialogue with the volunteer respondent:
"I have just a couple of quick questions before you go, it shouldn't take more than 1 minute;
First, if we could get your group size ___;
Next, are you from Alabama Yes – No;
And the year that you were born _____; *(They must be at least 19 to participate.)*
and finally, we send out a nice picture post-card as a reminder to send in your survey; or as a thank you for sending back. If I could just get your address here on this form?"

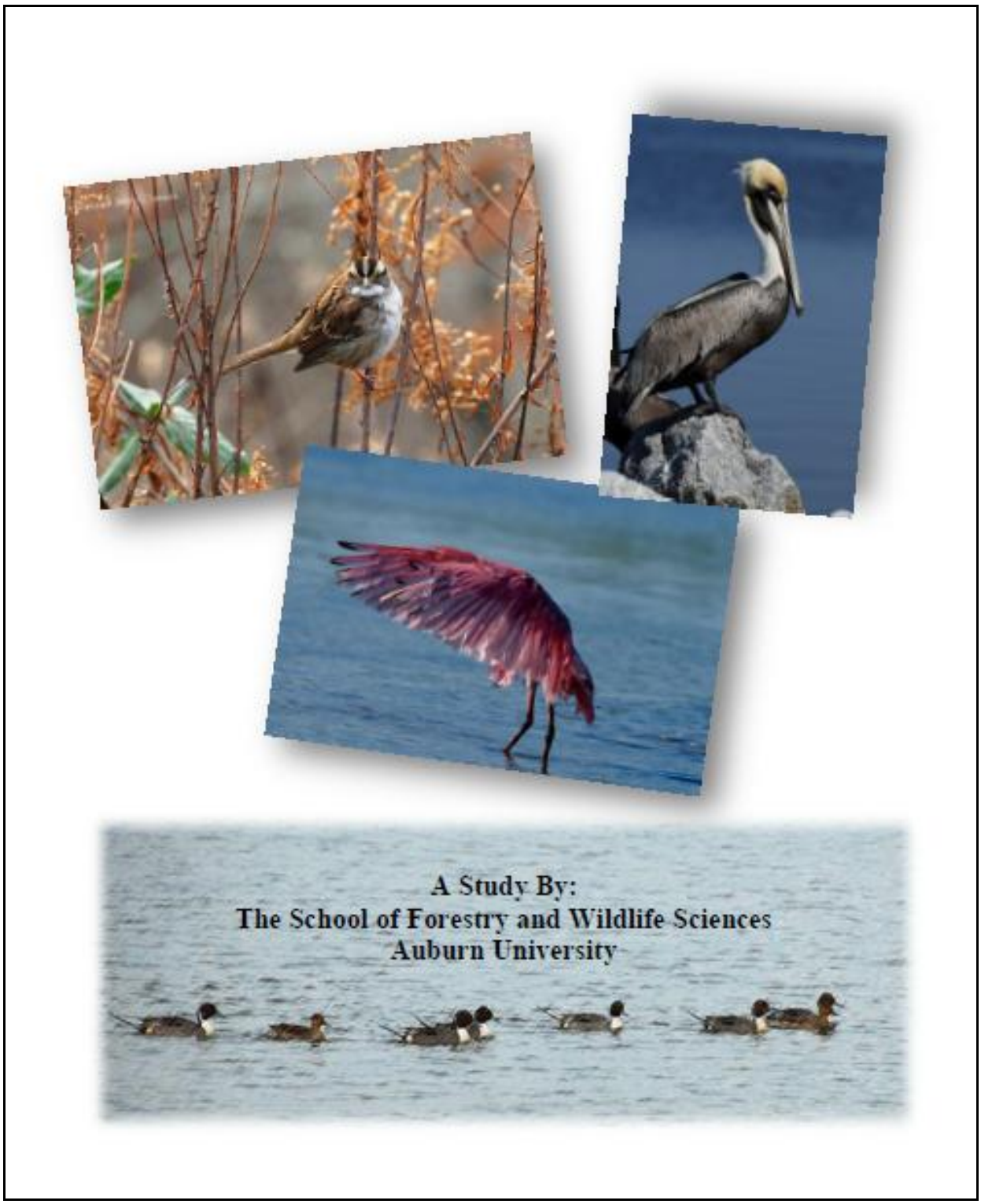
If they say they would rather not give their address (or name or any information), that is ok. You can remind them that the address is simply for this survey and will not be given or sold to anyone. This information will be used by us to see if there was a difference in these characteristics between respondents and non-respondents. If they are still not interested; simply draw a line through the address section on your form and hand them the sticker and say:

