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# Colleges and Universities: Prime Habitat for Hunter Recruitment and Retention

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COLLEGES AND UNIVERSITIES: PRIME HABITAT FOR HUNTER  
RECRUITMENT AND RETENTION

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A Thesis  
Presented to  
the Graduate School of  
Clemson University

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In Partial Fulfillment  
of the Requirements for the Degree  
Master of Science  
Parks, Recreation and Tourism Management

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by  
Brett Jonathon Stayton  
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Accepted by:  
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## ABSTRACT

Hunting has played a prominent role throughout American history and continues to serve many important social, economic, and ecological functions in our society today. However, hunting participation in the United States is in a gradual state of decline. Today, less than 5% of the population hunts. In hopes of reversing these trends, many state fish and wildlife agencies, conservation organizations, and hunting and shooting sports industries have increasingly invested in new programs designed to enhance the recruitment, retention, and reactivation (R3) of new hunters from non-traditional hunting backgrounds. For example, many R3 initiatives have been designed to focus on women, youth, families, local food enthusiasts, and other demographic groups. Yet the long-term efficacy of these programs has yet to be determined.

One particular population that warrants increased attention in R3 circles is young adults. College students, in particular, are a prime target because almost half of all young adults attend college, individuals are typically most likely to experiment with new leisure activities during their college years, peer support for activities like hunting is available across college campus, and the activities that many people engage in during college become part of their identity later in life. All of these reasons, plus that fact that college students are in a young adult cohort that will impact the conservation landscape for decades, mean that college students represent a potentially key group when it comes to increasing and sustaining future hunting participation rates on a national scale. Using surveys of undergraduate students at two universities (n = 594) and evaluations of R3 workshops designed specifically for college students (n = 32), this study examined the hunting-related attitudes and behaviors of college students, investigated their receptivity to R3 efforts, and explored their likelihood of becoming future hunters or hunting advocates.

Roughly 41% of total students indicated that they had been hunting before compared to 47% of students who said they had never been hunting. Overall participation rates were higher amongst college students than the national average, more surprising, however, was the number of non-hunting students who were contemplating future hunting. Almost half of hunting associates said they would consider hunting in the future and roughly another third said they plan to hunt regularly. Almost half of non-hunters also said they would consider hunting, but less than 10% said they planned do so at some point.

This study also demonstrates that, as hypothesized, many college students are readily receptive to R3 efforts and they are willing to attend hunting programs if those programs are offered to them. Not only is this age group receptive to recruiting efforts, but they also tend to be more diverse than some other demographic groups that R3 initiatives have targeted, particularly when it comes to females and individuals from non-hunting backgrounds. As marketing efforts for these programs expands, enthusiasm should be reinforced as hunting-related themes slowly permeate more peer-to-peer interactions on campus.

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## CHAPTER ONE

### INTRODUCTION AND LITERATURE REVIEW

#### Introduction

Hunting has played a prominent role throughout American history and continues to serve many important functions in our society today (Marks, 1991). America's unique hunting culture evolved from subsistence hunting on the frontier, but as the wilderness was subdued and the nation became industrialized, hunters continued going afield (McCorquodale, 1997). Today, hunting fosters social connections and strengthens bonds within families and rural communities in many part of the country (Stedman & Heberlein, 2001). Hunting is also a critical source of income for many rural economies, a critically important tool for wildlife management, and obligatory source of funding conservation (Vrtiska et al, 2013).

As the United States population grew and human expansion threatened natural ecosystem dynamics, hunting has become an increasingly vital tool for sustainably maintaining the ecological balance of nature (Brown et al, 2000). Hunting activity can help control growth rates and densities of species in areas where wildlife populations have outgrown socially and ecologically acceptable numbers. Overabundant wildlife populations have undesirable impacts on both ecosystems and people (Duda, Jones, & Criscione 2010). Many wildlife experts contend that hunting is the very foundation of wildlife conservation in North America and that no other viable alternatives for managing wildlife populations over broad landscapes currently exist (Brown et al, 2000).

