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# The Influence of Nature Relatedness on Decision Making Regarding Mate Selection in College-Educated Young Adults

Nicole Lynn Kras  
*Lesley University*

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THE INFLUENCE OF NATURE RELATEDNESS ON  
DECISION MAKING REGARDING MATE SELECTION IN COLLEGE-EDUCATED  
YOUNG ADULTS

A DISSERTATION

Submitted by

Nicole Kras

In partial fulfillment of the requirements

For the degree of Doctor of Philosophy

LESLEY UNIVERSITY

September, 2014

Robin Roth, Ph.D (Chair)

Terrence Keeney, Ph.D

Jeffrey Perrin, Ph.D

Hilda Speicher, Ph.D

## **Dedication**

This dissertation is dedicated to my mother.

“If ever there is tomorrow when we're not together... there is something you must always remember. You are braver than you believe, stronger than you seem, and smarter than you think.

But the most important thing is, even if we're apart... I'll always be with you.”

-A.A. Milne

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Nicole Kras  
July 1, 2014

### Abstract

Research to date has mainly focused on the influence of nature relatedness on a person's subjective well-being (Nisbet, 2011) and as a predictor of happiness (Zelenski & Nisbet, 2014). There are few, if any, studies that look at the influence of nature relatedness on mate selection. The research question is *Does nature relatedness influence mate selection in college-educated adults between the ages of 25 and 40?* A secondary goal of this study is to begin to describe the role of the natural environment in the lives of college-educated young adults. Through a modified snowball sampling technique using electronic mail and social media, participants ( $n=266$ ) completed an electronic questionnaire. Participants' levels of nature relatedness were measured using the Nature Relatedness Scale (NRS; Nisbet, Zelenski, & Murphy, 2009). They filled out researcher-created questions that inquired into the influence of nature relatedness on mate selection, frequency of outdoor activities with a romantic partner, important characteristics and attributes when looking for a mate, and demographic information. Results show nature relatedness is a factor that almost half (49%) of the participants look for in a romantic partner and more than half (63%) value in a romantic partner. More than a quarter (29%) of the participants selected "enjoys spending time outdoors" as one of the top five attributes they look for in a potential mate. The results demonstrate a positive correlation between an individual's level of nature relatedness, the degree to which nature relatedness plays a role in mate selection, and the frequency of engaging in outdoor activities with a romantic partner. Selected demographic variables such as gender, age group, geographical location, and geographical region show statistically significant differences on some of the NRS subscales. This study is important because it is one of the few, if any, studies examining the influence of nature relatedness on mate

selection in college-educated young adults and provides insight into the influence of the natural environment on this demographic group.

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## Chapter 1

### Introduction

*“Thousands of tired, nerve-shaken, over-civilized people are beginning to find out that going to the mountains is going home; that wilderness is a necessity; and that mountain parks and reservations are useful not only as fountains of timber and irrigating rivers, but as fountains of life.”*

–John Muir

Humankind’s relationship with the natural environment is essential for survival of the species. The term “nature relatedness” describes the cognitive, affective, and experiential aspects of this relationship that each human being has with nature (Nisbet, Zelenski, & Murphy, 2009). The physical, mental, emotional, and cognitive benefits of this humanity-nature relationship are the focus of several studies (Berman, Jonides, & Kaplan, 2008; Grill, 2003; Ottosson & Grahn, 2005; Ryan et al., 2010; Zelenski & Nisbet, 2014). The current study differs from these previous studies in that it seeks to explore how this humanity-nature relationship may influence the life decisions of adults. This study investigates nature relatedness as a potential factor that influences decision making regarding mate selection in college-educated young adults. The hypothesis of this study is that nature relatedness does influence mate selection in young adulthood (between the ages of 25 and 40). The primary goal of this study is to investigate this relationship. A secondary goal of this study is to begin to describe the role of the natural environment in the lives of college-educated young adults.

## **Background and Context**

As concern over the future of the planet continues to increase for many individuals, gaining a deeper understanding of the humanity-nature relationship may be key to promoting conservation efforts (Black, 2006) and overall well-being (Howell, Dopko, Passmore, & Buro, 2011; Lambin, 2009; Nisbet, Zelenski, & Murphy, 2011). In today's society, several educational institutions, grass-roots citizens' groups, and community organizations, are directing their efforts to focus on environmental policies and practices. Schools and universities are beginning to focus on the growing concern over the state of the environment and are expanding environmental education curricula and promoting environmentally focused student organizations (Petersen, 2008; Silvia, 2008). Writers are focusing on the benefits that the natural environment has on overall well-being (Howell et al., 2011; Nisbet et al., 2011), happiness (Ferrer-i-Carbonell & Gowdy, 2007; Lambin, 2009), and physical health (Calkins, Szmerekovsky, & Biddle, 2007; Ottosson & Grahn, 2005). Experts have identified the benefits of spending time in nature during childhood (Cleaver, 2007; Louv, 2008), adolescence (Berto, 2007), young and middle adulthood (Davis & Atkins, 2004; Grill, 2003; Zinn & Graefe, 2007), and in older adulthood (Carman, 2011; Talbot & Kaplan, 1991). While the humanity-nature connection is becoming an important area of study (Mayer, Frantz, Bruehlman-Seneca, & Dolliver, 2009; Roszak, Gomes, & Kanner, 1995), there is a shortage of literature on how one's relationship with the natural environment influences the personal life decisions of adults.

Life decisions may include what type of career to pursue, where to live, how leisure time is spent, and with whom to socialize. The selection of a mate, the focus of this study, is one of the most important life decisions that adults make (Hamon & Ingoldsby, 2003). There are several commonly identified characteristics that people look for in potential mates. These

characteristics often include trustworthiness, good health, warmth and kindness, friendliness, and a good sense of humor (Regan, Levin, Sprecher, Christopher, & Cate, 2000). Physical attractiveness, earning potential, personal characteristics, intelligence, and sexual desirability are also commonly identified desirable traits (Eastwick & Finkel, 2008). Why would nature relatedness be something an adult seeks out in a potential mate? Adults tend to seek others who have attitudes similar to their own attitudes (Aube & Koestner, 1995). As a result, adults may seek a mate who shares similar views and values with regard to nature. This is supported by research that shows values tend to influence decision making (Dietz, Fitzgerald, & Shwom, 2005). Decision making about mate selection happens frequently in young adulthood (Arnett, 2012; Panchal, 2011).

During young adulthood, individuals frequently make significant life decisions relating to marriage or long-term relationships (Arnett, 2012; Erikson, 1997; Levinson, 1986; Rönkä, Oravala, & Pulkkinen, 2003). Often times young adults delay making significant life decisions regarding relationships until they are in their late twenties and sometimes early thirties (Arnett, 2000, 2006a, 2012), but this is not always the case as adults without four-year college degrees tend to marry and become parents earlier than more educated adults (Settersten & Ray, 2010; Waters, Carr, & Kefalas, 2011). There is a lack of current research that attempts to describe the lives of adults specifically between the ages of 25 and 40 (Arnett, 2012; Zinn & Graefe, 2007), especially with regard to their relationship with the natural environment. The goal of this study is to explore the relationship between nature relatedness and mate selection in college-educated young adults between the ages of 25 and 40.

## Research Purpose

This study stems from my interest in the humanity-nature relationship, which is a component of everyone's life and is essential for survival. There is currently an increase in research on the humanity-nature relationship (Berman et al., 2008; Feral, 1999; Ryan et al., 2010). This relationship includes the impact that human beings have on the natural environment, as well as the potential benefits of people spending time in natural settings. How this relationship influences the life decisions of adults is something that has not been extensively studied. Not only are adults in their late twenties and thirties the generation that is or will be running companies, writing laws, and developing environmental policies, the same adults are also currently directly and indirectly instilling environmental values in children.

This study is the first step towards understanding the influence of the natural environment on the decisions adults make in their personal lives. The focus of this study is on perhaps the most important personal decision people make: the selection of a romantic partner. My research question is: *Does nature relatedness influence mate selection in college-educated adults between the ages of 25 and 40?* A secondary goal of this study is to begin to describe the role of the natural environment in the lives of these young adults. In this stage of young adulthood, individuals are focusing on "role immersion" (Arnett, 2012, p.235). There is a lack of research on this age and this study aims to contribute to better understanding their personal life decisions.

This study is significant because it is one of the few, if not the first, study to examine the influence of nature relatedness on mate selection. Nature relatedness has been primarily researched as a factor that can have an impact on subjective well-being and happiness (Nisbet, 2011; Zelenski & Nisbet, 2014), but not on how it may influence the personal decisions of young adults.

## **Theoretical Framework**

The theoretical framework for this study is based on psychological developmental stage theories which divide the lifespan into distinct stages that are defined by specific characteristics. The theories of Erik Erikson (1997), Daniel Levinson (1986), and Jeffrey Arnett (2000, 2006b, 2012) have presented the prevailing concepts to define and understand young adulthood. These three theorists explain the developmental tasks of young adulthood. One such task is the selection of a mate. Erikson (1997) identifies the psychosocial crisis of young adulthood as “isolation versus intimacy” (p.110). During this crisis, the young adult struggles with establishing and maintaining significant relationships. Similarly, Levinson (1986) describes the selection of a romantic partner in young adulthood as one of the key developmental tasks of this stage of life. Arnett (2000; 2006b) provides a current view on young adulthood describing the mid-twenties to the early forties as one that is dominated by role immersion. In addition to taking on roles focusing on work and community involvement, young adults are also establishing and maintaining long-term personal relationships.

While these theorists provide support for the significance that mate selection often plays in young adulthood, there are limitations to these theories. A significant limitation is that there is gender exclusion and race/ethnic and class bias in these theoretical descriptions of young adulthood. Arnett and Levinson’s theories are applied and often times criticized for their lack of applicability to diverse populations (Dor & Cohen-Fridel, 2010; Herbert, 1990; Manago, 2012; Nelson, Badger, & Wu, 2004; Wheeler, Ampadu, & Wangari, 2002; Wheeler-Scruggs, 2008). For example, through in-depth interviews, Wheeler-Scruggs (2008) found that lesbian women

differ from heterosexual males and females on how they approach the developmental tasks identified by Levinson (1986), such as separation from family of origin and the formation of identity. Furstenberg (2010) points out that while four-year college graduates are found to have a longer time for self-exploration, which can include a longer period of time spent searching for a long-term romantic partner, some young adults delay in making life decisions regarding relationships, family, and occupations. Waters et al. (2011) suggest that finding the stability to wed can be difficult for working-class and low-income youth not earning four-year college degrees; in fact, a stable married life is becoming a class privilege. This may be partially due to the increase in young adults having children before marrying or forming a stable long-term romantic relationship. Having non-marital children often creates a barrier to finding a marriage partner (Zhenchao, Licther, & Mellott, 2005). Future research is needed to add to the understanding of how the natural environment may influence mate selection in adults from different social classes, genders, and sexual orientations, as well as those who are not college graduates.

### **Research Approach**

The research question of this study is as follows: *Does nature relatedness influence mate selection in college-educated adults between the ages of 25 and 40?* The hypothesis of this study is that nature relatedness *does* influence mate selection in college educated young adults. This hypothesis is based on research that finds that individuals tend to select mates whose values are similar to their own (Aube & Koestner, 1995; Hahn & Blass, 1997; Regan et al., 2000). A questionnaire is the means of data collection in this study. This questionnaire consists of the Nature Relatedness Scale (NRS; (Nisbet et al., 2009) and researcher-developed questions. After Institutional Review Board approval and pilot testing, the questionnaire link was distributed

electronically through a modified snowball sampling method using electronic mail and social media. There were 266 participants that anonymously completed the questionnaire.

### **Researcher's Assumptions**

Even though I did not have direct contact with the research participants, they may have identified my bias about the significance of the natural environment due to the focus of the questionnaire. I acknowledge the following assumptions based on my personal and professional experiences as well as my existing knowledge of ecopsychology and adult development:

- A personal connection to the natural environment can be beneficial to individuals of all ages. These benefits may include a sense of increased well-being and decreased stress.
- It is important to note that not everyone enjoys spending time in natural settings.
- Exploring how the natural environment may influence the personal decisions of adults is important not only for the current state of the environment, but also for future conservation efforts.
- More information is necessary to understand adults who are currently in their late twenties and early thirties.

### **Study Limitations**

There are several noted limitations to this study. As with any studies that utilize electronic questionnaires, the researcher depended on the Internet to recruit, distribute, and collect the questionnaire. Individuals without access to the Internet were unable to complete the questionnaire. With an online format it is also not possible to verify who is actually completing the questionnaire. Researchers must rely on the honesty of the participants. Technical

difficulties with an Internet server or the survey site may have led to participants not being able to complete the questionnaire. When utilizing any self-reports, the researcher always runs the risk of participants not answering the questions carefully or answering questions consistent with how they think they should be answered instead of what accurately represents their opinions (Mertens, 2010). In addition, even though the questionnaire was pilot tested, the online format may have caused confusion for some individuals that was not apparent in the pilot study. It is also important to note that the results cannot be generalized to the greater population. Additional studies will need to be conducted that look at young adults without four year college degrees and those in different social classes and racial/ethnic groups. In essence, this is the beginning of a new area of inquiry, so further, more comprehensive study is necessary.

### **Definition of Key Terms Used in This Study**

#### *Ecopsychology:*

Ecopsychology is an emerging field that combines the disciplines of ecology and psychology to investigate the growing disconnect between humans and the natural world (Roszak, 2011).

#### *Emerging Adulthood:*

Emerging adulthood is defined as a new life stage that occurs between the approximate ages of 18 to mid-twenties (Arnett, 2004). During this stage emerging adults are obtaining more education, are busy exploring potential career paths, and are waiting to settle into long-term commitments such as marriage and parenthood.

*Homogamy:*

This is the principle explaining that people tend to form unions (formally or informally) with those who are similar to themselves with regard to age, race, religion, socio-economic status, sexual orientation, education level, and physical attributes (Hamon & Ingoldsby, 2003).

*Mate Selection:*

The selection of a romantic partner based on desired attributes (Hamon & Ingoldsby, 2003).

*Natural Environment:*

The natural environment refers to environments that are not created by humans. Examples of a natural environment may be a forest or the mountains. This term can also include components of nature that are human-made such as parks and backyards.

*Nature Deficit Disorder:*

According to Louv (2011) nature deficit disorder refers to a “diminished ability to find meaning in the life that surrounds us, whatever form it takes” (p.11). Louv encourages both children and adults to reap the many benefits of spending time in nature.

*Nature Relatedness:*

Nature relatedness describes the affective, cognitive, and experiential aspects of the human-nature relationship. It has been described as “one’s appreciation for and understanding of our interconnectedness with all other living things on the earth” (Nisbet, et al., 2009, p. 718).

*Young Adulthood:*

Young adulthood is the developmental stage of life that often involves making significant life decisions regarding work, relationships, and family (Arnett, 2012; Levinson, 1986). In this study young adulthood will be described as the period of time beginning after emerging

adulthood (approximately between the ages of 25 and 45; Arnett, 2012). This developmental stage will be discussed further in the literature review.

### **Organization of the Dissertation**

There are five chapters in this dissertation. Chapter 1 introduced the reader to the research problem and discussed the background and context of the problem. It also stated the study's hypothesis, explained the theoretical framework, and identified the rationale and significance of the study. Next were the researcher's perspective, approach, and assumptions as well as the study's limitations and the definitions of key terms used in the study.