"That is no problem then, thank you for taking our survey and here is a little token of our appreciation for completing it, have a good day."

If they give their address, hand them the sticker and say:

"Thank you for taking our survey and here is a little token of our appreciation for completing it, have a good day."

Appendix 2. Dauphin Island Birdwatching Questionnaire



Greetings from Auburn University,

Thank you for taking our survey on birdwatching! Over the last decade, the number of people who participate in wildlife viewing has steadily increased. Birdwatching makes up the majority of wildlife viewing in the US. Therefore, it is critical to understand *your* birdwatching motivations, setting preferences and trip behavior. Even if you do not frequently participate in birdwatching, we are still very interested in hearing from you.

The best way we have of learning about these issues is by asking a diversity of people to share their thoughts and opinions. You are one of a small number of randomly selected visitors to Dauphin Island birdwatching sites who will be asked to complete this survey. Please make sure an adult (age 19 or older) in your group fills out the questionnaire. The questions should take about 10-15 minutes to complete. Your responses are voluntary and will be kept confidential. Your answers will never be associated with your mailing address or your name.

Your decision about whether or not to participate will not jeopardize your future relations with Auburn University or the School of Forestry and Wildlife Sciences. If you have any questions about this survey, please call Dr. Wayde Morse, by telephone at (334) 844-8086 or by email at Dauphin.Bird@auburn.edu. If you have any questions about your rights as a research participant, you may contact the Auburn University Office of Human Subjects Research or the Institutional Review Board by telephone at (334) 844-5966 or by email at hsubjec@auburn.edu.
By taking a few minutes to share your experiences, you will be helping us out a great deal. The information you share with us can be used to enhance recreation opportunities near you and throughout the southeast. A sticker representing this study is enclosed as a small token of appreciation as a way of saying thank you. I hope that you enjoy completing this questionnaire. I look forward to receiving your responses.

Sincerely,

Wayde Morse

Dr. Wayde Morse
Assistant Professor and Researcher
School of Forestry and Wildlife Sciences
Auburn University

The Auburn University Institutional Review Board has approved this document for use from
4/27/11 – 4/26/12
Protocol # 11-128 EP 1104

HAVING READ THE INFORMATION PROVIDED, YOU MUST DECIDE IF YOU WANT TO PARTICIPATE IN THIS RESEARCH PROJECT. IF YOU DECIDE TO PARTICIPATE, THE DATA YOU PROVIDE WILL SERVE AS YOUR AGREEMENT TO DO SO.

Dauphin Island Birdwatching

1. **How interested are you in participating in outdoor and nature recreation?**
   - ○ Not interested
   - ○ Somewhat Interested
   - ○ Very Interested

2. **Which of the following outdoor and recreation activities have you participated in <u>at least once</u> in your lifetime? *---Check all that apply---***

☐ Walking/Hiking	☐ Fishing	☐ Biking/Cycling
☐ Birdwatching	☐ Camping	☐ Swimming
☐ Other Wildlife Watching	☐ Hunting	☐ Visit Beach

3. **How interested in birdwatching are you?**
   - ○ Not interested
   - ○ Somewhat interested
   - ○ Very interested