The conservation ideology and hunting ethics of America are rooted in a globally unique combination of ecological, historical, cultural, political, legal, ethical, and economic factors (Duda, Jones, & Criscione, 2010). These factors culminated in the development of revolutionary policies, regulations, and values that collectively formed what is known as The North American Model of Wildlife Conservation (Duda, Jones, & Criscione 2010). The North American Model of Wildlife Conservation is founded on the principles that fish and wildlife should be managed as a public resource, the commercial sale of wildlife should be illegal, and that conservation efforts should be funded through direct taxation of the citizens that consumptively utilize fish and wildlife resources. The North American Model is widely considered to be the most successful system of conservation in the world. The system balances public ownership of fish and wildlife resources and the promotion and cultivation of sustainable populations of those resources (Duda, Jones, & Criscione 2010).

Yet the sustainability of this system – hunting – is currently being threatened by decades long decline in hunting participation rates has increased public concern regarding the ability of state agencies to secure stable funding for wildlife conservation in coming years (Larson et al, 2014). In 1955, roughly 10% of the population of America hunted. By 1980, that number was down to around 7% of the population. Today, less than 5% of the population hunts (United States Fish and Wildlife Service, 2016; Congressional Sportsmen’s Foundation, 2016). In hopes of reversing declining participation rates, many state fish and wildlife agencies, conservation organizations, and hunting and shooting sports industries have increasingly invested in the recruitment and retention of new

hunters and the reactivation of former hunters (Council to Advance Hunting and the Shooting Sports, 2016).

Many of the early programs and initiatives designed to increase hunting participation have initially attracted hunters from traditional hunting demographics, but a growing number of programs are focusing on generating interest from broader audiences with limited previous exposure to hunters and hunting. These new programs are specifically focused on recruiting and retaining new hunters from non-traditional hunting backgrounds. For example, many new recruitment, retention, and reactivation (R3) initiatives have been designed to focus on women, kids, families, and other demographic groups (Council to Advance Hunting and the Shooting sports, 2016). In most cases, the long-term efficacy of these programs has yet to be determined.

One particular demographic group that warrants increased attention is young adults, a group that represents a potentially key group when it comes to increasing and sustaining future hunting participation rates on a national scale. Within this demographic group, college students represent a population of particular interest for a variety of reasons. College students are more independent and autonomous than youth, and they are often excited to explore new activities that ultimately help to shape their identity (Luyckx et al., 2006; Ravert, 2009). For these reasons, college students might be an ideal target for R3 efforts (Larson et al., 2017). Cohort effects also affect the likelihood that certain people hunt, and the specific social and environmental conditions under which people are initially exposed to hunting influence the likelihood that they continue hunting throughout their life (Winkler & Warnke, 2013).

This research project examines the hunting-related attitudes and behaviors of college students, investigates their receptivity to R3 efforts, and explores their likelihood of becoming future hunters or hunting advocates.

### Literature Review

#### Hunting and Conservation in America

Hunting is deeply woven into the cultural and historical fabric of the United States of America (Marks, 1991). Before European settlers ventured into what would become America, indigenous people intensively managed landscapes to meet their requirements for firewood, building materials, edible plant matter, and wildlife habitat. The most important management tool for Native Americans was fire. They burned landscapes to clear brush, maintain grasslands and meadows, and perhaps most importantly, to improve habitat quality and food sources for deer, elk, buffalo, and other species of game. Hunting was not just simply way of life for many Native American tribes; hunting was quite literally a matter of life and death (Anderson & Moratto 1996).

Hunting for subsistence and protection from predators on the frontier was a vital step in the colonization and expansion of our nation as well. As the US became colonized, hunters played a major part in shaping a newly developing American culture. Stories of rugged, gritty, self-determined individuals forging a life of adventure and danger on the edge of a great-unknown wilderness helped shape the very spirit of our nation (Runte, 2010). Pioneers like Daniel Boone helped tame the wild frontier and opened up expansion for a growing nation. Boone's legendary hunting prowess,

marksmanship, and knowledge of wild animals and the lands they inhabited allowed him to thrive on the frontier, and stories of his exploits turned him into celebrity, war hero, and political leader whose reputation has stood the test of time (Biography.com, nd). But Boone isn't the only notorious politician who evolved into a folk hero due to his hunting exploits.