Chapter 2 presents a literature review that focuses on the theoretical and research-based support for this dissertation. This chapter begins by discussing the humanity-nature relationship and introduces the concept of nature relatedness. An argument is presented for the need to study how the natural environment may influence the life decisions of adults, specifically the selection of a romantic partner. It continues by listing key attributes and characteristics commonly identified as important when selecting a romantic partner. This leads into a description of the developmental tasks commonly achieved in young adulthood.

Chapter 3 provides an overview of the research methodology used in this study. It begins with the researcher's perspective and rationale for the research approach and continues with a description of the research process. Next, there is a description of the research sample, and the questionnaire. This chapter ends with a discussion of the study's ethical considerations.

Chapter 4 provides a detailed description of the study's quantitative and qualitative data. The results of analyses on the data are presented along with tables and figures. Chapter 5, contains the discussion of the findings and their significance as well as the conclusions drawn

from the findings. In conclusion, the study's limitations and recommendations for future research and application of research findings are presented.

## Chapter 2

### Literature Review

#### Overview of Chapter

This literature review provides insight into the potential connection of three individual areas of study: nature relatedness, mate selection, and adult development. This chapter reviews the theoretical foundation of the study and presents essential perspectives in each of the three areas. This section concludes by providing reasons for the need to investigate further into this new area of inquiry.

#### Nature Relatedness

Throughout history, there have been shifts in the humanity-nature relationship. For example, the hunter-gatherer societies saw themselves as part of nature and depended on it for their basic survival (Greenberg, 2011). The Judeo-Christians viewed humans as dominant over nature and non-human creatures, and the Puritan work ethic gave rise to the merchant class in which people gained wealth through the “exploitation of nature” (Greenberg, 2011, p. 46). This is just one of the many historical perspectives on the humanity-nature relationship. Other, equally as important, are the histories of Asia and Africa, although they are not discussed here. Through the increase of urban populations and the rise of technology, this separation from and exploitation of nature has continued throughout the years (Cairns, 1995; Glendinning, 1995). Within the last 100 years, there have been tremendous changes to the environment. Atomic technology, the auto industry, the rapid development of interstate highways, and the abundance of materials made from petroleum, such as plastics, have had made major environmental impacts all over the planet (Black, 2006). According to Lambin (2009) “human activity has pushed the

earth's ecosystem beyond the boundaries of its natural course" (p. 1). There is concern for the future of the planet and the availability of natural resources.

The negative impact of human activity on the natural environment did not start to gain widespread attention until the latter half of the 20<sup>th</sup> century (Black, 2006). The release of Rachel Carson's book, entitled *Silent Spring*, in 1962, on the negative effects of the use of pesticides on the environment, sparked widespread debates over the use of harmful chemicals. Black (2006) credits the 1960s in the United States with the "development of institutions that would change the relationship with nature nationwide" (p.126). Organizations such as the Environmental Defense Fund and the National Resources Defense Council were formed in the 1960s to protect both the environment and communities. The events of this time period were the beginning of the environmental movement that continues today. This environmental movement is one of the most largely organized movements in human history (Brown, 1995).

As was the case in the 1960s, the overall purpose behind this environmental movement today is to promote a sustainable way of life (Brown, 1995; Rootes & Leonard, 2009; Schlosberg & Bomberg, 2008). Today, numerous educational institutions, governmental policies, grass-roots citizens' groups, and community organizations are continuing to focus their efforts on environmental issues. Schools and universities are promoting environmentally-based curricula and are acknowledging the importance of incorporating nature into school designs. Some examples of this implementation are seen in the increasing number of outdoor classrooms, field trips (Cleaver, 2007), outdoor retreats and conferences, the incorporation of natural lighting in indoor spaces, and the encouragement of gardens on campuses (Grill, 2003). The promotion of environmental education is also being undertaken by many organizations such as the National Wildlife Federation, the National Audubon Society, the Sierra Club, and the North American

Association for Environmental Education (Stoss, 2008). Environmental education is perceived as important for individuals of all ages to understand the environment and humanity's relationship with it.

The importance of encouraging children to spend time outdoors and connect with nature is gaining international attention. Richard Louv (2008) in his book, *Last Child in the Woods: Saving Our Children from Nature-Deficit Disorder*, provides research-based evidence on the tremendous benefits of children spending time outdoors. Louv coined the term “nature-deficit disorder” which describes “a diminished ability to find meaning in the life that surrounds us, whatever form it takes” (p.11). According to Louv, nature-deficit disorder can be reversed and an increase in time spent outdoors can have positive benefits on physical, mental, and societal health. Medical facilities, urban areas, and substance-abuse recovery centers are all utilizing healing gardens because they have been shown to have healing and stress-reducing benefits for various populations (Largo-Wight, 2011). Nursing homes and senior housing facilities are acknowledging the importance that the natural environment plays in the lives of the elderly (Calkins et al., 2007; Ottosson & Grahn, 2005; Talbot & Kaplan, 1991).

The widespread understanding that humans are part of nature, not separate or dominant over it, is a significant part of the environmental movement (Greenberg, 2011; Roszak, 2001; Roszak et al., 1995). This understanding is a main focus of the field of ecopsychology. Ecopsychology is a field that combines the disciplines of ecology and psychology, and looks to “bridge our culture’s long-standing, historical gulf between the psychological and the ecological, to see the needs of the planet and the person as a continuum” according to Theodore Roszak (2001, p. 14). He notes at the root of ecopsychology is the growing concern that human beings are becoming increasingly separated from the natural world. This separation is recent, and in

reference to geological time, it “is only a tick of the clock that we have spent in highly urban settings, working in concrete buildings, driving in climate controlled cars, and living in relatively densely populated areas, shut off from nature” (Mayer et al., 2009). Ecopsychologists believe that this separation leads to negative consequences for overall human well-being as well as the environment (Davis & Atkins, 2009). While this humanity-nature relationship is certainly not a new realization, only recently have some researchers begun to attempt to measure aspects of it (Gosling & Williams, 2010; Greenberg, 2011; Mayer & Frantz, 2004; Nisbet et al., 2009, 2011). The Connectedness to Nature Scale is designed to measure an individual’s level of feeling emotionally connected to the natural world (Mayer & Frantz, 2004). The Love and Care for Nature Scale is designed to measure an individual’s emotional relationship with nature (Perkins, 2010). Another area that is being investigated is nature relatedness (Drake, 2013; Nisbet et al., 2011).

Nisbet, Zelenski, and Murphy (2009) introduced nature relatedness as a way to describe the affective, cognitive, and experiential aspects of humanity-nature relationships. They describe the concept as encompassing “one’s appreciation for and understanding of our interconnectedness with all other living things on the earth” (p. 718). Nature relatedness, they further describe, encompasses more than just environmental activism or someone’s love of nature. It is also an understanding of all aspects of nature including those that are unpleasant. They suggested by gaining a deeper understanding of individuals’ personal relationships with nature, it may provide some insight into the way people treat the environment.

At the root of nature relatedness is the humanity-nature relationship. This complex relationship begins the day we are born and is essential for human survival. Humans depend on nature for air, water, food, and sunlight. While this dependence is an essential component of the

humanity-nature relationship, for many individuals this relationship may hold more significance. The natural environment can provide a setting for leisure activities, physical exercise, and work-related experiences. Spending time in natural environments has been shown to improve mental and physical health (Bolen, 2012; Calkins et al., 2007; Mayer et al., 2009; Ottosson & Grahn, 2005; Sackett, 2010), reduce stress (Korpela & Kinnunen, 2011), improve cognitive functioning (Berman et al., 2008), and increase overall well-being (Bolen, 2012; Calkins et al., 2007; Howell et al., 2011; Korpela & Kinnunen, 2011; Lambin, 2009; Mayer et al., 2009; Metzner, 1995; Ottosson & Grahn, 2005; Sackett, 2010). A disconnect from nature may have negative effects on human happiness (Lambin, 2009; Nisbet et al., 2011). However, it is worth noting that there are individuals who do not find enjoyment in natural environments. This dislike may range from a simple preference of indoor over outdoor recreational activities to a strong fear of what is perceived to be “wild” lands (Bixler & Floyd, 1997).

There has been an increase in attention and research on the humanity-nature relationship, but is this relationship influencing decisions people make in their personal lives? This is a complex question to answer. Black (2006) identifies the late 1970s and the 1980s as the time when individuals began taking nature into account when making decisions about leisure time activities, residential decisions, and movie preferences. Are adults currently taking their relationship to nature into account when making decisions in their personal lives? Louv’s (2011) discussion of rooftop gardens in new residential developments in New York City, fly fishing as a therapeutic activity for women with breast cancer, movement towards a natural healthcare system, and the natural environment influencing one’s decision on where to live, provides examples that nature is influencing personal decisions. In addition, he mentions adult outdoor summer camps, fuel-efficient cars, and how the humanity-nature relationship may influence

some career choices. This study focuses on one personal decision many young adults make in their lives: the selection of a romantic partner.

### **Young Adulthood**

**Emerging adulthood.** In the past, young adulthood was defined as a period of life that begins at the end of adolescence and spans to a person's early forties (Arnett, 2012; Erikson, 1997; Levinson, 1986; Levinson, Darrow, Klein, & Levinson, 1978). Recently Jeffrey Arnett (2000, 2012) has proposed a new theory of emerging adulthood, which he defines as a distinct developmental stage before young adulthood that occurs approximately between the ages of 18 and 25. During this stage of development, emerging adults often delay marriage and parenthood while exploring new opportunities related to education, career, love, and self-exploration (Arnett, 2004). During this period of exploration, Arnett (2012) supports the need for a new development theory based on the following:

- Rising ages of adults entering into marriage and parenthood;
- Extended post-secondary education for a portion of the population;
- More tolerant views of premarital sex and cohabitation;
- Increase in educational and occupational opportunities for women; and
- Ambivalence about reaching adulthood among 18- to 24-year olds.

Arnett's theory offers a relevant way to conceptualize young adults in American society and in other industrialized societies. Furstenberg (2010) also describes why this new transition into adulthood is occurring. Some of these reasons include that more men and women are aspiring to jobs that require postsecondary education, it is often more difficult than in past generations to establish economic stability, adults are moving out of their family home later, they are getting married later, and they are having fewer children. Arnett (2012) describes emerging adulthood

as the “most volitional period of life, the time when people are most likely to be free to follow their own interests and desires, and those interests and desires lead them in an exceptionally wide range of directions” (p.15).

During this stage, emerging adults spend time exploring opportunities related to relationships, work, and education. In his research, Arnett (2006a) found five common features of emerging adults during this stage. The first is the exploration of possibilities with regard to work and love. The second is a period of instability involving residential changes, changes relating to work, love, and education. The third is the feeling of being in between an adolescent and an adult. The fourth common feature is that these emerging adults are focused on their own lives because they have few responsibilities and commitments to others. The fifth feature, is that this stage of life is the age of possibilities. These adults have hope and optimism about their future.

Those who have experienced hardships growing up now have the opportunity to move away and start anew. Arnett (2004) acknowledges that not every culture has a period of emerging adulthood. Even in those cultures that do have a period of emerging adulthood, time spent in this stage varies. It is important to note that the characteristics of emerging adulthood identified by Arnett (2006a) are not evident in all individuals during this age span.

While Levinson (1996) believes that men and women go through the same sequence of developmental periods at the same ages, other researchers note women may face unique challenges and developmental differences (Belenky, Clinchy, Goldberger, & Tarule, 1986; Helms-Erikson, Tanner, Crouter, & McHale, 2000; Oesterle, Hawkins, Hill, & Bailey, 2010; Tyson, 2011). One noted difference between the genders is that women tend to marry earlier and live with children earlier than men (Oesterle et al., 2010). Moreover, men are more likely to be

both married and living with children than women who are more likely to live with children without being married. For women who are struggling with infertility or choosing not to have children, other developmental concerns may exist. Often times these women feel like they have failed to reach the developmental life transition of becoming a parent (Loftus & Andriot, 2012). Not being a parent often impacts their relationships with others (especially other women) and as a result impacts their sense of self. In addition to gender, there are social class differences that may impact development.

The ambiguity of young adulthood may be especially difficult for working class men and women for whom the traditional markers of adulthood, such as financial independence and marriage, are unattainable or undesirable (Silva, 2012). When young adults from low-income families attend college, they are less likely to earn a degree (especially at the associate's level) and more likely to attend two-year and for-profit colleges, than middle or high-income students (Galen & Hurst, 2012; Waters et al., 2011). Student loan debt can be a heavy burden for any young adult, but especially so when accruing debt without reaping the benefits of a degree (Waters et al., 2011). With the rise of real estate prices in many areas, rising educational expectations, and the scarcity of employment opportunities in some areas, many young adults find it hard to live independently. Waters and his fellow researchers (Waters et al., 2011) commented on the discrepancies in young adulthood: "Among the more privileged youth, the twenty-something years can be a time for self-exploration, but for the vast majority of youth, this time of life is when we see the inequities in our society firm up like holding cement" (pp.201-202). Not all individuals get the opportunity to experience the opportunities and time for exploration that Arnett (2006a, 2012) describes in his theory of emerging adulthood.

**Emerging adulthood and romantic relationships.** Emerging adults are leaving home later, getting married later, and having children later, than they did during the period after World War II (Arnett, 2006a; Sassler, 2010). In general, college-educated young adults tend to gain work experience after completing their education and cohabit with a romantic partner, which often times leads to marriage. However, this progression can differ for young adults not coming from a middle-class background. A growing number of lower-income and less-educated adults begin to form families without being economically stable. In this socioeconomic segment of society, 40% of all first births take place outside marriage and almost all of the women have not completed college (Furstenberg, 2012). Working-class and low-income youth without four-year degrees are delaying marriage because they cannot achieve the stability needed to wed (Waters et al., 2011). Stable, married family life “is now becoming a class privilege, just like good schools, safe neighborhoods, and personal health” (pp.201-202). Waters et al. believe this may be one of the contributing factors that is leading to the increase in young adults having children before marrying or forming a stable long-term romantic relationship. Non-marital childbearing can be a barrier to finding a marriage partner because prospective partners may be unwilling to make the long-term financial and emotional commitments required of marriage when children who are not their own are involved (Zhenchao et al., 2005). With the delay of marriage, frequent changes in relationship status during emerging adulthood, and high divorce rates, the time that individuals spend outside of marital unions in search of romantic relationships has increased over the past several decades (Sassler, 2010).

**Young adulthood.** Arnett (2012) identifies young adulthood (approximately between the ages of 25 and 45) as a distinct stage of life that follows emerging adulthood. There is little current research on the experiences and behaviors of young adults (Arnett, 2012; Cooksey &

Rindfuss, 2001) as the field of human development primarily focuses on children, adolescents, the early 20's, and retirement (Cooksey & Rindfuss, 2001). Even though adulthood is the largest proportion of the life cycle, it is just recently that an increase in focus on this developmental stage of life is being seen (Caotae, 2000).

Arnett (2012) describes the developmental stage of young adulthood as one that is focused on “role immersion” (p.235). Adults during this stage often become immersed in roles involving marriage or long-term relationships, parenthood, a stable occupational path, and community involvement (Arnett, 2012; Erikson, 1997; Levinson, 1986). This is consistent with the research on emerging adulthood that shows many of the significant life decisions that were once made in late adolescence and early twenties, are now being made in the late twenties and thirties (Arnett, 2007, 2012; Furstenberg, 2010; Settersten & Ray, 2010). Adults in their late twenties and early thirties often have different life patterns and goals than emerging adults. Focusing primarily on middle class young adults, it is often found that formal education is most likely completed, careers are embarked upon, and marriage and parenthood are a central focus at this stage of life (Cooksey & Rindfuss, 2001). Mortgages, childcare, and other living expenses also tend to be of concern for many at this time of life. It is important to note that all young adults are not immersed in all of these roles. Some individuals may be more focused on some roles in comparison to others (Arnett, 2012).