4. **Do you own a permanent residence on Dauphin Island?**
   - ○ Yes
   - ○ No ***---Please skip to question number 9---***

5. **How many months of the year do you reside on Dauphin Island?**

   Months

6. **How many years have you owned property on Dauphin Island?**

   Years

7. **In the last 12 months have you used an electronic means (cellphone or smartphone) to <u>get information or updates</u> about bird sightings or activity?**
   - ○ Yes
   - ○ No

8. **In the last 12 months have you sought any advice from tourists about birdwatching?**
   - ○ Yes ***---Please skip to question number 30---***
   - ○ No ***---Please skip to question number 30---***

Your Trip to Dauphin Island

9. Is this your first trip to Dauphin Island?

- ○ Yes ***---If so please skip to question number 12---***
- ○ No

10. Approximately how many trips have you made to Dauphin Island in the last 2 years?

Trips

11. Approximately what percentage of these trips were for the primary purpose of birding?

%

12. Was birdwatching the primary activity that motivated this trip to Dauphin Island?

- ○ Yes ***---If so please skip to question number 15---***
- ○ No

13. What was the primary activity that motivated this trip to Dauphin Island? --- *Please check only one---*

- ○ Visit the Beach
- ○ Fishing
- ○ Boating
- ○ Visit Historic Sites
- ○ Visit Family
- ○ Other

14. How would you rank birdwatching as a motivation for making this trip?

- ○ 2nd most important motivation
- ○ 3rd most important motivation
- ○ 4th most important motivation
- ○ Not important as a motivation

15. From your home, how far did you travel *<u>one way</u>* to get to Dauphin Island?

Miles

16. How long will you stay on Dauphin Island on *<u>this trip</u>*?

- ○ ½ day or less ***---Please skip to question number 18---***
- ○ ½ to all day ***---Please skip to question number 18---***
- ○ Multiple days (staying on Dauphin Island)

17. How many nights will you be staying on Dauphin Island?

Nights ***---Please skip to question number 21---***

18. Do you live in the Mobile Bay area?

- ○ Yes ***---Please skip to question number 23---***
- ○ No

19. How long will you be staying in the Mobile Bay area?

Nights

20. How many ½ or all day trips to Dauphin Island do you plan to make during your stay in the Mobile Bay area?

Trips

21. Which best describes your lodging for this trip?

○ Bed & breakfast	○ Hotel	○ RV Park	○ Staying with family/friend
○ Campground	○ Condo rental	○ House rental	○ Other

22. Did you visit birding sites <u>other than those on Dauphin Island</u> during your stay?

○ Yes --- ***Please list sites here*** →

○ No

23. How many persons are in the group you are traveling with?

#

24. What type of group are you traveling with?

○ Family	○ Tour Group	○ Family & Friends
○ Friends	○ Birding Organization/Club	○ Alone

25. Was this trip planned in order to view an annual bird migration?

○ Yes

○ No

26. On this trip, have you sought birdwatching advice from any locals?

○ Yes

○ No

27. On this trip, have you sought birdwatching advice from other visitors?

○ Yes

○ No

28. On this trip, have you used an electronic means (cellphone or smartphone) to get <u>information or updates</u> about bird sightings or activity?

○ Yes

○ No

29. On this trip, what are the birdwatching sites you visited on Dauphin Island?

---Please check all that apply---

☐ Shell Mound	☐ Goat Tree	☐ Steiner Block
☐ Audubon Sanctuary	☐ Tupelo Gum Swamp	☐ Cadillac Square
☐ Gorgas Swamp	☐ Public Beach	☐ Airport
☐ Little Dauphin Island	☐ Sealab/Estuarium	☐ Pelican Point
☐ Sea Point Saw Grass Marsh	☐ Heron Park	☐ West End

☐ Other

30. If you were not able to birdwatch anywhere on Dauphin Island, where would be your next best alternative birdwatching site? (Site name, closest city, state)

31. Approximately, how far would you need to travel *<u>one way</u>* from your home to reach this alternative location?

Miles

32. How important are each of the following <u>reasons</u> for taking <u>this trip</u> to participate in birdwatching here on Dauphin Island?