President Theodore Roosevelt's hunting prowess and adventures also turned him into an American legend, Roosevelt was vehemently opposed to killing an animal just for the sake of killing it. To him, hunting was about much more than just harvesting a trophy. In one well-documented story, Roosevelt refused to shoot a young bear that was tethered to a tree by his hunting guide, an action that would have created the public appearance of a successful hunting trip. The story eventually gave rise to invention of the toy "Teddy Bear", which further cemented Teddy Roosevelt's status as an icon and positive symbol of America's budding new recreational hunting culture. Roosevelt's passion for hunting and conservation shaped the policies enacted during his presidency, and those policies revolutionized the links between hunting and wildlife conservation and still positively impact our nation today (Brinkley & Holland, 2009).

Recreational hunting continues to play an important role in multiple aspects of modern American society, generating a number of cultural, economic, and ecological benefits. Hunting is particularly culturally relevant in rural areas, where the seasonal pursuit of game is a deeply seeded way of life and subsistence practice that is almost as common as going to the grocery store (Stedman & Heberlein, 2001). Hunting seasons are an annual ritual, a concrete reminder of the annual cycle of the year that calendars are

built on. In many ways, hunting defines life in rural America (Stedman & Heberlein, 2001).

Newspaper clippings from decade's prior illustrate the cultural relevance of hunting in many parts of the country. In 1996, one West Virginia High school cancelled classes for a week rather than deal with high absenteeism rates during deer season (attendance rates the previous year reportedly dropped around 45% on the opening day of deer season). A West Virginia Division of Wildlife Biologist in the county said the first day of rifle season is the equivalent of the Super Bowl in that area, and that even when schools didn't close half of their students would go hunting anyways (The Tuscaloosa News, 1996). These stories are not isolated incidents. Similar instances of school closures during hunting season have been sporadically reported throughout the country over the years. Some states have such noticeably high numbers of absences during deer season that they have begun to implement innovative solutions to address the issue. In a news article from 2012, a high school principal in Iowa explained his schools policy towards hunting related absences. Students are permitted to miss school to go hunting as long as they make arrangements to make up their work ahead of time. Hunting is not only a culturally and historically important activity. Hunting plays an extremely important ecological role on the modern American landscape as well.

### Ecological Benefits of Hunting

Regulated hunting has become the primary mechanism for controlling certain populations of wildlife in the absence of extirpated large predators (Brown et al, 2000).

Hunting activity can help control population growth rates and densities of species in areas where their overabundance has undesirable impacts on ecosystems and people (Brown et al, 2000). For example, the general consensus within the scientific community is that an overabundance of deer diminishes the biodiversity of an ecosystem and degrades forest composition (Miller, 2017). Deer hunting can help to alleviate these problems.

Ecological implications of hunting expand beyond just white tail deer, for most of these issues are complex and vary greatly across species. To further complicate things, ecological issues are often linked to social and cultural issues as well. For example, as populations of large predators like coyotes, bears, wolves, and mountain lions are increasing throughout parts of North American ecosystems in recent decades, wildlife managers are beginning to face substantial pressure to reduce depredation on game species, pets, and livestock. However, hunting predators is typically a more contentious issue in the United States than hunting species like deer and ducks. Animal rights activists often protest the hunting of all animals, and especially predators, threatening hunters and challenging wildlife agencies with lawsuits in hopes of stopping the hunting of animals with which they feel a strong personal connection (Packer et al, 2009).

Despite controversy about hunting, wildlife managers and scientists staunchly defend hunting as an essential tool for sustainably managing populations of wildlife in North America. No socially or ecologically acceptable alternative for controlling wildlife populations over broad landscapes currently exists (Brown et al, 2000). More attention needs to be focused on educating a both the general public and active hunters about the ecological role hunting plays (Decker & Connelly, 1989). Developing a culture of hunters

that are enlightened in this sense has long proved difficult, and few traditional hunters identify ecological factors or population management as a primary motivation for hunting (Decker & Connelly, 1989). This trend may no longer whole true today though, as recent evidence from a national survey suggests shifts toward conservation- or civic-oriented hunting (protecting ecosystems or crops, reducing deer-vehicle collisions, etc.) preferences may be growing across the United States (Decker et al. 2015). In addition to the ecological benefits of hunting, the economic benefits are far reaching as well.