**Young adults and romantic relationships.** An important component of young adulthood is a person's close relationships (Levinson, 1986). These relationships can be with an actual person (family member, friend, romantic partner), with a collective entity (work colleagues, social groups), nature as a whole, or a specific aspect of nature (i.e. the ocean, mountains, or wildlife). Levinson refers to these relationships as “the stuff our lives are made

of” (p. 6). Erikson (1997) believes that the crisis of young adulthood is “isolation versus intimacy” (p. 110). It is during this stage that a young adult either finds love and companionship in others or begins to “feel isolated and left out if life has not brought him or her such riches to remember and relish” (p. 111). It is during the resolution of this crisis that the young adult will likely chose a partner with whom he or she will have children (Erikson, Erikson, & Kivnick, 1986). While forming relationships is a key developmental task of this stage of life, it can be a complex one (Arnett, 2012; Sassler, 2010).

Modern dating is more fluid than it has been in the past (Hamon & Ingoldsby, 2003). Not all young adults follow the progression of casual dating, steady dating, informal commitment, cohabitation or engagement, and then marriage. The goal of dating may not be to make a long term commitment to that individual, but for recreation or socializing. As cohabitation continues to increase, marriage is being delayed, and as it is becoming more socially acceptable to remain single, shifts are being seen with regard to romantic relationships (Collins & van Dulmen, 2006; Hamon & Ingoldsby, 2003).

The United States Census Bureau (2010) reports that the median age at first marriage was 28.2 for all men and 26.1 for all women in 2010. This was an increase from 26.8 for men and 25.1 for women in 2000. The median will vary between some groups. For example, the United States Census Bureau (2012b) reports the median age at first marriage for Black or African Americans is 31 for males and females.

One study of undergraduate men and women found that they do want to settle down with one mutually exclusive sexual partner at some point in their lives, ideally within the next five years of their lives (Pedersen, Miller, Putcha-Bhagavatula, & Yang, 2002). According to the United States Census Bureau (2012a), while only 36.7% of 25 to 29 year olds are married, this

number goes up dramatically to 55.3% for 30 to 34 year olds and 63.3% for 35 to 39 years olds. On average, people are marrying later in their lives.

Mate selection is studied across disciplines including sociology, psychology, and anthropology (Regan et al., 2000). Research in these fields include studies that aim to identify factors that influence mate selection in different populations (Aruma, Roksa, & Budig, 2008; Boxer, Noonan, & Whelan, 2011; Buss, Shackelford, Kirkpatrick, & Larsen, 2001; Geary, Vigil, & Byrd-Craven, 2004; Stumpf, 2011). Some of these identified factors include physical attractiveness, earning potential, personal characteristics, intelligence, and sexual desirability (Eastwick & Finkel, 2008; Regan et al., 2000). Trustworthiness, good health, warmth and kindness, friendliness, and a good sense of humor, are also commonly identified as preferred characteristics (Regan et al., 2000).

A comprehensive study of over 21,000 adults found that men prefer mates who are young, physically attractive, creative, and domestic (Schwarz & Hassebrauck, 2012). Women tended to be more demanding in what they look for in a potential mate. They preferred men who are wealthy, generous, intellectual, dominant, sociable, reliable, similar, kind, understanding, humorous, and pleasant. Buss et al. (2001) conducted a cross-generational study that analyzed mate preferences intermittently from 1939 to 1996, and found that in later years there is greater importance was placed on physical attractiveness and good financial prospects than in the past for both men and women. The study found that domestic skills in a potential partner decreased in importance for men and that mutual attraction and love increased for both sexes. The characteristics that remained consistently important throughout all generations included a dependable character, emotional stability, and a pleasing disposition for both genders. When seeking a partner for a short term relationship, both sexes have been found to be less selective

(Sassler, 2010). However, physical attractiveness is still seen as a necessity for both genders (Li & Kenrick, 2006), and for both heterosexual and homosexual adults (Regan et al., 2000).

When seeking a mate, adults tend to select individuals whose views and characteristics are similar to their own (Aube & Koestner, 1995; Hahn & Blass, 1997; Regan et al., 2000). For example, individuals tend to seek mates with similar educational achievement (Aruma et al., 2008; Blackwell & Lichter, 2004), those who are similar in political orientation (Alford, Hatemi, Hibbing, Martin, & Eaves, 2011), and those who are the same race and religion (Blackwell & Lichter, 2004). Adults also tend to seek a mate with similar values (Aube & Koestner, 1995; Hahn & Blass, 1997; Regan et al., 2000). Couples who have greater similarity on gendered personality and value domains report having greater satisfaction and lower levels of negative affect in their relationships (Gaunt, 2006).

One set of personal values directly related to this study is environmental values. However, a review of the literature provided no studies examining the role of these values in mate selection. While the natural environment may have different levels of significance in the lives of different adults, the humanity-nature relationship is one that is essential for all life. As this relationship is so crucial, it is necessary to further explore and understand how this relationship influences key developmental tasks of adults' lives.

### **Chapter Summary**

This chapter discusses the idea that nature relatedness may influence mate selection in college-educated young adults. It begins with identifying how the humanity-nature relationship has changed through history and how the disconnect between humans and the environment has caused detriment to both. Examples are provided of how the natural environment currently influences public policy, building designs, school curriculums, and political decisions. While

pro-nature based decisions may be seen in institutions and policies nationwide, the question here is whether one's relationship with the natural environment influences one's personal decisions. The first step in this investigation is to look at the personal decision of selecting a romantic partner.

There are many factors that may influence the selection of a romantic partner by young adults. The influence of one factor that has not been examined in mate selection for this age group is nature relatedness. A discussion of current research on emerging adulthood, leads to the introduction of developmental tasks commonly found during the latter portion of young adulthood (between the ages of 25 and 45). Because the selection of a long-term romantic partner is a common task of this stage of adulthood, the present study will examine the role of nature relatedness in mate selection for this population. This research also has the added value of focusing on a population that is not often studied.

## Chapter 3

### **Research Methodology**

#### **Overview of Chapter**

The primary purpose of this study is to explore the influence of nature relatedness on mate selection in college-educated young adults between the ages of 25 and 40. This age span was selected in order to collect data on individuals who are in their late twenties as they leave emerging adulthood (Arnett, 2012) as well as individuals who are in their thirties. A secondary goal is to start to begin to describe the role of the natural environment in the lives of college-educated young adults more generally. In this study, I used an electronic questionnaire that consists of the Nature Relatedness Scale (NRS; Nisbet et al., 2009) and researcher-created questions to gather information. The data was collected from college-educated young adults between the ages of 25 and 40. The hypothesis of this study is that nature relatedness does influence mate selection in college-educated young adults. This chapter provides an overview of the methodology including the pilot study process, the sampling procedures, and the study sample.

#### **Researcher's Perspective**

The focus of this study is rooted in my professional and personal interests. Professionally, my background lies in education, art therapy, and developmental psychology. The central focus of my teaching and my studies is human development. Personally, my own strong connection to the natural environment has led to my inquiry into its influence on the personal life decisions of adults. I acknowledge how the natural environment plays a central role in my life and influences my personal decisions. The natural environment has influenced who I married and where I bought a home. It plays a role in how I spend my leisure time, how I relieve

stress, where I vacation, and with whom I socialize. My belief is that since the natural environment plays such a significant part in many aspects of my life, it may play a similar role for other adults as well. This study is a step forward in my exploration of how the natural environment influences the lives of adults. I acknowledge my belief that the role of the natural environment can be significant in the lives of individuals based on my personal experiences and literature in the field.

### **Rationale for Research Approach**

This study seeks to explore nature relatedness as a potential factor that influences mate selection in college-educated young adults. The research question asks the following: *Does nature relatedness influence mate selection in college-educated adults between the ages of 25 and 40?* I used an electronic questionnaire to collect data on a number of factors relating to decision making regarding mate selection, nature relatedness, relationship status, and demographic information from a large population of people in an efficient manner (Mertens, 2010). The use of an electronic questionnaire also allowed participants to answer anonymously. The anonymity of participants is especially important in this sample population because there was the potential that I might be acquainted with the participants.

The requirements for participation in this study include being between the ages of 25 and 40 and having a four-year college degree. As young adults report frequent Internet usage (Olson, O'Brien, Rogers, & Charness, 2011), using an electronic questionnaire was the best choice for data collection with this population. In addition, the use of an electronic questionnaire allowed me to recruit participants who I would not otherwise have had access to. For example, in this study there are participants from 32 states in the United States as well as Canada, the United

Kingdom, and Ireland. I would not have had access to these individuals without the use of the Internet or social media.

### **Pilot Test**

The questionnaire was pilot tested before it was distributed to participants. I used a pilot test to get feedback on modifications that should be made before the questionnaire was distributed. Each pilot test participant ( $N=10$ ) was contacted via electronic communication or in-person. The women ( $n=4$ ) and men ( $n=6$ ) who agreed to participate were asked to note any confusion, concerns, or suggestions they had about the questionnaire. The mean age of the pilot test participants was 35.7 ( $SD=9.68$ ). Four of the participants were four-year college graduates, five had completed graduate programs and one did not have a four-year college degree, but had earned some college credits. All pilot participants were Caucasian. Eight of the participants live in the northeast section of the United States and two live in the mid-west. The pilot questionnaire asked participants to time how long it took them to complete it. The questionnaire included a section for participants to indicate if the questions needed modifications or if any additional questions should be included. An e-mail link to the questionnaire was sent to the pilot participants so they could complete it anonymously. After the questionnaire was completed, I discussed it with the pilot participants either in person or on the phone. All surveys were completed in three days. The pilot respondents did not participate in the final study.

When reviewing the results of the pilot study, I looked for blank or unexpected answers as well as clusters of responses that suggest misinterpretation of questions. Feedback from the pilot study yielded some minor modifications. These modifications included some grammatical corrections and the minor rewording of some questions. The pilot test results provided evidence

that the survey took approximately 10-15 minutes to complete. This was less time than originally anticipated.

### **Sampling Methods**

**Snowball sampling.** The recruitment method for this study was a modified snowball sampling technique using electronic mail and social media including Facebook and LinkedIn (Mertens, 2010). The reason for selecting these recruitment methods was to gain access to as many potential participants as possible, including those that I would not otherwise have access to. To begin the modified snowball sampling technique, I contacted and described the study to 15 key informants (friends, family members, and co-workers who have access to individuals who meet the study criteria) and asked for their assistance in forwarding a request to potential subjects who met the criteria (see Appendix A). This approach differs from standard snowball sampling where the researcher contacts key informants who are knowledgeable about the identified population and asks them to provide the researcher with contact information of people in this population so that the researcher can contact them via phone or e-mail to participate in the study (Mertens, 2010). In order to keep a separation between myself and the participants, key informants directly shared the study link with potential participants.

**Social media.** Social media was used to recruit participants for this study. The purpose behind using social media as a recruitment method was to gain quick access to populations that I may not otherwise have been able to access, and to recruit as many participants as possible to strengthen the study. I posted the same standardized description of the study to my Facebook pages (personal and professional), my LinkedIn account, as well as the social and professional media groups in which I am a member. Friends, family members, and acquaintances also shared this information on their Facebook and LinkedIn pages.

**Standardized written protocol.** I composed a standardized request to serve as an invitation to participate in the study. This electronically sent request included the requirements of the study, its purpose, what a potential participant could expect, the possibility of being entered into a drawing for one of five \$20 gift certificates, and the link to the questionnaire. The purpose of this written request was to establish authority and credibility as a researcher and to guarantee anonymity and privacy to the participant (Andrews, Nonnecke, & Preece, 2003).

**Informed consent.** Before beginning the questionnaire, participants electronically signed an informed consent form (see Appendix B). This informed consent provided details of the expectations of the study such as the anticipated time for completion and how to receive a copy of the results. As the questionnaire was being submitted electronically, the participants needed to confirm that they had not previously completed the questionnaire and that they met the minimum requirements.

**Incentive distribution.** After the completion of the study, all participants who provided their e-mail addresses were entered into a lottery for one of five \$20 gift cards. Out of the 266 participants, 96 participants (36%) included an e-mail address. I selected the five winners by pulling their names out of a box in the company of a witness. I contacted the winners by e-mail. The participants were able to select from four potential places to receive a gift card. These places included Amazon, Barnes and Noble, Starbucks, and Target. The gift certificates were sent to the winners through e-mail.

**Follow-up.** The time frame for return of the completed questionnaires was three weeks. Online response rates are generally lower than response rates to comparable mail surveys (Tuten, 2010), so I sent reminders to distribute the study information to potential participants and requests for participation on social media at the beginning of the first, second, and third weeks.

## The Research Sample

**Participants.** Although 269 people completed the questionnaire, three individuals were more than two years older than the age limit criteria set for the study. The responses from these three individuals were eliminated from the study. Two hundred and sixty-six college-educated women ( $n=162$ ) and men ( $n=99$ ) were participants in this study. One participant ( $n=1$ ) selected the “prefer not to disclose” option and four ( $n=4$ ) participants did not answer the gender question. Participants were between the ages of 25 and 40 with a mean age of 33.6 ( $SD=4.5$ ). About 20% ( $n=45$ ) of participants did not indicate their age. Due to the fact that participants needed to agree that they were between the ages of 25 and 40 on the informed consent before starting the questionnaire, it is assumed that these 45 participants met the age requirements and were included in the study. The majority of the population identified themselves as Non-Hispanic/White 83% ( $n=221$ ), 5 % ( $n=13$ ) identified themselves as Hispanic/Latino, 3% ( $n=8$ ) as Black or African American, 3% as multiracial ( $n=7$ ), 3% ( $n=8$ ) as other, 2% ( $n=5$ ), as Asian, and 2% ( $n=4$ ) did not answer the question. This study has participants from 32 different states in the United States and four participants from outside the United States residing in Ireland, the United Kingdom, and Canada. The majority of participants (74%) currently reside in the northeast United States ( $n=196$ ) with the most participants (45%) living in Connecticut ( $n=120$ ). Fifty-nine percent of the sample indicated their current romantic status as married ( $n=157$ ), 14% as cohabitating ( $n=38$ ), 12% as single ( $n=33$ ), 11% as dating ( $n=29$ ), 3% ( $n=7$ ) other, and 1% ( $n=2$ ) did not answer the question. The percentage of married participants is consistent with national norms that indicate about 55.3% of 30 to 34 year olds and 63.3% of 35 to 39 year olds are

married (United States Census Bureau, 2010). The majority of participants have been in their most current relationship between 1-5 years ( $n=76$ ) or 6-10 years ( $n=75$ ). The sexual orientation question was accidentally omitted from the questionnaires of the first 84 (31.58%) participants. Of the remaining 182 participants, 95% ( $n=173$ ) identified themselves as heterosexual, one participant as homosexual ( $n=1$ ), 2% ( $n=6$ ) as bisexual, and two participants ( $n=2$ ) did not answer the question. All participants who began the questionnaire completed it. Table 1 shows the demographic characteristics of the sample.

Table 1.

*Frequency (f) and Valid Percentages (%) of Demographic Characteristics of Sample (n=266)*

Characteristic	<i>f</i>	%
<b>Gender</b>		
Female	162	61
Male	99	37
Prefer Not to Disclose	1	0
Not Specified	4	2
<b>Age Group</b>		
Young (25-32)	83	31
Old (33-40)	138	52
Not Specified	45	17
<b>Race/Ethnicity</b>		
Asian	5	2
Black/African American	8	3
Hispanic/Latino	13	5
Non-Hispanic White	221	83
Multiracial	7	3
Other	8	3
Not Specified	4	2

Table 1.