	1	2	3	4	5	6	7
	Not at all important			Important			Very Important
To view the scenic beauty	○	○	○	○	○	○	○
To escape noise and crowds	○	○	○	○	○	○	○
To experience excitement	○	○	○	○	○	○	○
To do something with my family	○	○	○	○	○	○	○
To get away from the usual demands of life	○	○	○	○	○	○	○
To explore the area and learn about nature	○	○	○	○	○	○	○
To learn of the history/ culture of an area	○	○	○	○	○	○	○
To promote my physical fitness/exercise	○	○	○	○	○	○	○
To develop my personal/spiritual values	○	○	○	○	○	○	○
To develop my skills and abilities	○	○	○	○	○	○	○
To enjoy the sounds and smells of nature	○	○	○	○	○	○	○

Birdwatching

33. Approximately how <u>many trips</u> did you make to birdwatch in the last 12 months?

Trips

34. Approximately <u>what percentage</u> of these trips required at least <u>*one mile*</u> of travel?

%

35. Approximately how <u>many miles</u> did you travel to participate in birdwatching in the last 12 months?

Miles

36. Approximately how <u>many days</u> did you spend on birdwatching trips within the last 12 months?

Days

37. Without the aid of a printed or electronic field guide, approximately <u>how many</u> birds can you identify by <u>*sight*</u>?

# of Birds

38. Do you use any electronic means (cellphone or smart phone) for <u>identifying</u> birds <u>by *sight*</u>?

- ○ Yes
- ○ No

39. Without aid, approximately <u>how many</u> birds can you identify by <u>*sound*</u>?

# of Birds

40. Do you use any electronic means (cellphone or smart phone) for <u>identifying</u> birds <u>by *sound*</u>?

- ○ Yes
- ○ No

41. Which best describes your skill in identifying bird species?

- ○ Novice
- ○ Intermediate
- ○ Expert

42. Are you a member of any birdwatching or bird conservation organizations?

- ○ Yes
- ○ No

43. Do you make financial contributions to any bird conservation organizations?

- ○ Yes
- ○ No

44. Did you participate in any professional or volunteer programs to assist birds during or after the 2010 Oil Spill?

- ○ Yes
- ○ No ***---Please skip to question number 47---***

45. Was your participation in assisting with birds during or after the oil spill volunteer or work related?

- ○ Work
- ○ Volunteer
- ○ Both

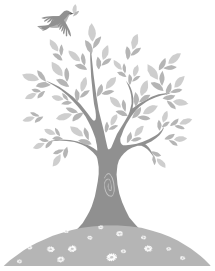
46. In what capacity did you assist with birds during or after the oil spill?

---Check all that apply---

- ☐ Transporting birds
- ☐ Looking for injured/oiled birds
- ☐ Cleaning bird habitat
- ☐ Cleaning injured/oiled birds
- ☐ Monetary contribution
- ☐ Rehabilitating injured/oiled birds
- ☐ Other

47. Indicate your level of agreement with the following statements <u>about *birdwatching*</u>.

	1 Strongly Disagree	2	3	4 Neither Agree or Disagree	5	6	7 Strongly Agree
Birding is important to me	○	○	○	○	○	○	○
Birding is an important part of my identity	○	○	○	○	○	○	○
Birding is really a pleasure	○	○	○	○	○	○	○
I would rather birdwatch than any other recreation	○	○	○	○	○	○	○
If I stopped birdwatching I would lose touch with many of my friends	○	○	○	○	○	○	○
Most of my friends are connected to birdwatching	○	○	○	○	○	○	○
I plan my free time around birdwatching	○	○	○	○	○	○	○
Birdwatching limits my ability to participate in other activities	○	○	○	○	○	○	○



48. Indicate the level of importance each of the following had as a *motivation for you to adopt* birdwatching as a recreational activity.