### Economic Benefits of Hunting

Hunting and recreational shooting provide the bulk of financial support that fuels wildlife conservation in America. Funds are administered through The Federal Aid in Wildlife Restoration Act, also known as the Pittman-Robertson Act. Congress passed this Act in 1937, applying a 10% excise tax on firearm and ammunition purchases in order to create a new source of funding for much-needed wildlife conservation projects. Later another federal bill, the Dingell-Johnson Act, mandated a similar tax on fishing equipment in 1950. This system of funding would not have been possible without overwhelming support and advocacy from America's robust population of recreational hunters and anglers in the 1930's, and their financial dedication to conservation highlights the commitment hunters and anglers have to conserving sustainable populations of fish and wildlife (Duda, Jones, & Criscione 2010).

To date, hunters and recreational shooters alone have contributed billions and billions of dollars to conservation projects through excise taxes on equipment (Vrtiska et



al., 2013), which just last year generate roughly \$823 million for conservation efforts in addition to the \$821 million raised through the sale of hunting licenses (Congressional Sportsmen's Foundation, 2016). This money is used by state wildlife agencies for habitat acquisition, restoration, and educational programs (DiCamillo & Schaefer, 2000).

Hunters also contribute roughly \$440 million in donations to sportsmen's groups and conservation organizations. Without this, financial support for conservation in the United States would be scarce. Hunting expenditures also generate an additional \$11 billion in taxes each year, and the hunting and shooting sports industry is responsible for over 680,000 jobs nationwide (National Shooting Sports Foundation, 2013). Together, the cultural, ecological, and economic benefits of hunting form the foundation of the most successful model of wildlife conservation in the world.

### The North American Model of Wildlife Conservation

The hunting culture and conservation practices present in modern America arose from a unique culmination of historical, political, legal, ethical, and economic factors that shaped unique policies, regulations, and values collectively known as The North American Model of Wildlife Conservation (Duda, Jones, & Criscione 2010). The North American Model of Wildlife Conservation is built on the principles of managing fish and wildlife as a public resource, eliminating the commercial use of fish and wildlife, and funding conservation of resources through the direct users of those resources. In other words, hunting is – in many ways – the centerpiece of this model. The North American Model, considered by many to be the most successful model of conservation in the world,

magnificently balances public ownership of fish and wildlife resources and the promotion of sustainable populations (Duda, Jones, & Criscione 2010).

Despite the clear cultural, ecological, and economic benefits of hunting, fewer and fewer hunters are going afield each year. This declining participation is a major concern that threatens the sustainability of The North American Model of Wildlife Conservation. Efforts to understand the extent of this decline and the factors influencing it have become a top priority for researchers and practitioners connected to hunting and conservation (Larson et al. 2014).

### The Decline of Hunting Participation

Although the number of individual hunters in the United States increased by 28% between 1955 and 2006, the U.S. population increased by 71% during the same time span (United States Fish & Wildlife Service, 2016). This means that the overall per capita hunting participation rate has declined substantially over the past 50 years (United States Fish & Wildlife Service; Congressional Sportsmen's Foundation 2016). The most recent license data from the U.S. Fish and Wildlife Service (USFWS) indicates that there are approximately 14.8 million hunters in the United States, a number that equates to 4.57% of the nation's population (Congressional Sportsmen's Foundation, 2016). According to US Fish and Wildlife Service Data, there were slight upticks in license sales in 2011, followed by a drop in subsequent years. In 2015, license sales again trended upward, but there is not yet enough data to infer that the long-term decline has stabilized, and there is no guarantee that per capita decline will cease to continue into the future (United States

Fish and Wildlife Service). In fact, some projections suggest that adults' hunting participation rates will continue to decline at rates of up to 12% by 2030 (White et al., 2016).