(continued)

Characteristic	<i>f</i>	%
<b>Relationship Status</b>		
Single	33	12
Dating	29	11
Cohabiting	38	14
Married	157	59
Other	7	3
Missing	2	1
<b>Geographic Region</b>		
Northeast	196	74
Southeast	26	10
Midwest	14	5
Northwest	6	2
Southwest	12	5
International	4	2
Not Specified	8	3

## Questionnaire

The electronic questionnaire consists of the Nature Relatedness Scale (NRS), a ranking scale of attributes that are important when selecting a mate; researcher created questions on the influence of nature relatedness on mate selection, frequency of time spent in outdoor activities with a romantic partner, and demographic questions (see Appendix C). The NRS is a 21-item self-report Likert-scale that measures affective, cognitive, and experiential aspects of an individual's connections to nature (Nisbet et al., 2009). The Likert-scale ranges from 1 (disagree strongly) to 5 (agree strongly). Higher scores are indicative of a stronger connection to nature. The NRS was selected as part of this study because it aims to measure three aspects of the

human-nature relationship. These important terms are defined by Nisbet and her colleagues (2009) as follows:

- NR-Self represents an “internalized identification with nature, reflecting feelings and thoughts about one’s personal connection to nature” (p.723);
- NR-Perspective reflects “an external, nature-related worldview, a sense of urgency concerning individual human actions and their impact on all living things” (p 723); and
- NR-Experience reflects a “physical familiarity with the natural world and the level of comfort with and desire to be out in nature” (p.725).

In reporting reliability of the measure, Nisbet et al. (2009) indicated the Cronbach’s alpha for the NR overall (a total of all three subscales) was .87, for NR-Self, .84, for NR-Perspective .66, and .80 for NR-Experience. Test-retest correlations over a six to eight week period were .85 for NR overall, .81 for NR-Self, .65 for NR-Perspective, and .85 for NR-Experience. The NRS was selected over other scales that seek to measure aspects of the human-nature relationship such as the Connectedness to Nature Scale (Mayer & Frantz, 2004) and the Love and Care for Nature Scale (Perkins, 2010) because it measures three separate aspects (self, perspective, and experience) of an individual’s connection to nature.

The questionnaire used in this study has 14 additional researcher-created questions that serve as a means to collect data on the potential influence of nature relatedness on decision making regarding mate selection. I created five Likert-type questions that ask individuals about the role that nature relatedness played in their mate selection. As the term “nature relatedness” is used in these questions, a brief description of what is meant by this term is included in the preamble to the questionnaire. The purpose of defining this key concept and providing examples

was to eliminate/reduce any confusion the participants may have had in understanding the term (Mertens, 2010). Participants responded to these questions by selecting answers that ranged from “strongly disagree” to “strongly agree.” I reversely scored a subset of these questions (two questions). Next, this questionnaire asked participants to select the top five attributes or characteristics that they look for in a potential mate out of 12 choices. Apart from those items related to nature, participants selected from items shown in previous studies to be important in mate selection (Regan et al., 2000; Sprecher, Sullivan, & Hatfield, 1994). In addition, the participants could also select the option of “other” with room for elaboration. Seven Likert-type questions inquired into the participants’ level of participation in various outdoor activities with a current or most recent romantic partner. The answers on this five point Likert-type scale ranged from “never” to “very frequently.” In addition, the questionnaire consisted of one open-ended question that asked participants to include any additional information they would like to share about nature relatedness and their romantic partner (past or present). Demographic questions were placed at the end of the survey (Gaddis, 1998). The answers to these questions provided data to describe the population of the study and to cross-tabulate to identify potential patterns.

### **Ethical Considerations**

There was no anticipated harm associated with this study. Participants answered the questionnaire anonymously. The only identifying information was the choice to include an e-mail address for a drawing to win one of five gift cards. The e-mail addresses were submitted through a separate webpage to maintain anonymity. All data collected from the study was kept in a password-protected file on my computer. Approval from the Lesley University Institutional Review Board was granted before the questionnaire link was distributed.

## **Chapter Summary**

The goal of this study is to explore the influence of nature relatedness on mate selection in college-educated young adults. A secondary goal of this study is to begin to describe the role of the natural environment in the lives of college-educated young adults. An electronic questionnaire was first piloted and then used to collect data from 266 college graduates. I recruited participants through a modified snowball sampling technique and social media. Chapter 4 presents the findings of this investigation.

## Chapter 4

### **Research Findings**

The aim of this study is to explore the influence of nature relatedness on mate selection in college-educated young adults between the ages of 25 and 40. A secondary goal of this study is to begin to describe the role of the natural environment in the lives of college-educated young adults. An electronic survey was used as the means of collecting the anonymous data. The results were downloaded from a Google form and analyzed using the Statistical Package for the Social Sciences (SPSS). Analyses included descriptive statistics to report frequencies, percentages, means, and standard deviations, MANOVAs, ANOVAs, and a Pearson product-moment correlations.

When comparing unequal sample sizes homogeneity of variance (the assumption that the variance within each of the groups is equal) cannot be assumed and robustness is not guaranteed (Tabachnick & Fidell, 2007). Homogeneity of variance is assumed for the statistical tests and if violated the reported p-values are not correct, which can lead to an inflated Type I or Type II error rate depending on which group cells have smaller or larger numbers. For MANOVAs, homogeneity of covariance matrices were assessed by Box's M and for ANOVAs homogeneity of variance were assessed by Levene's test. Findings for the Box's M and Levene's tests are found to be satisfied for all analyses suggesting that variance within each of the groups is equal. Chapter 4 presents the findings of this study derived from answers to questions regarding nature relatedness, mate selection, time spent in outdoor activities with a romantic partner, and demographic information.

### Demographic Differences in Nature Relatedness

The mean Nature Relatedness Scale (NRS) score (a sum of the three subscales) for all participants was 78.59 ( $SD=13.31$ ) out of a possible 105 points. Reliability was good as measured by Cronbach's alpha ( $\alpha=.85$ ). According to one of the NRS developers, there are currently no criteria that indicates a "high" or "low" category on the NRS (John Zelenki, personal communication, May 25, 2014). As seen in Table 2, among the three subscales, NR-Self (an individual's personal connection to the natural environment) had the highest overall mean ( $M=30.35$ ) and NR-Experience (an individual's physical familiarity and comfort with the physical environment) the lowest mean ( $M=21.80$ ).

Table 2.

*Means (M), Standard Deviations (SD), and Alpha Levels (a) of Nature Relatedness Scale (NRS)*

*Sub-scale Scores*

Subscale	<i>M</i>	<i>SD</i>	<i>a</i>
NR-Self	30.35	5.75	0.05
NR-Perspective	26.56	4.43	0.05
NR-Experience	21.80	5.21	0.05

Two-tailed Pearson product-moment correlations were computed among the three NRS subscales. As seen in Table 3, the results suggest that there is a significant positive correlation between NRS-Self and NRS-Perspective ( $r=.439$ ,  $n=265$ ,  $p<.001$ ) suggesting that those who score higher on NRS-Self tend to score higher on NR-Perspective. A significant positive correlation was also found between NRS-Self and NRS-Experience ( $r=.663$ ,  $n=265$ ,  $p<.001$ ) suggesting that those who score higher on NRS-Self also tend to score higher on NRS-Experience. A weak correlation was found between NRS Experience and NRS Perspective

( $r=.186$ ,  $n=265$ ,  $p<.001$ ) suggesting there is little to no relationship between scores on NRS-Experience and NRS-Perspective.

Table 3.

*Correlation Matrices between Subscales of the NRS*

		<b>Correlations</b>		
		NRS Self	NRS Perspective	NRS Experience
NRS Self	Pearson Correlation	1	.439	.663
	Sig. (2-tailed)		.000	.000
	N	265	265	265
NRS Perspective	Pearson Correlation	.439	1	.186
	Sig. (2-tailed)	.000		.002
	N	265	265	265
NRS Experience	Pearson Correlation	.663	.186	1
	Sig. (2-tailed)	.000	.002	
	N	265	265	266

A MANOVA was used to compare potential differences in NRS subscale scores based on demographic factors including gender, age group, geographic location, and relationship status. This type of analysis is used when there are multiple dependent variables that are moderately correlated and to control the overall Type I error rate. The total NRS score was not included when running the MANOVA since the total NRS score is determined by the subscales.

There were too few participants identified as homosexual or bisexual to test for differences between participants regarding sexual orientation. Similarly, tests relating to race/ethnicity were not performed because the second largest ethnic group was only 5% of the study sample. The dependent variables used for the MANOVA were the three NRS subscales: NR-Self, NR-Perspective, and NR-Experience. If the MANOVA was significant, follow-up ANOVAs were conducted to determine on which subscales the groups differed. For significant

ANOVAs the Bonferroni post-hoc test was used to determine which specific groups differed from the others on the NRS subscale. Partial eta squared results were reported as a measure of effect size. Effect sizes measure the magnitude of the difference between two groups. A “small” effect size is .02, a “medium” effect size is .13, and a “large” effect size is .26 (Cohen, 1988).

A MANOVA was used to test differences in NRS scores based on gender (male and female). A significant effect was found (Wilks'  $\Lambda = .898$ ,  $F_{3,257} = 9.76$ ,  $p < .001$ , partial  $\eta^2 = .102$ , Box's  $M p = .13$ ). Follow-up ANOVAs revealed no difference between females and males on the subscales NR-Self ( $F_{1,259} = 2.64$ ,  $p = .106$ , partial  $\eta^2 = .010$ , Levene's  $p = .23$ ) or NR-Perspective; ( $F_{1,259} = 3.68$ ,  $p = .056$ , partial  $\eta^2 = .014$ , Levene's  $p = .97$ ). However, there was a significant difference between males and females on the subscale NR-Experience ( $F_{1,259} = 21.34$ ,  $p < .001$ , partial  $\eta^2 = .076$ , Levene's  $p = .05$ ). The ANOVA indicated that males scored higher ( $M = 23.7$ ,  $SD = 4.25$ ) than females ( $M = 20.8$ ,  $SD = 5.17$ ) suggesting that males have greater physical familiarity with the natural world, level of comfort with it, and desire to be out in nature. Figure 1 shows the mean subscale scores by gender.

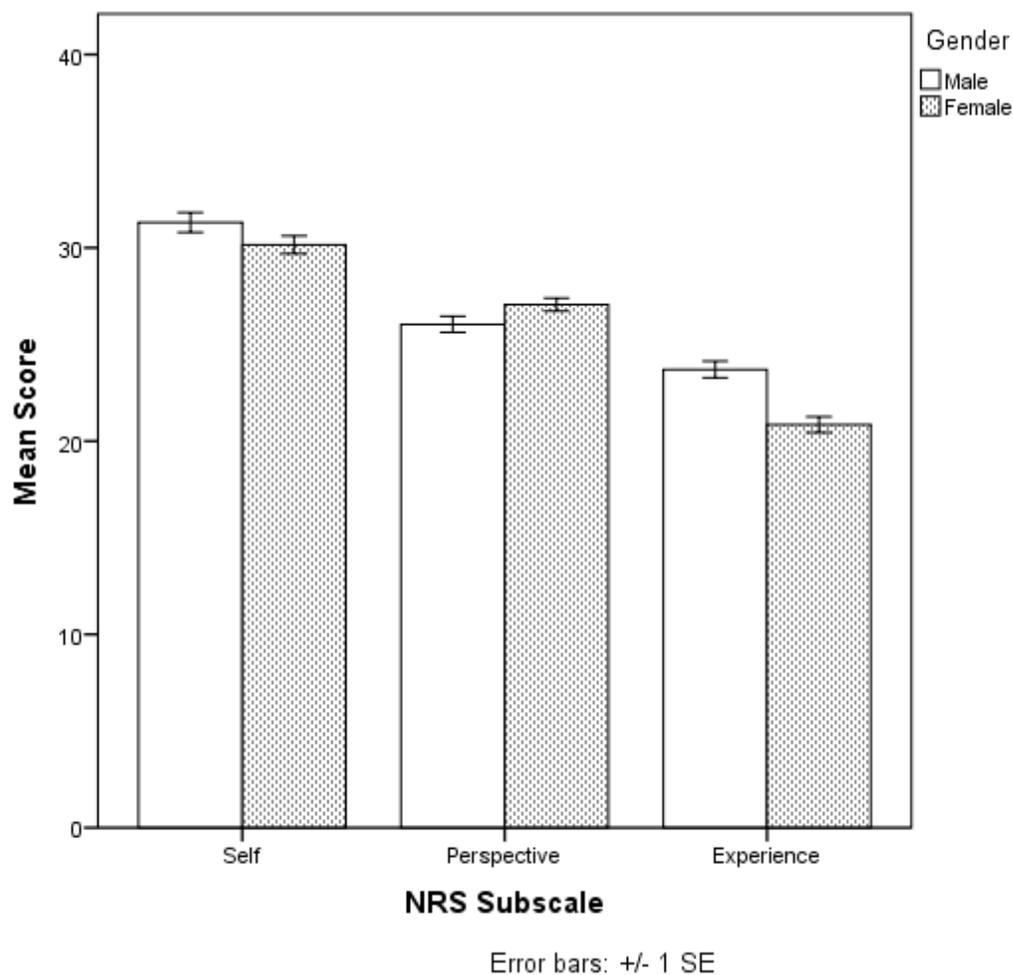


Figure 1: Mean NRS Subscale score by Gender

The participants were separated into two groups based on age. This comparison was done to investigate potential differences in nature relatedness between participants who are in the beginning of young adulthood and participants who are in the latter part of young adulthood. Participants between the ages of 25 and 32 (first eight years of the age span for the study) were identified as the “younger” group and participants between the ages of 33 and 40 (latter eight years of the age span for the study) were identified as the “older” group. A MANOVA indicated there is a significant effect for age group ( $\Lambda = .939$ ,  $F_{3,217} = 4.71$ ,  $p = .003$ , partial  $\eta^2 = .061$ , Box’s  $M p = .91$ ). Follow-up ANOVAs showed no difference between younger and older groups on the

subscale NR-Perspective ( $F_{1,219} = 0.50, p=.481, \text{partial } \eta^2 = .002, \text{Levene's } p=.50$ ). However, there are significant differences on the subscales NR-Self ( $F_{1,219} = 13.74, p<.001, \text{partial } \eta^2 = .059, \text{Levene's } p=.95$ ) and NR-Experience ( $F_{1,219} = 6.10, p=.014, \text{partial } \eta^2 = .027, \text{Levene's } p=.77$ ). The older group is higher ( $M=31.6, SD=5.49$ ) than the younger group on NR-Self ( $M=28.8, SD=5.53$ ). The older group is higher ( $M=22.4, SD=4.8$ ) than the younger group on NR-Experience ( $M=20.8, SD=5.04$ ). Results suggest the older group has a stronger internalized identification with nature and also greater physical familiarity with the natural world as well as a greater level of comfort with and desire to be out in nature. Figure 2 shows the mean subscale scores by age group.