	1	2	3	4	5	6	7
	Not at all important			Important			Very Important
Seeing a species of bird for the first time	○	○	○	○	○	○	○
Maintaining a bird feeder	○	○	○	○	○	○	○
A friend introduced me	○	○	○	○	○	○	○
A family member introduced me	○	○	○	○	○	○	○
Involvement in nature as a youth	○	○	○	○	○	○	○
Participation in a club or organization	○	○	○	○	○	○	○
Watching TV or movies	○	○	○	○	○	○	○
Life changes that allowed more leisure time	○	○	○	○	○	○	○
A desire to participate in conservation	○	○	○	○	○	○	○
Concern over a human caused problem (*i.e.* oil spill, species loss, etc)	○	○	○	○	○	○	○
Birding is popular where I live/moved to	○	○	○	○	○	○	○

49. If there were important events that motivated you to adopt birding that are not mentioned above, please add them here.

Dauphin Island

50. Rate your level of agreement with the following statements as they apply to <u>your attachment to Dauphin Island</u>.

	1	2	3	4	5	6	7
	Strongly Disagree			Neither Agree or Disagree			Strongly Agree
I feel Dauphin Island is a part of me	○	○	○	○	○	○	○
Dauphin Island is very special to me	○	○	○	○	○	○	○
I identify strongly with Dauphin Island	○	○	○	○	○	○	○
I am very attached to Dauphin Island	○	○	○	○	○	○	○
Visiting Dauphin Island says a lot about who I am	○	○	○	○	○	○	○
Dauphin Island means a lot to me	○	○	○	○	○	○	○
Dauphin Island is the best place for what I like to do	○	○	○	○	○	○	○
No other place can compare to Dauphin Island	○	○	○	○	○	○	○
I get more satisfaction out of visiting Dauphin Island than any other place	○	○	○	○	○	○	○
Doing what I do at Dauphin Island is more important than doing it at any other place	○	○	○	○	○	○	○
I wouldn't substitute any other area for doing the things I do at Dauphin Island	○	○	○	○	○	○	○
The things I do at Dauphin Island I would enjoy doing just as much at a similar site	○	○	○	○	○	○	○

51. Rate your level of <u>satisfaction</u> with the following aspects of <u>Dauphin Island</u>.

	1 Extremely Dissatisfied	2	3	4 Neither Satisfied or Dissatisfied	5	6	7 Extremely Satisfied
Scenery	○	○	○	○	○	○	○
Water Quality	○	○	○	○	○	○	○
Solitude/Peacefulness	○	○	○	○	○	○	○
Population of wildlife	○	○	○	○	○	○	○
Number of users	○	○	○	○	○	○	○
Level of shore development	○	○	○	○	○	○	○
Others' recreation activities	○	○	○	○	○	○	○
Number of places to birdwatch	○	○	○	○	○	○	○
Quality of areas to birdwatch	○	○	○	○	○	○	○
Diversity of birds	○	○	○	○	○	○	○
Health of maritime forest ecosystems	○	○	○	○	○	○	○
Health of marsh ecosystems	○	○	○	○	○	○	○
Health of dune ecosystems	○	○	○	○	○	○	○
Health of freshwater ecosystems	○	○	○	○	○	○	○

Demographic Information

For statistical purposes, we need to ask you a few demographic questions. Please remember that the information you provide is confidential!