Decades of declining hunting participation have increased concern about the ability of state agencies to secure stable funding for wildlife conservation moving forward. Numerous factors have contributed the nationwide decline in hunting participation, and these factors range from individual/personal factors and interactions with significant friends, families and mentors, all the way up to broader forces impacting societal dynamics (Larson et al, 2014).

Personal factors have a significant impact on hunting participation. Research indicates that the primary reasons former hunters deserted the pursuit were a loss of interest, difficulty finding the time to go hunting, personal changes in attitudes about hunting, and perceived reductions in populations of game available to hunt (Dietz, 1990). The same study revealed that those who still hunt, but no longer hunt as frequently as they once did, indicated that the main reasons for their reduced participation was their inability to find the time to go hunting, declining access to hunting land, and growing expenses associated with hunting (Dietz, 1990). Increasing costs associated with hunting equipment, licenses, and tags have historically deterred some hunters as well (Schorr, Lukacs, & Gude, 2014). Hunting participation amongst family members and the location where a person grows up can have an affect on hunting participation as well. For example rural males whose fathers did not hunt were still more likely to hunt than urban males whose fathers did not hunt (Heberlein & Stedman, 2001). It's also worth noting that in no

other cases did rural upbringings result in an increased propensity for hunting. Therefore we suggest that broad statements about the cultural significance of hunting to rural life be made more cautiously, with the effects of other variables taken into account (Heberlein & Stedman, 2001). Research also indicates that hunting is an activity rooted in rural culture and disproportionately participated in by white males who are often introduced to the pursuit during their youth through immediate family members, typically the father or another male figure (Quartuch, et al 2016).

Research on the cohort effects impact as it relates to hunting also provides insights regarding declining participation. Cohort effects are built on the idea that transforming social and cultural influences affect different generations of people in different ways. It is believed that cohort effects are the primary driver of influential societal shifts, as new cohorts of individuals replace older cohorts over time (Winkler & Warnke, 2013). For example, younger individuals are generally more adaptive to social change, and more likely to adopt innovations and new ideas. As a result, younger generations tend to be a steadier driver of societal change. For example, younger generations are more confident and connected to computers and electronic media and more liberal with their socio-political views. Cohort effects also affect the likelihood that certain people hunt, and the specific social and environmental conditions under which people are initially exposed to hunting shape the likelihood that they continue hunting throughout their life (Winkler & Warnke, 2013).

The economic boom of America's post World War II society helped create a generation of young adults that had newfound free time, expendable income, and an

appreciation for outdoor recreation activities. America was also recovering from exploitation during this era thanks to restoration efforts organized and financed by recreational hunters and conservationists. This generation was tied more closely to a rural way of life and open land suitable for hunting was more accessible (Winkler & Warnke, 2013). Thus, hunting interest and participation was high among this baby boomer generation. Although hunting participation does decline as hunter's age, an aging population of hunters is only factor driving the long-term decline of hunting participation. In an effort to assuage age-related constraints on hunting and retain the older generation of hunters, many agencies offer discounted licenses for senior citizens and some states allow hunters age 60 or older to use crossbows during archery season. Many of these hunters were traditionally archery hunters, but can no longer handle the physical demands of shooting a compound or traditional bow.

On the other hand, more recent generations have grown up in an age of urbanization, reduced free time, increased emphasis on organized recreation like competitive sports, and the rise of home based entertainment like cable television, Internet, and video games (Winkler & Warnke, 2013). Consequently, our nation could be on the verge of fostering an entire generation of people that values virtual adventures more than authentic contact with nature.

In his book *Last Child in the Woods*, Louv (2005) documents the staggering divide between children and the outdoors in modern America, contending that some of our nation's most disturbing childhood trends like obesity, attention deficit disorders, and depression can partially be attributed to today's overly electronic lifestyles. Within just a

few decades the way children understand and interact with nature has changed drastically. Kids today spend more time learning about nature in a classroom or on an electronic screen than they do actually experiencing nature.