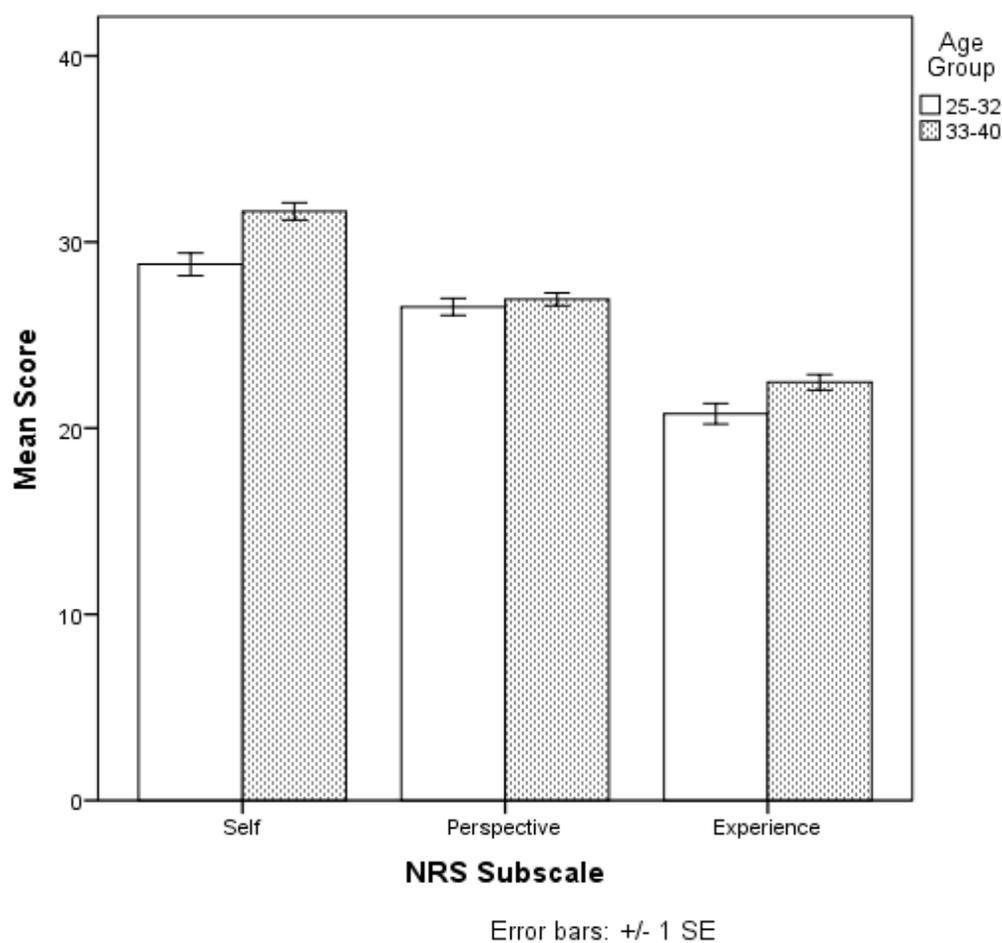


Figure 2: Mean NRS Subscale score by Age Group

A MANOVA was used to test differences in NRS scores based on self-reported geographic location (urban, suburban, rural). The results demonstrated a significant effect ( $\Lambda = .942, F_{6,516} = 2.61, p=.017, \text{partial } \eta^2 = .029, \text{Box's M } p=.87$ ). Follow-up ANOVAs revealed no difference between locations on the subscales NR-Self ( $F_{2,260} = 1.89, p=.153, \text{partial } \eta^2 = .014, \text{Levene's } p=.96$ ) or NR-Perspective ( $F_{2,260} = 0.74, p=.481, \text{partial } \eta^2 = .006, \text{Levene's } p=.38$ ). However, there was a significant difference on NR-Experience ( $F_{2,260} = 6.14, p=.002, \text{partial } \eta^2 = .045, \text{Levene's } p=.96$ ). Bonferroni post-hoc tests showed no difference between urban and suburban ( $p=.069$ ) or between suburban and rural ( $p=.130$ ). However, rural has a significantly higher mean ( $M=23.8, SD=5.3$ ) than urban ( $M=20.4, SD=4.9, p=.002$ ) suggesting that participants from rural areas have stronger physical familiarity with the natural world and level of comfort with and desire to be out in nature. Figure 3 shows the mean subscale scores by geographical location.

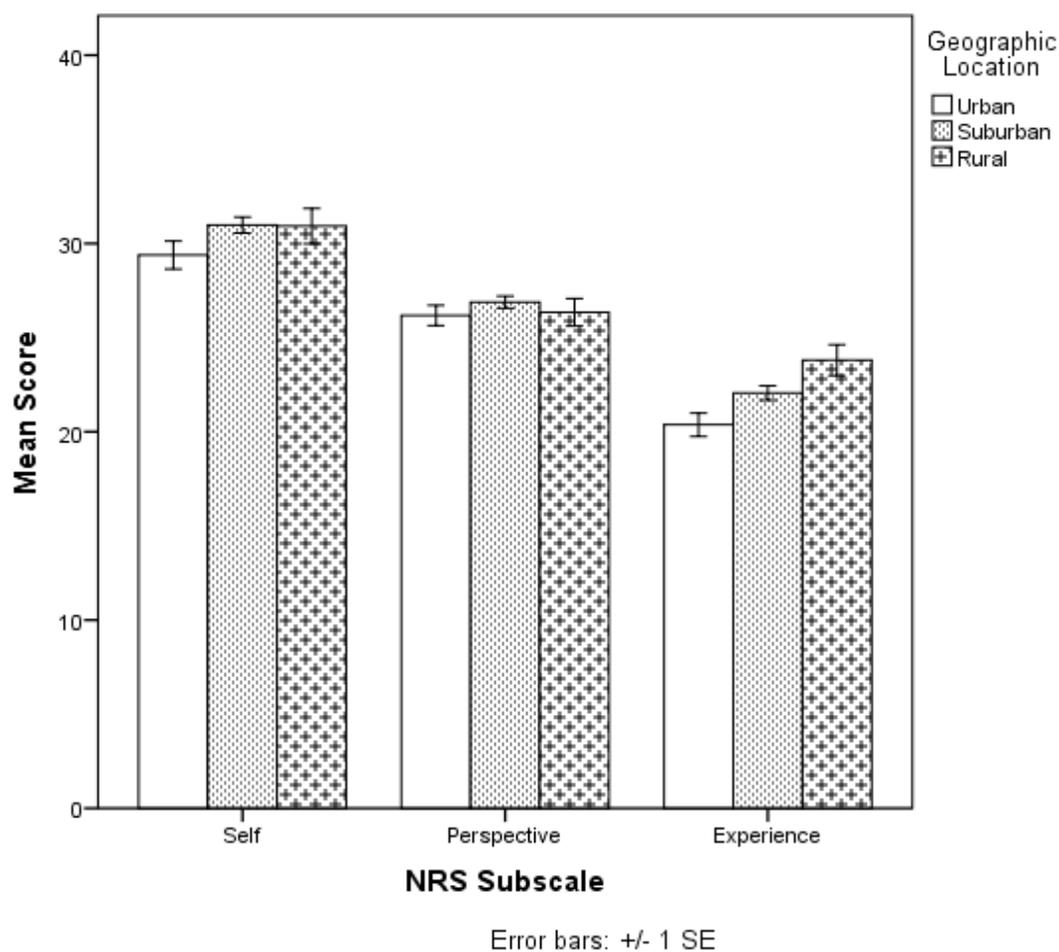


Figure 3: Mean NRS Subscale score by Geographical Location

A MANOVA was used to test differences in NRS scores based on relationship status (single, dating, cohabitating, married, and other). There was no significant effect for relationship status ( $\Lambda = .948$ ,  $F_{12,680} = 1.16$ ,  $p = .312$ , partial  $\eta^2 = .018$ , Box's  $M p = .40$ ). No differences exist among the relationship categories on the three NRS subscales. The cohabitation and married categories (those participants with a potentially higher level of commitment than the other relationship categories) were combined to compare them to the single, dating, and other categories. The results also indicated no significant difference ( $\Lambda = .988$ ,  $F_{3,260} = 1.07$ ,  $p = .361$ ,

partial  $\eta^2 = .012$ , Box's  $M p = .33$ ). Figure 4 shows the mean subscale scores by relationship status.

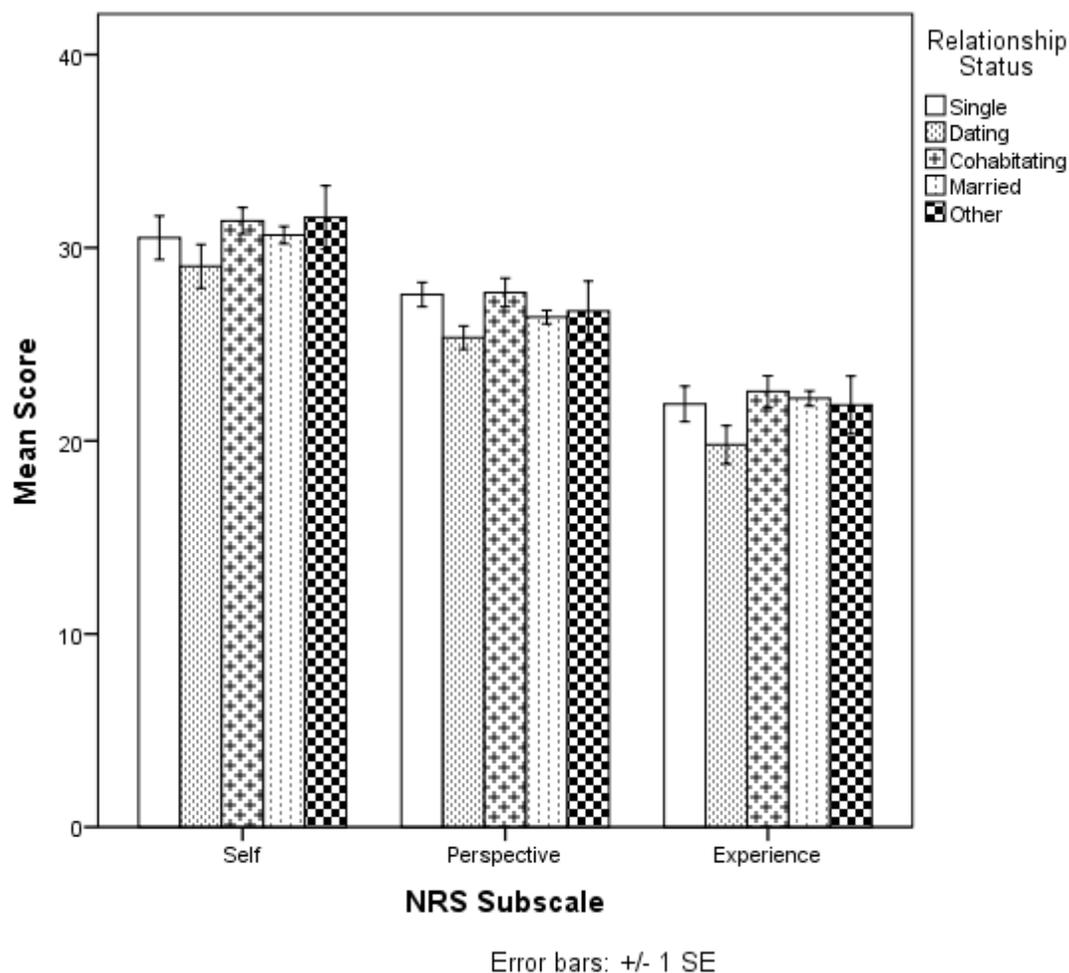


Figure 4: Mean NRS Subscale score by Relationship Status

The participant's state of residence was used to group participants by region (Northeast  $n=196$ , Southeast  $n=26$ , Midwest  $n=14$ , Northwest  $n=6$ , Southwest  $n=12$ , and International  $n=4$ ).

A MANOVA was used to test differences in NRS scores based on region. There was a

significant effect for region ( $\Lambda = .897$ ,  $F_{15,688} = 1.84$ ,  $p = .026$ , partial  $\eta^2 = .036$ , Box's  $M p = .64$ ).

Follow-up ANOVAs revealed no difference between regions on the subscales NR-Self ( $F_{5,257} = 0.53$ ,  $p = .76$ , partial  $\eta^2 = .010$ , Levene's  $p = .49$ ) or NR-Experience ( $F_{5,257} = 1.08$ ,  $p = .37$ , partial  $\eta^2 = .010$ ).

= .021, Levene's  $p=.63$ ). However, there was a significant difference on NR-Perspective ( $F_{5,257} = 3.43, p=.005$ , partial  $\eta^2 = .064$ , Levene's  $p=.96$ ). Bonferroni post-hoc tests showed one significant difference between northwest and southwest ( $p=.040$ ). The northwest was higher ( $M=29.7, SD=4.4$ ) than the southwest ( $M=23.3, SD=4.0$ ) suggesting those in the northwest have stronger internalized identification with nature and sense of urgency in protecting the environment than those in the southwest. Figure 5 shows the mean subscale scores by region.

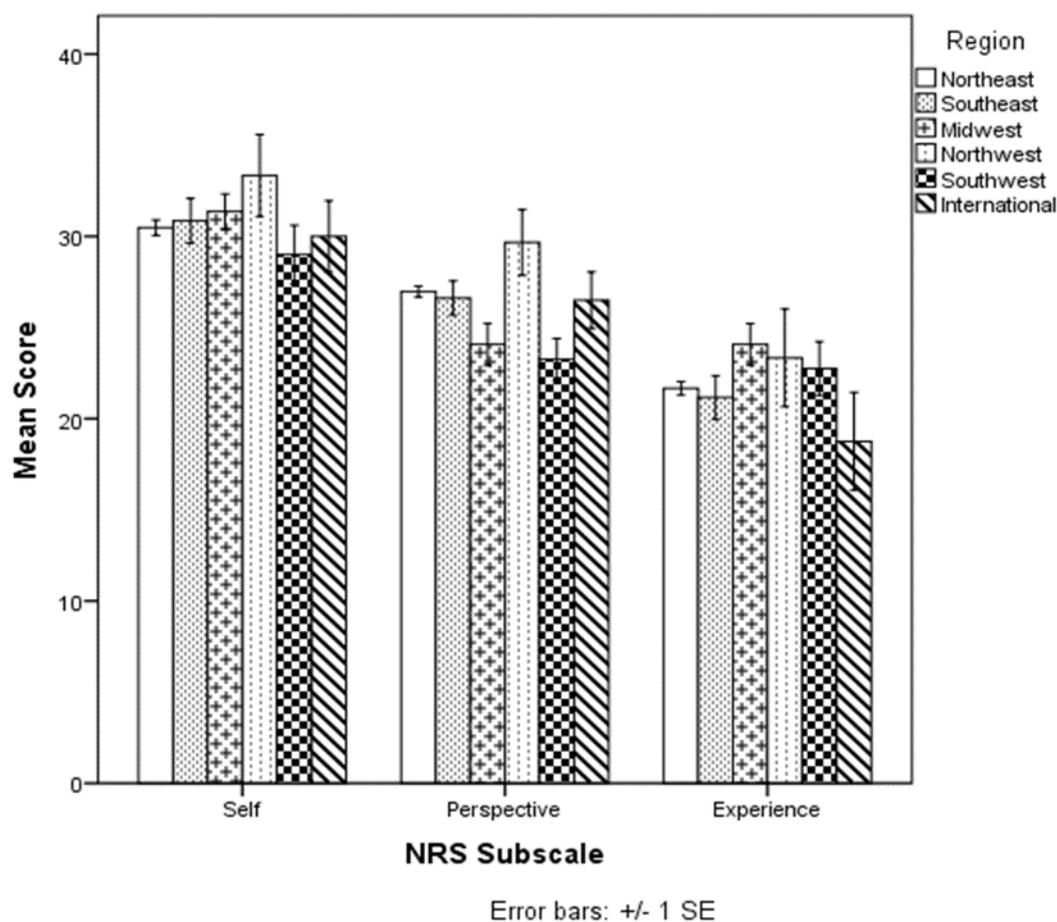


Figure 5: Mean NRS Subscale score by Region

### The Influence of Nature Relatedness on Mate Selection

The questionnaire consisted of five Likert-type questions on influence of nature relatedness on mate selection. An overall mean score was calculated across the five researcher-

created questions (two questions, 23 and 25, are reversely scored). The mean score ( $M=3.19$ ,  $SD=0.98$ , range: 1.0-5.8) is slightly above the midpoint Likert-scale score of three which represents “neither agree nor disagree”. This finding suggests that on average, participants were neutral in their responses to the questions on the NRS. Based on overall mean scores, 45% of the participants selected “somewhat agreed” or “strongly agreed” on the five questions regarding the influence of nature relatedness on mate selection. More specifically, in response to the question, “Nature relatedness is something I look for in a romantic partner,” 49% of participants either “somewhat agreed” or “strongly agreed.” This suggests that for a little less than half of the population, nature relatedness is something they look for in a romantic partner. Also in response to the question, “I value nature relatedness in a potential romantic partner,” 63% of participants either “somewhat agreed” or “strongly agreed.” Table 3 shows the percentage of agreement and mean scores for each question and overall scores.