52. What year were you born? **1 9**

53. What is your gender?

- ○ Female
- ○ Male

54. Including yourself, how many people live in your house? **people**

55. How many people <u>over 16 years old</u> live in your home? **people over 16**

56. How many children <u>under 6 years old</u> live in your home? **children under 6**

57. Are you a student?

- ○ Yes
- ○ No

58. Are you retired?

- ○ Yes
- ○ No

59. Are you of Hispanic, Latino or Spanish descent?

- ○ Yes **--If yes, from which country--**
- ○ No

60. What is your ethnicity?

- ○ American Indian
- ○ Asian
- ○ Black/African American
- ○ White/Caucasian
- ○ Other

61. What is your marital status?

- ○ Single
- ○ Divorced
- ○ Married
- ○ Widowed

62. What is your highest degree or level of school completed?

- ○ Did not complete high school
- ○ High School Diploma or GED
- ○ Some college, but no degree
- ○ Other
- ○ Associate degree
- ○ Bachelor degree
- ○ Graduate or professional degree

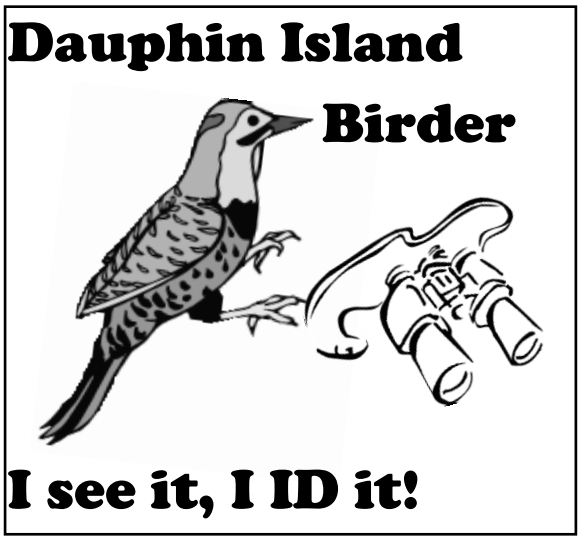
63. Please check the box that corresponds to your income for 2010.

- ○ Less than $14,999
- ○ $15,000 to $19,999
- ○ $20,000 to $24,999
- ○ $25,000- $34,999
- ○ $35,000- $49,999
- ○ $50,000- $74,999
- ○ $75,000- $99,999
- ○ $100,000- $149,999
- ○ $150,000 or more

THANK YOU FOR PARTICIPATING IN THIS STUDY!!

Please provide any additional comments here.

Appendix 3. Questionnaire Sticker



Appendix 4. Interview Consent Form

Thank you for expressing interest in assisting with this important research study about your motivations to live on Dauphin Island and your opinions concerning birdwatching on Dauphin Island. The best way we have of learning about these issues is by asking people to share their thoughts and opinions. Because of your expressed interest you have been chosen to participate in a personal interview. This session should take about an hour to complete and is only available to residents of Dauphin Island who are **age 19 and older**. Participation is completely voluntary and your responses will be kept confidential. To assist the researchers **this session will be recorded** however, your answers will never be associated with your contact information (phone, address, name).

Your decision about whether or not to participate will not jeopardize your future relations with Auburn University or the School of Forestry and Wildlife Sciences. If you have any questions about this survey, please call Dr. Wayde Morse, by telephone at (334) 844-8086 or by email at Dauphin.Bird@auburn.edu. If you have any questions about your rights as a research participant, you may contact the Auburn University Office of Human Subjects Research or the Institutional Review Board by telephone at (334) 844-5966 or by email at hsubjec@auburn.edu.

By taking a few minutes to share your experiences, you will be helping us out a great deal. The information you share with us can be used to enhance recreation opportunities near you and throughout the southeast.

HAVING READ THE INFORMATION PROVIDED, YOU MUST DECIDE IF YOU WANT TO PARTICIPATE IN THIS RESEARCH PROJECT. IF YOU DECIDE TO PARTICIPATE, PLEASE SIGN BELOW AS AN INDICATION OF YOUR AGREEMENT TO PARTICIPATE IN THIS RESEARCH.

Sincerely,
Dr. Wayde Morse
Assistant Professor and Researcher
School of Forestry and Wildlife Sciences
Auburn University

Signature: _____ Date: _____