Table 4.

*Descriptive Statistics for the Five Questions on Nature Relatedness (NR) on Mate Selection*

Question	<i>M</i>	<i>SD</i>	% “agree somewhat” and “strongly agree”
Value NR in a romantic partner	3.63	1.02	63%
Look for NR in romantic partner	3.27	1.17	49%
Essential that partner is high in NR	2.84	1.15	31%
NR is not an attribute I look for (reversely scored)	3.12	1.20	31%
Individual level of NR doesn’t influence (reversely scored)	3.03	1.13	35%

A MANOVA indicated there are no statistically significant difference in mean scores by gender ( $F_{1,259} = 0.41, p=.52$ ), age group ( $F_{1,219} = 1.32, p=.25$ ), relationship status ( $F_{4,259} = 0.55, p=.70$ ), or geographic location ( $F_{2,260} = 1.19, p=.31$ ).

A one-tailed Pearson product-moment correlation coefficient was computed ( $n=264$ ) to determine the relationship between overall mean score across the questions regarding the influence of nature relatedness on mate selection and the total NRS score. There was a significant correlation ( $r=.673, p<.001$ ) suggesting that those who report that nature relatedness is an important consideration in mate selection tend to score higher on overall nature relatedness. A one-tailed Pearson product-moment correlation also indicated that the influence of nature relatedness on mate selection was also correlated with the three NRS subscales. There was a significant correlation for NR-Self ( $r=.663, n=264, p<.001$ ), NR-Perspective ( $r=.242, n=264, p<.001$ ), and NR-Experience ( $r=.618, n=264, p<.001$ ), suggesting those who report that nature relatedness is an important consideration in mate selection tend to score higher on the three subscales of nature relatedness, but that the relationship is much stronger for NR-Self and NR-Experience than it is for NR-Perspective.

A total score was calculated on the seven questions inquiring into time spent with a romantic partner engaged in outdoor activities ( $M=20.62, SD=4.96$ , range: 8-35). A one-tailed Pearson product-moment correlation coefficient was computed to measure the relationship between the overall NRS score and frequency of engaging in outdoor activities with a romantic partner. There was a significant correlation between the two variables ( $r=.380, n=264, p<.001$ ) suggesting those who score higher in nature relatedness tend to participate more frequently in outdoor activities with their romantic partner.

A one-tailed Pearson product-moment correlation coefficient was also computed to determine the relationship between the mean score on the influence of nature relatedness on mate selection and frequency of engaging in outdoor activities with a romantic partner. There was a significant correlation between the two variables ( $r=.378, n=264, p<.001$ ) suggesting those who report that nature relatedness is an important consideration in mate selection tend to more often engage in outdoor activities with a romantic partner

### **Desired Attributes in a Potential Mate**

Each participant was asked to rank the top five attributes that he or she looks for in a potential mate. Results indicated that 29% of the sample ( $n=78$ ) selected “enjoys spending time in nature” as one of their top five attributes. This was considered the eighth most important out of 12 attributes to choose from. Table 4 shows the rankings for each attribute. The participants selected the attributes personality, sense of humor, and honesty as the most important followed by physical attractiveness, sexual desire, educational level, and age. Spending time in nature was deemed more important than political views, religion, race/ethnicity, and income/earning potential.

Table 5.

*Frequency (f) and Valid Percentages (%) of the Top Five Attributes Considered Important in a Mate*

Attribute	<i>f</i>	%
Personality	225	85
Sense of Humor	217	82
Honesty	206	77
Physical Attractiveness	153	58

Sexual Desirability	111	42
Education Level	101	38
Age	95	36
Enjoys Spend Time in Nature	78	29
Religion	53	20
Political Views	48	18
Income/Earning Potential	36	14
Race/Ethnicity	26	10

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### **Outdoor Activities Engaged in with a Romantic Partner**

Participants were asked to rate on a Likert-scale ranging from 1 (never) to 5 (very frequently) on how often they engage in different nature oriented outdoor activities with the current (or if not involved, the previous) romantic partner. Table 5 shows the mean scores and standard deviations for each activity. Out of the choices provided, the most frequent activity the participants engage in is relaxing outdoors ( $M=3.77$ ,  $SD=0.91$ ) and the least frequent is skiing ( $M=1.73$ ,  $SD=1.00$ ).

A mean score was calculated across all seven activities for the population ( $M=2.91$ ,  $SD=0.70$ ) and ANOVAs conducted to test for demographic differences. There was no statistically significant difference for the activities by gender ( $F_{1,259} = 0.43$ ,  $p=.51$ ), age group ( $F_{1,219} = 1.02$ ,  $p=.31$ ), relationship status ( $F_{4,259} = 1.24$ ,  $p=.29$ ), or geographic location ( $F_{2,260} = 2.02$ ,  $p=.14$ ).

Table 6.

*Means (M) and Standard Deviations (SD) of Questions Regarding Frequency of Outdoor Activities with a Romantic Partner*

Activity	<i>M</i>	<i>SD</i>	% “often” or “very frequently”
Relaxing	3.77	0.91	64%
Hiking	3.41	0.96	46%
Exercise	3.16	1.18	38%
Water	3.02	1.11	36%
Camping	2.39	1.09	16%
Gardening	1.93	1.22	35%
Skiing	1.73	1.00	5%

### **Open-Ended Responses.**

Participants were given the option of including additional information about their nature relatedness and their romantic partner (or if not involved, the previous romantic partner). Seven percent ( $n=19$ ) of participants included a response to this question. All of the open-ended responses were thematically categorized by the researcher according to response topic. The responses were placed into one of six categories.

- Nature relatedness as it relates to leisure time activities spent outdoors (with and without a romantic partner);
- Nature relatedness as it relates to a career choice;
- Nature relatedness as a value;
- Obstacles to spending time outdoors;

- Nature relatedness is not a consideration for choosing a romantic partner or ambiguous feelings about nature relatedness; and
- Nature relatedness as related to spirituality.

A number of responses ( $n=6$ ) fell into the “nature relatedness as it relates to leisure time activities spent outdoors.” These responses involved describing the importance of spending time outdoors together, listing activities that the participant and romantic partner engage in while outdoors, or describing how the participant would not want a partner who did not enjoy spending time outdoors. An example is, “I love quality time with my partner, and that usually takes place outdoors” (Participant 71, personal communication, March 9, 2014).

In the “nature relatedness as it relates to a career choice” category, responses ( $n=4$ ) centered on the participant’s career choice and how that has influenced his or her romantic relationships. One example of this was as follows: “Both of us are geologists and thus spend a considerable amount of time outdoors and our recreational activities tend to have more to do with geological interests than wildlife” (Participant 140, personal communication, March 14, 2014).

Responses in the “nature relatedness as a value” category ( $n=3$ ) concerns the participant’s attitude regarding the significance of nature in their worldview. For example, one participant wrote that “nature relatedness is something I value very much” (Participant 76, personal communication, March 10, 2014) and another participant described what she and her romantic partner shared regarding nature relatedness; “We both have similar goals and ideas of nature conservation” (Participant 49, personal communication, March 7, 2014). In the category “obstacles to spending time outdoors,” participants ( $n=2$ ) described the challenges they faced regarding spending time in nature. One participant responded as follows:

When I used to live in a small rural town, I spent a lot more time outdoors. My romantic partner has always lived in the city. We live in the city together now, so it is difficult to find time to go into nature. Our yard is small and in a crowded neighborhood, so time outdoors is often not very relaxing with noise and traffic. (Participant 67, personal communication, March 8, 2014)

Two participants provided comments in the category of “nature relatedness is not a consideration for choosing a romantic partner or ambiguous feelings about nature relatedness.” For example, one response was, “Let’s be clear, I wouldn’t be interested in someone who is a ‘tree hugger,’ but I also wouldn’t be interested in someone who purposely destroys or hurts living things” (Participant 249, personal communication, March 20, 2014). In the responses that were categorized as “nature relatedness as related to spirituality” both participants described nature as having a spiritual meaning for them and their partners. An example of this was in the response, “we both feel that nature is our church” (Participant 202, personal communication, March 14, 2014).

### **Chapter Summary**

The results of this study show nature relatedness to be a factor influencing mate selection for a portion of the population. Approximately half of the participants either “somewhat agreed” or “strongly agreed” that nature relatedness is something they look for in a romantic partner. Twenty-nine percent indicated nature relatedness is an important attribute in a potential mate. The results showed a positive correlation between an individual’s level of nature relatedness and how much it influences mate selection. There was also a positive correlation between nature relatedness and frequency of engaging in outdoor activities with a romantic partner. The same was true of the relationship between the frequency of time spent in outdoor activities with a

romantic partner, and how much nature relatedness influences mate selection. Certain demographic variables such as gender, age group, geographical location, and geographical region showed significant differences on some of the NRS subscales. The majority of open-ended responses were related to nature relatedness as it relates to leisure time activities spent outdoors. Chapter 5 will present a discussion and interpretation of these results as well as the limitations of the study and recommendations for future research.

## Chapter 5

### **Discussion, Conclusions, and Recommendations**

The purpose of this study is to explore the influence of nature relatedness on mate selection in college-educated young adults. The research question is as follows: *Does nature relatedness influence mate selection in college-educated young adults between the ages of 25 and 40?* A secondary goal of this study is to begin to describe the role of the natural environment in the lives of college-educated young adults. The conclusions drawn from this investigation are a result of the findings from the anonymous electronic survey and relate to the following areas:

- Potential demographic influences on the importance of nature relatedness on mate selection;
- “Enjoys spending time outdoors” as a desired attribute in a potential mate;
- Varying degrees of nature relatedness;
- Difference between males and females in NR-Experience;
- Difference between rural and urban residents in NR-Experience;
- Difference between northwest and southwest regions in NR-Perspective;
- Difference between older and younger participants in NR-Experience and NR-Self; and
- Frequency of participation in outdoor activities with a romantic partner.

This chapter includes a discussion of the study’s major findings and the conclusions drawn from these findings. This is followed by a discussion of the study’s limitations and recommendations for future research.

This study is one of the few, if any, studies conducted on the influence of nature relatedness on mate selection. Research to date has primarily focused on the influence of nature relatedness on a person's subjective well-being (Nisbet et al., 2011) and as a predictor of happiness (Zelenski & Nisbet, 2014). This study is the beginning of a new area of inquiry that investigates the influence of nature relatedness on decision making in the personal lives of young adults, specifically in the domain of romantic relationships.

### **The Influence of Nature Relatedness on Mate Selection**

**The importance of nature relatedness in mate selection.** Results of the present study yield significant findings regarding the influence of nature relatedness on mate selection. The first major finding of this study is that approximately half (49%) of the participants either “somewhat agreed” or “strongly agreed” that nature relatedness is a factor that they look for in a romantic partner. The college graduates in this study might have experienced some of the core components of the developmental stage that Arnett (2004) refers to as “emerging adulthood” (p.4). During this period of development, emerging adults tend to explore possibilities regarding love and romantic relationships. Emerging adults often look for a “soul mate,” someone who they will have a “loving, lifelong relationship” who sees life as they do, and who enjoys the same things they do (Arnett, 2004, pp. 99-100). After graduation, college-educated young adults tend to gain work experience and then cohabit with a romantic partner, which often eventually leads to marriage (Furstenberg, 2012). This period of independence and self-exploration before marriage often provides ample time to seek and establish romantic relationships with individuals who possess similar values (Arnett, 2004). As the present study indicates, nature relatedness is a sought after value for some young adults. Nature relatedness is identified as an attribute that the majority of participants (63%) in this study value in a romantic partner. While nature relatedness

is identified as a value that influences mate selection for a portion of young adults in this study, this may not be true for young adults in other demographic groups. To fully understand the influence of nature relatedness on mate selection in young adulthood, data must be collected from additional demographic groups, including those without college degrees, those from different social classes, and race/ethnicity groups other than Caucasian.

This period of self-exploration in emerging adulthood is often a middle-class privilege and is not as common in young adults from lower social classes (Waters et al., 2011). Young adults from lower social classes might differ from college graduates in what they value in a mate. For example, the precedence of income or earning potential may be true for women with non-marital births who often find it a challenge to find a mate who is willing to make the long-term financial commitments required of marriage, when children are not their own (Zhenchao et al., 2005). For these segments of the population, an attribute such as financial stability may take precedence over finding a mate who enjoys spending time outdoors. For example, in this study, 29% of the college-educated participants selected “enjoys spending time outdoors” as a top five attribute that they look for in a potential mate, while only 14% selected “income/earning potential.”

It is important to acknowledge that nature relatedness is not a factor that influences mate selection for all young adults. While, in the current study 29% of participants selected the response of either “somewhat disagree” or “strongly disagree” with respect to the influence of nature relatedness on mate selection, a subset of participants (27%) indicated that they “neither agree nor disagree.” A possible explanation for this is that even though a definition of nature relatedness was provided on the questionnaire, the participants may have not had a clear understanding of the meaning of the concept. Another possibility may be that these participants

have never considered nature relatedness to be a factor in mate selection, and as a result, were unsure how to respond.

**Degree of own nature relatedness influences the importance of nature relatedness in mate selection.** An individual's level of nature relatedness may influence the importance of this attribute in mate selection. The current study identified a positive correlation between a young adult's level of nature relatedness and the importance of nature relatedness in a mate (based on the mean scores of the questions regarding the influence of nature relatedness on mate selection). Results from the survey show participants who are high in nature relatedness tend to value mates who are also high in nature relatedness. This finding is consistent with research that shows that people tend to select mates whose values are similar to their own (Aube & Koestner, 1995; Hahn & Blass, 1997; Regan et al., 2000). People like to find others who are similar to them because it validates the way they look at and perceive the world (Arnett, 2004). Although young adults may not identify it as "nature relatedness" consciously, they are more likely to gravitate towards people who have similar interests in nature. For example, in the current study a positive correlation is found between the importance of nature relatedness in mate selection and frequency of time spent in outdoor activities with a romantic partner. The more important nature relatedness is in a potential mate, the more likely the participants are to participate in outdoor activities with a romantic partner. For young adults, finding a mate who is similar to them in nature relatedness is important because research that shows that greater similarity between partners is associated with higher levels of marital satisfaction and lower levels of negative affect (Gaunt, 2006).

**"Enjoys spending time outdoors" as a desired attribute in a potential mate.** As previously mentioned, more than a quarter of the participants in this study ( $n=78$ ) selected the

option “enjoys spending time outdoors” as one of the top five attributes they look for in a potential mate. Participants selected this attribute as more important than a potential mate’s race/ethnicity, religion, income earning potential, and political views, all of which have in the past been identified as important attributes in mate selection (Blackwell & Lichter, 2004; Eastwick & Finkel, 2008).

One possible explanation for this shift is that since young adults are getting married later, they often spend time living independent of their parents before marriage (Arnett, 2006a; Rosenfeld & Byung-Soo, 2005). While not all young adults live independently from their families of origin, for those that do this independence reduces the control that parents have over their children’s choice of a mate (Rosenfeld & Byung-Soo, 2005). Rosenfeld and Byung-Soo attribute the rise in interracial and same-sex marriages in the United States to this independence from family in young adulthood. In his work, Arnett (2004) also found that the majority of emerging adults from various ethnic backgrounds indicate that personal qualities of potential mates are more important than their ethnic backgrounds and that it is not important for them to date within their ethnic group. However, though emerging adults indicate that the ethnic background of a potential mate is not important, Arnett reports that their behavior usually indicates otherwise. Many emerging adults end up forming relationships with others from a similar ethnic group. Consistent with Arnett’s findings, in the current study attributes such as race and ethnicity were not as important when selecting a mate as has been in the past. In fact, a potential mate’s race/ethnicity was the least selected attribute (10% of the sample) as being important in mate selection. Further research would be needed to see if the current participants’ behaviors reflect their responses or if their responses are due to social desirability responding.

Further investigation is also needed to identify if similar results are found with other demographic groups.

The religion of a potential mate was also not identified as an important attribute for many sample participants when selecting a mate for this sample. A U.S. Religious Landscape Survey (2008) reports that 27% of married adults in the United States are in religiously mixed marriages and that young adults are more likely to be in religiously mixed marriages than older adults. As Arnett (2004) explains, “Emerging adults tend to personalize their relationship with God in a way that makes participating in organized religion unnecessary or even an impediment to the expression of their beliefs” (p. 173). Even though those with higher levels of education have less of a decline of religiosity in young adulthood than those without a college education (Uecker, Regnerus, & Vaaler, 2007), religion for this sample was not a top attribute that they look for in a potential mate. Similar results were also found for the importance of the political views of a potential mate. There is currently an overall decrease in the political involvement of young adults (Niemi & Klingler, 2012). The decrease in political involvement may contribute to this finding.

Previous studies on mate selection (e.g. Blackwell & Lichter, 2004; Eastwick & Finkel, 2008) have not identified the attribute described as “enjoys spending time outdoors” as important in mate selection. The current study’s finding that a mate who enjoys spending times outdoors is important for more than a quarter of the sample, suggests that previous research in mate selection has neglected to identify this as an important attribute in mate selection. This study’s finding could have been influenced by the participants being asked to select their top five attributes from a predetermined list, as well the potential influence of cognitive priming (Doyen, Klein, Simons, & Cleeremans, 2014). Before selecting their top five attributes, participants answered 26

questions focusing on nature relatedness and were presented with a definition of nature relatedness. This information may have been at the forefront of their thinking and may have influenced their selections on what is important when selecting a mate. While the structure of the question regarding the ranking of attributes has the potential to influence the responses of some participants, other findings support the importance of spending time outdoors with a mate for this sample. For example, in the current study a positive correlation is found between an individual's level of nature relatedness and frequency of time spent in outdoor activities with a romantic partner. The more connected someone is to the natural environment, the more likely they are to participate in outdoor activities with a romantic partner. Since a modified snowball sampling recruitment method was used in this study, the sample was biased because it was limited to the groups of people selected by the original study subjects, suggesting similarities between participants. Further research is needed to investigate if finding a mate who enjoys spending time outdoors is an important attribute in other demographic groups such as those who do not have college degrees and are not predominately Caucasian. It will also be informative to find out the reasons why this is or is not an important attribute for some young adults.

### **The Role of the Natural Environment in the Lives of Young Adults**

**Varying degrees of nature relatedness.** In response to the need for current information on individuals in young adulthood (Arnett, 2012), a secondary goal of this study is to begin to describe the role of the natural environment in the lives of the participants in this study. Overall, these college-educated young adults vary in their degrees of nature relatedness as seen in their total NRS scores ( $M=78.59$ ,  $SD=$ , 13.31, range: 37-105). Out of the three subscales on the NRS, participants in this study scored the highest in NR-Self, suggesting that the sample as a whole is strongest in internalizing their identification with nature, and reflecting on feelings and thoughts

about their personal connection to nature. People's connectedness to nature has been shown to influence their environmental attitudes (Frantz, Mayer, Norton, & Rock, 2005), as well as psychological and social well-being (Howell et al., 2011), and happiness (Lambin, 2009; Zelenski & Nisbet, 2014). A disconnect from nature is believed to lead to negative consequences for both the environment and personal well-being (Davis & Atkins, 2009). The current study does not inquire into the reasons why the participants do or do not feel connected to nature, but it has been shown that early childhood outdoor experiences are related to environmental views in adulthood (Ewert, Place, & Sibthorp, 2005; Henderson, Winn, & Roberts, 1996).

The finding that environmental attitudes and environmental beliefs may be formed in early childhood (Ewert et al., 2005; Henderson et al., 1996), makes the further study of young adults (an age group that is likely to be raising, educating, coaching, and mentoring young children) imperative. Educating young adults on the importance of encouraging and providing opportunities for children to connect to nature at an early age, may not only have long-lasting effects on the future of the natural environment, but also on the children's overall well-being (Louv, 2011). Louv (2008) emphasizes the role of the adult in encouraging children's relationship with nature, "Parents, educators, other adults, institutions-the culture itself-may say one thing to children about nature's gifts, but so many of our actions and messages-especially the ones we cannot hear ourselves deliver-are different. And children hear very well" (p.14). Louv pointed out that even if adults themselves do not feel comfortable outdoors, there are several guidebooks, websites, and outdoor programs that can provide assistance in encouraging children's connections to the natural environment.

**Difference between males and females in NR-Experience.** Results show that males are higher in NR-Experience than female participants. This finding indicates that males in the study desire and feel more comfortable being outdoors than the females in this study. There may be several factors that contribute to this finding. In general, males may have more opportunities to spend time outdoors. While this trend is gradually changing, men have traditionally held the majority of positions in fields that require spending time outdoors such as agriculture, forestry, construction, and environmental protection (United States Department of Labor, 2014). Furthermore, men have dominated outdoor recreational sports such as hunting and fishing (Manning, 1999), which also provide increased opportunities for time spent outdoors. Additionally, woman's lower level of comfort outdoors, as compared to men, may be due to fear (Henderson et al., 1996; McNeil, Harris, & Fondren, 2012; Wesely & Goarder, 2004). Her personal safety (safety from human and wild animal attacks) may inhibit her outdoor participation (Johnson, Bowker, & Cordell, 2001). Female participants in the Henderson et al. study (1996) indicated the need for a partner in order to participate and feel safe in outdoor activities. Due to family responsibilities, women may also have limited or no time for outdoor leisure activities (Haller, Hadler, & Kaup, 2013; Johnson et al., 2001). When women do spend time outdoors for recreation, it often involves cultural and family-centered activities (Manning, 1999). Future research should focus on distinguishing between women's feelings about nature, and their feelings about becoming a potential victim when in an outdoor setting, where they are presumably more vulnerable.

**Difference between rural and urban residents in NR-Experience.** Another demographic difference that was identified in this study is that young adults from rural regions are higher in NR-Experience than young adults who live in urban areas. It appears that

individuals living in what they consider to be rural areas, have a greater physical familiarity with the natural world and feel more comfortable outdoors than those living in an urban setting. A possible reason for this is that the rural young adults may spend more time in natural environments than the urban participants due to increased accessibility, opportunity, and necessity. Some urban residents, especially those from disadvantaged neighborhoods, may refrain from spending time outdoors due to fear and the threat of crime (Roman, Stodolska, Yahner, & Shiness, 2013). It is estimated that roughly 250 million Americans who live in or near cities already find it difficult to connect with the outdoors (U.S. Department of the Interior, 2014). The number of people living in urban areas is predicted to grow by 32 percent (or approximately 84 million people) over the next three decades. It will be important to continue to develop new programs and initiatives that encourage urban residents to spend time outdoors reconnecting with nature. For example, programs such as Farm School NYC or CitySprouts in Cambridge, Massachusetts provide children and adults the opportunity to create and maintain urban gardens. These types of programs and initiatives are important since being disconnected from nature is believed to lead to negative consequences for both the environment and personal well-being (Davis & Atkins, 2009).

**Differences between northwest and southwest regions in NR-Perspective.** Another finding is that young adults living in the northwest and southwest differ on their NR-Perspective. Participants in the northwest have a greater sense of urgency concerning individual human actions and their impact on all living things as well as a more external nature-related world-view, than do participants living in the southwest region of the United States. In fact, the participants living in the northwest scored higher on NR-Perspective than all other geographical regions. Northwest residents may be high in NR-Perspective due to the rapid increase in urbanization in

this region (Martinez & Northwest Regional Educational Lab, 1996). These residents may be concerned about the environmental changes occurring in this region, a region which was “built upon an agrarian economic base” and is often known for its “natural beauty” (p. 1). These changes may be influencing the participants’ concerns about the impact of human actions on all living things. Given that a small percentage of participants were from the northwest ( $n=6$ ) and the southwest ( $n=12$ ), the findings cannot be generalized due to the small sample sizes. More research is needed from more participants including additional demographic information, such as income, housing status, and political beliefs. It will also be important to understand how the resources of the region (oil, forestry, tourism) may influence the nature relatedness of the participants in order to form a more accurate hypothesis on what has contributed to this finding

**Differences between older participants and younger participants in NR-Experience and NR-Self.** Two differences in nature relatedness were identified between the younger participants (ages 25-32) and the older participants (ages 33-40). The older participants scored significantly higher on NR-Experience than the younger participants. This finding indicates that the older participants have a greater physical familiarity with the natural world and feel more comfortable outdoors than the younger participants. One possible reason is that the older participants have spent a greater amount of time to outdoors because they have had more years to do so. Another plausible reason that the older participants are stronger in NR-Experience, is that this group may have spent more time outdoors as children and adolescents and as a result feel more comfortable in nature. According to Louv (2008), the past decades have seen an increasing divide between the young and the natural world. He writes, “Fear is the most potent force that prevents parents from allowing their children the freedom they themselves enjoyed when they were young” (p.123). The belief (real or perceived) that outdoors environments are unsafe

(Johnson et al., 2001; Louv, 2008; Stodolska, Shinew, Acevedo, & Roman, 2013), as well as the rapid rise in technology (i.e., television, video and online games, social media), contributes to individuals of all ages spending more time indoors (Louv, 2008). As the availability of technology increases exponentially, it would be interesting to compare current young adults' NRS-Experience scores with those in future generations.

The older participants also scored significantly higher on NR-Self than the younger participants. The older participants are stronger in internalizing their identification with nature, and are more likely to reflect on feelings and thoughts about their personal connection to nature. According to Levinson (1986) around the ages of 40 to 45 people start to enter a midlife transition. A key developmental task of this transition individuation. When this occurs adults often become more reflective about their lives and their central values. Because the older adults in this study are approaching this transition, they are more likely to be reflective about a number of areas in their lives. One of these areas may be their personal connection with the natural environment.

**Frequency of participation in outdoor activities with a romantic partner.** Another major finding of this study is that out of the choices provided, the most frequent outdoor activity college-educated young adults participate in with a romantic partner is relaxation. Sixty-four percent of participants reported that they either "often" or "very frequently" relax outdoors with a romantic partner. A previous research study of 527 adults of all ages, with a mean age of 42.4 ( $SD=11.7$ ), found that adults believe that spending time in and interacting with nature is an important way to recover from work stress (Korpela & Kinnunen, 2011). While adult participants in Korpela and Kinnunen's study reported their beliefs about spending time in nature, participants in the current study reported on frequency of outdoor activities with a

romantic partner. Previous studies with various age groups show positive benefits of spending time outdoors on stress reduction (Vella, Milligan, & Bennett, 2013) and overall well-being (Feral, 1999; Howell et al., 2011). It is likely that for participants in this study, spending time in these outdoors activities might also be a way to recover from the stressors in their life.

In a study investigating the amount of leisure time that marital partners share, it was found that romantic partners tend to spend more time together in leisure activities than they have in previous decades (Voorpostel, Lippe, & Gershuny, 2009). This finding was especially true for partners who do not have children. Arnett (2004) states, “similarity is more important for this generation than in the past, because married couples today usually expect to spend most of their leisure time together” (p. 98). In the present study, for example, one participant’s open-ended response was, “I love quality time with my partner, and that usually takes place outdoors” (Participant 71, personal communication, March 9, 2014).

While some participants in this study may find it important to find someone who enjoys spending time outside (a potential location for leisure time activities), it may be less of a priority for young adults who have limited or no time for leisure activities (Gimenez-Nadal & Sevilla-Sanz, 2011). Populations with limited leisure time often include individuals who are taking care of their families and have work responsibilities outside of the home, individuals (men and women) with long work hours, those who live in a household with children, or individuals living in larger households (Haller et al., 2013). However, these individuals, those without much time for outdoor leisure activities, are also ones I believe are the most stressed. For these individuals and other young adults, this stage of life can be a stressful time. Levinson (1986) refers to young adulthood as one in which “crushing stress” is evident (p.5). Stress during young adulthood often comes from decisions and concerns over family, occupations, financial obligations,

community involvement, and the realization of major life goals (Arnett, 2012; Levinson, 1986). It is important for all young adults to find effective ways to reduce stress (Hildingh, Luepker, Baigi, & Lidell, 2006; Johner, 2007). Spending time in natural environments may help in stress management (Finnicum & Zeiger, 1998; Van Duyne, 2011; Vella et al., 2013).

**Summary of findings.** This study identifies nature relatedness as a factor that nearly half (49%) of the participants look for in a romantic partner. For the majority of the participants (63%), nature relatedness is something they value in a romantic partner. Findings also indicate that the higher participants are in nature relatedness, the more nature relatedness influences their selection of a potential mate, and the more frequently they engage in outdoor activities with a romantic partner.

For more than a quarter of this sample, “enjoys spending time outdoors,” is one of the top five attributes they look for in a mate. The importance of this attribute may be as a result of the rise of leisure time for some young adults such as those without children (Haller et al., 2013) and the expectation of spending leisure time with a romantic partner (Arnett, 2004). The most frequently engaged in activity when outdoors with a romantic partner (out of the provided choices) was relaxation. As previous studies have found, spending time outdoors may be a way for the participants to reduce stress (Korpela & Kinnunen, 2011; Vella et al., 2013).

The second goal of this study is to start to investigate the role of the natural environment in the lives of young adults. Overall, these young adults have varying degrees of nature relatedness, but they are highest in NR-Self indicating a personal connection to the natural environment. The subscale NR-Experience shows the most demographic variance in the sample. Differences in NR-Experience were found between males and females, rural and urban residents, and the younger and older age groups. These findings show that the male participants in this

study feel more comfortable outdoors than the female participants, rural residents more than urban residents, and older participants more than younger participants. Differences were also found on the subscale NR-Self between the older and younger participants showing that older age groups has a greater personal connection to nature. On the subscale NR-Perspective, participants living in the northwest region have a stronger sense of urgency over environmental concerns than participants living in the southwest however due to sample sizes for these regions, this finding is not reliable and needs to be further investigated. Due to the homogeneity of the sample, further investigation on the influence of nature relatedness with other demographic groups is needed.

### **Study Limitations**

The limitations of this study include the use of a modified snowball sampling technique, the lack of diversity of participants in the study, and the use of an electronic questionnaire. These limitations need to be recognized as they might have affected the results and the generalizability of the findings.

**Modified snowball sampling technique.** When using snowball sampling or a modified version of snowball sampling, there is the potential to recruit a large number of participants, but there are limitations. One limitation is that the researcher does not know exactly who will be in the sample (Creswell, 2008). Another limitation is that the researcher will not be able to calculate the response rates of the survey. This method of sampling also eliminates the possibility of identifying individuals who did not complete the survey and runs the risk that those responding may not meet the study's participation criteria (age and college degree).

**Participant demographics.** A significant limitation of the study is that the sample is not representative of four-year college graduates nationwide. The majority of the participants in this

study are non-Hispanic White, heterosexual, married or cohabitating with a romantic partner, and living in the northeast section of the United States. The number of participants who identified themselves as homosexual or bisexual were too few to adequately test for differences in nature relatedness based on sexual orientation. The same was true for race/ethnic group. The largest race/ethnic group was Non-Hispanic White (83%). The second largest race/ethnic group (Hispanic/Latino) was only 5% of the study sample. It is important to note that results are not generalizable to the college-educated young adult population in the United States.

**Electronic questionnaire.** Even though electronic questionnaires are becoming a popular way to collect data (Creswell, 2008), one limitation to this method is that it depends on access to the Internet to recruit participants as well as to distribute and collect data from the questionnaires. Only individuals with Internet access are able to participate. Furthermore, technical difficulties with an Internet server or the survey site may lead to the participant not being able to complete the questionnaire, resulting in the loss of potential participants. Additionally, as is true of most online surveys, the researcher is unable to confirm that the participants meet the study's requirements, as well as being unable to control the testing environment in which the participants complete the questionnaire. Finally, though the questionnaire was pilot tested, the online format may cause confusion for some individuals. It is important to distinguish that results from a questionnaire completed by an online population are not generalizable to offline populations (Andrews et al., 2003).

When utilizing any self-reports, the researcher relies on the participants' perceptions and descriptions of their thoughts, attitudes, and behaviors (Mertens, 2010). The researcher also runs the risk of participants answering questions in a manner consistent with how they think the questions should be answered instead of what is truly accurate. Social desirability may lead

participants to select pro-environmental responses even if they do not adhere to them (Lutz, Simpson-Housley, & de Man, 1999). In addition, the organization of the questions on the survey may influence the responses made by the participants due to cognitive priming. Future studies should consider pilot testing additional ways to structure the survey.

### **Recommendations for Future Research**

This study reveals an exciting new area of inquiry into the influence of nature relatedness on mate selection in young adulthood and further research is needed. The current study's sample lacked a degree of heterogeneity with respect to demographics such as race, social class, education level, and sexual orientation. To have a real understanding of the influence of nature relatedness on mate selection, data must be collected and evaluated from these additional demographic groups. Based on this study's findings, the following recommendations for future research on nature relatedness are presented.

**Population demographics.** The most critical recommendation I have for future research is to replicate this study with young adults from different social classes, racial/ethnic backgrounds, sexual orientations, education levels, and geographical locations. The population of the current study is not an accurate representation of nationwide demographics. For example, only 28.5% of adults ages 25 and older in the United States have a bachelor's degree or higher, as compared to the current study where all participants had a minimum of a bachelor's degree (United States Census Bureau, 2013). Another example is that while nationally the Hispanic or Latino population accounts for 17.1 % of the country's population, in this study they only accounted for 5%. Similarly, across the nation, Black or African American individuals account for 13.2% of the population, while in this study they only accounted for 3%. Conclusions cannot

be made about the level of nature relatedness or its influence on mate selection for the general population of young adults until data from all demographic groups is analyzed.

**Differences in nature relatedness.** Another recommendation for future research is to investigate why young adults have differing degrees of nature relatedness and identify the factors that influence these differences. The findings in this study specifically encourage the exploration of differences in nature relatedness between genders, geographical location, geographical region, and age groups. The following are potential research questions that emerged from this study:

- Does similarity in nature relatedness relate to the success of a relationship? If so, how does it relate to the success of a relationship?
- Is finding a mate who enjoys spending time outdoors an important attribute in other demographic groups, such as those who have not graduated from college or those with two-year degrees?
- How often do young adults participate in outdoor activities with a romantic partner? Why do they participate in these activities?
- Is a women's desire to spend time outdoors in nature influenced by her potential fear for her physical safety (i.e., violent attack by a human or animal)? Do these fears differ depending on her geographical location?
- What are the factors (i.e., childhood experiences, societal norms, technology) that influence age-related differences in NR-Experience?
- Does the amount of time spent in nature influence one's NR-Experience? Why or why not?
- Why does geographical region (specifically urban and rural) influence NR-Experience?

**Influence of a college education.** Another recommendation for future research is to investigate if having a college degree influences a young adult's level of nature relatedness. College campuses typically promote a culture of increased environmental awareness through academics and social outlets (Buttenwieser, 2008; Wood, 2010). For example, colleges across the country are expanding environmental-related course offerings to include current issues such as the science of climate change and global environmental policy (Bralower, Feiss, & Manduca, 2008; Petersen, 2008). Many college campuses are incorporating a "greener" approach to construction, operation, and maintenance of new buildings (Buttenwieser, 2008; Silvia, 2008). These buildings are typically constructed of sustainable building materials, and are designed to use less energy and natural resources than traditional structures. Extensive recycling and waste minimization programs are also being implemented at college campuses, which are utilized by the entire community including students, staff, and faculty (Wood, 2010).

Further research is needed to investigate if a possible cumulative effect of increased environmental awareness at college campuses influences nature relatedness (especially NR-Perspective). Are college graduates more likely than those without a college degree to be higher in nature relatedness? Are college graduates more likely to be influenced by nature relatedness when seeking a potential mate than non-college graduates? In this investigation it will also be important to look at differences in nature relatedness between traditional age students and non-traditional age students, online students, and students attending evening programs to further understand the potential impact of a college education on nature relatedness.

These recommendations for future research are a preliminary step in investigating the influence of the natural environment on the lives of young adults. Research into this area may be important with respect to the future health of the planet, and to individual well-being (Bolen,

2012; Calkins et al., 2007; Howell et al., 2011; Korpela & Kinnunen, 2011; Lambin, 2009; Mayer et al., 2009; Metzner, 1995; Ottosson & Grahn, 2005; Sackett, 2010). Additionally, adults in their late twenties and thirties will soon be running corporations, holding political offices, and writing environmental policies that will affect our country and our planet. These same young adults are also instilling environmental values in their children and those they teach, coach, and mentor. The future of the planet will one day be the responsibility of this generation. As Louv (2008) states, “How the young respond to nature, and how they raise their own children, will shape the configurations and conditions of our cities, homes-our daily lives” (p. 3). Given the current and future environmental challenges that humans face, further exploration into how the natural environment influences personal life decisions is crucial to the future success of the human species.

### **Application of Findings**

The current study is one of the few, if any, studies examining the influence of nature relatedness on decision making regarding mate selection in college-educated young adults. The finding that nature relatedness is a desired attribute in a mate for some young adults introduces a new and exciting area of inquiry. This finding is not only important for the study of mate selection, but also for the field of adult development. In addition, this initial study provides insight into the influence of the natural environment on this demographic group. Exploring how the natural environment influences the personal lives of young adults is not frequently examined, but may be an essential component to understanding their development. There is an abundance of possibilities for future research on how nature relatedness may influence the personal life decisions of young adults.

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## Appendix A

## Standardized Written Protocol

Dear \_\_\_\_\_,

I am a PhD candidate and I am currently working on my dissertation research assignment. I am asking for your assistance in forwarding the following information to any college graduates between the ages of 25 and 40 who may be interested in being part of my study. I thank you in advance for your assistance. Please contact me with any questions.

Thank you.

Nicole Kras M.A., M.S., C.A.G.S.

Lesley University

203.314.2485

[nkras@lesley.edu](mailto:nkras@lesley.edu)

---

Dear Potential Participant,

You are being contacted as a potential participant for a study about your relationship with the natural environment. I am a PhD candidate in adult learning and development and this study is being conducted for completion of my dissertation at Lesley University in Cambridge, Massachusetts. If you choose to participate your responses to the questionnaire will be anonymous and will contribute to the literature in the fields of adult development and ecopsychology. The requirements for this study are that you are a college graduate of a four year institution and are between the ages of 25 and 40. It is anticipated that filling out the survey will take approximately 15-20 minutes to complete. Once completed, you will have the option to be entered into a drawing to win one of five \$20 gift cards. If you are interested in participating,

please click on the link below. You will have the opportunity to read the informed consent before agreeing to participate. Your participation is greatly appreciated.

Nicole Kras M.A., M.S., C.A.G.S.

Lesley University

203.314.2485

[nkras@lesley.edu](mailto:nkras@lesley.edu)

Appendix B  
Informed Consent

This study is being conducted for dissertation research as part of a PhD program at Lesley University. In this study you will be asked to complete an electronic questionnaire that should take you approximately 15-20 minutes to complete. Your responses to this questionnaire will be anonymous. There are no identified risks associated with this study. Benefits include adding to the literature in the fields of adult development and ecopsychology.

Your participation in this study is voluntary. There are no penalties if you should skip any questions that you do not feel comfortable answering or if you want to withdraw from this study at any time. Please contact the researcher for a copy of the study results. If you have any questions or concerns in reference to this study, feel free to contact the researcher.

**Researcher**

Nicole Kras M.A., M.S., C.A.G.S  
[nkras@lesley.edu](mailto:nkras@lesley.edu)  
203.314.2485

If you have any concerns about this study you can also contact the doctoral committee chair or the co-chair of the Lesley University IRB committee.

**Doctoral Committee Chair**

Robin Roth, Ph.D  
37 Mellen Street  
Cambridge, MA 02138  
[rroth@lesley.edu](mailto:rroth@lesley.edu)

**Co-Chair IRB Committee**

Terrence Keeney, Ph.D  
Lesley University  
University Hall, 2-038  
29 Everett Street  
Cambridge, MA 02138  
[tkeeney@lesley.edu](mailto:tkeeney@lesley.edu)

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**Informed Consent (electronic consent)**

By selecting this option I confirm that I am a college graduate between the ages of 25 and 40. I acknowledge that I have not previously completed this questionnaire and I understand that I can withdraw from the study at any point. I understand I am not required to answer all the questions asked in the questionnaire.

## Appendix C

## Questionnaire

Please answer all questions honestly. Do not base your answers on what you think the correct answer should or should not be.

**For each of the following, please rate the extent to which you agree with each statement, using the scale from 1 to 5 as shown below.**

<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
<b>Disagree Strongly</b>	<b>Disagree a little</b>	<b>Neither Agree nor Disagree</b>	<b>Agree a little</b>	<b>Agree Strongly</b>

1. I enjoy being outdoors, even in unpleasant weather. \_\_\_\_\_
2. Some species are just meant to die out or become extinct \_\_\_\_
3. Humans have the right to use natural resources any way we want. \_\_\_\_
4. My ideal vacation spot would be a remote, wilderness area. \_\_\_\_\_
5. I always think about how my actions affect the environment. \_\_\_\_\_
6. I enjoy digging in the earth and getting dirt on my hands. \_\_\_\_\_
7. My connection to nature and the environment is a part of my spirituality. \_\_\_\_\_
8. I am very aware of environmental issues. \_\_\_\_\_
9. I take notice of wildlife wherever I am. \_\_\_\_\_
10. I don't often go out in nature. \_\_\_\_\_

11. Nothing I do will change problems in other places on the planet.\_\_\_\_
12. I am not separate from nature, but part of nature.\_\_\_\_
13. The thought of being deep in the woods, away from civilization, is frightening.\_\_\_\_
14. My feelings about nature do not affect how I live my life.\_\_\_\_
15. Animals, birds, plants should have fewer rights than humans. \_\_\_\_
16. Even in the middle of a city, I notice nature around me.\_\_\_\_
17. My relationship to nature is an important part of who I am.\_\_\_\_
18. Conservation is unnecessary because nature is strong enough to recover from any human impact.\_\_\_\_
19. The state of non-human species is an indicator of the future for humans.\_\_\_\_
20. I think a lot about the suffering of animals.\_\_\_\_
21. I feel very connected to all living things and the earth. \_\_\_\_

**Nature relatedness is defined as a person's emotional, intellectual, and physical connection to the natural environment.**

22. Nature relatedness is something I look for in a romantic partner.

---

1	2	3	4	5
Strongly Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Strongly Agree

---

23. When looking for a romantic partner, an individual's level of nature relatedness does not influence my decision making.

---

1	2	3	4	5
Strongly Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Strongly Agree

24. It is essential that my romantic partner is high in nature relatedness.

---

1	2	3	4	5
Strongly Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Strongly Agree

25. Nature relatedness is not an attribute that I look for in a romantic partner.

---

1	2	3	4	5
Strongly Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Strongly Agree

26. I value nature relatedness in a potential romantic partner.

---

1	2	3	4	5
Strongly Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Strongly Agree

---

27. Please select the top five attributes or characteristics that influence your decision regarding mate selection.

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___ age	___ education level
___ political views	___ honesty
___ religion	___ sense of humor
___ enjoys spending time in nature	___ sexual desirability
___ race/ethnicity	___ personality
___ income/earning potential	___ other (specify)_____
___ physical attractiveness	

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How often do you engage in the following activities with your romantic partner? If you are not currently in a romantic relationship, please refer to your most recent romantic relationship.

**28. Hiking or Walking**

1	2	3	4	5
Never	Rarely	Occasionally	Often	Very Frequently

**29. Camping or Wilderness Experiences**

1	2	3	4	5
Never	Rarely	Occasionally	Often	Very Frequently

**30. Gardening or Landscaping**

1	2	3	4	5
Never	Rarely	Occasionally	Often	Very Frequently

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**31. Water Activities such as Swimming or Kayaking**

1	2	3	4	5
Never	Rarely	Occasionally	Often	Very Frequently

**32. Exercising Outdoors**

1	2	3	4	5
Never	Rarely	Occasionally	Often	Very Frequently

**33. Relaxing Outdoors**

1	2	3	4	5
Never	Rarely	Occasionally	Often	Very Frequently

**34. Skiing/Snowboarding**

1	2	3	4	5
Never	Rarely	Occasionally	Often	Very Frequently

35. Is there any additional information you would like to share about nature relatedness and your romantic partner (past or present)?

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**Please indicate the answers that best describe you.**

**Gender:** Male\_\_\_ Female\_\_\_ Transgender\_\_\_ Prefer Not To Disclose \_\_\_

**What year were you born?** \_\_\_\_\_

**How do you describe yourself? (please select the one option that best describes you)**

- American Indian or Alaska Native
- Hawaiian or Other Pacific Islander
- Asian
- Black or African American
- Hispanic or Latino
- Non-Hispanic White
- Multiracial
- Other (please identify) \_\_\_\_\_

**How would you describe yourself?**

- Lesbian, gay, or homosexual
- Straight or heterosexual
- Bisexual
- Something else
- Don't know

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**Which best describes your current relationship status? Check all that apply.**

- 
- Single
  - Dating
  - Cohabiting
  - Married
  - Other (please specify)

**How long have you been in your most recent romantic relationship?**

Less than one year

1-5 years

6-10 years

11-15 years

16-20 years

More than 20 years

**What is your current geographic location?**

Urban  Suburban  Rural  Other (please describe)

**Which state do you primarily reside in?**

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Thank you for completing this questionnaire. If you would like to be entered into a drawing for one of five \$20 gift cards, please select this box and you will be brought to a new page where you can enter your e-mail address.