Research shows that contact with the natural world is healthy for both the development of children and adults and shifts in the social, psychological, and spiritual views children have towards nature is leading to what the author describes as “nature deficit disorder.” Some scientist’s even contend that contact with nature is as important for children as good nutrition and adequate sleep; however, generations of children are getting further and further removed from both hunting, and contact with nature in general. Collectively, cohort analysis suggests that the combination of an aging population of hunters and reduced recruitment into hunting from younger cohorts could substantially exacerbate previously documented declines in hunting moving forward (Winkler & Warnke, 2013).

Urbanization is another factor driving hunting participation downward. Traditionally, people from rural areas are more likely to participate in hunting. In the 1950’s, roughly 36% of the U.S. population lived in rural areas. Now that number hovers around 20% (U.S. Census Bureau, 2010). Human expansion has meant less rural land in America, and less rural land means fewer hunting opportunities and fewer people growing up in traditional, pro-hunting environments (Duda, Jones, & Criscione 2010). Studies show that the increased housing density associated with urbanization and development is negatively correlated with increased hunting participation (Duda, Jones, & Criscione 2010). Rural areas with lower housing densities were more likely to have

experienced an increase in the number of licensed hunters between 1991 and 2000, a decade when urban sprawl was expanding rapidly and hunting was beginning to decline (Duda, Jones, & Criscione 2010).

The value's American's place on wildlife have transformed over recent decades as well, and these trends have likely compounded other factors causing the decline of hunting. Older generations exhibit what's been characterized as a doministic view towards wildlife. As early American society evolved people began to view animals as something that could be dominated to serve and facilitate the needs of humans. This view of wildlife resulted in a clear separation of groups (animals and humans) and a mindset that animals exist simply to serve to advance the various needs humans have for them (Manfredo et al, 2009). However, more recent societal trends have precipitated a shift towards a more mutualistic value of wildlife (Manfredo et al., 2009). Modernizing culture has created a more egalitarian mindset, and the push for civil rights for all people has been accompanied by a push to attribute increased rights to animals as well. The mutualistic view of wildlife revolves around the ideas that wild animals can live in trusting relationships with humans, animals are life forms with rights just like humans, and animals are deserving of care and compassion. Shifting societal paradigms from a dominant view towards animals to a mutualistic view could therefore negatively affect hunting participation on a broad scale (Manfredo et al., 2009).

Despite the clear benefits associated with hunting, successful lobbying against certain hunting practices by animal welfare and animal rights activists are raising legitimate concerns regarding the future of hunting in contemporary society (Peterson,

2004). The growth of anti-hunting sentiment in certain parts of the U.S. is placing increasing pressure on the hunting community, and wildlife managers are challenged to better demonstrate and defend the ecological role of hunting as a management tool and the role that it plays in financially supporting conservation efforts (Decker & Connelly, 1989). The majority of people in America are neither a hunter nor an animal rights activist, so in order for hunting to be intuitively appealing and acceptable to the moderate majority it must be associated with an acceptable code of morals and the ethical pursuit of game (Peterson, 2004). What constitutes “ethical pursuit” or “fair chase” can oftentimes lead to contentious debates between the hunting and animal rights communities, however.

Research suggests that there is a need within the hunting community to counteract copious and unfounded attacks on hunting as an unethical and ecologically disastrous activity (DiCamillo & Schaefer, 2000). Stronger advocacy regarding the financial and ecological role that hunters play in conservation is needed from within the hunting community to ensure positive perceptions of hunting culture progress alongside a modernizing America (Peterson, 2004; DiCamillo & Schaefer, 2000). It has also been argued that traditional hunting ethics and pro-hunting arguments may fail to justify hunting as American culture continues to evolve. The idea of hunting as an inherently natural activity, a fair and sporting pursuit, tied to a necessary land ethic may come under more scrutiny in the future. Alternative hunting justifications that combine the need to manage wildlife populations for both ecological and civic benefits, with traditional



utilitarian values (e.g., hunting for food) could help elucidate the ethical space shared by hunters and the non-hunting public (Decker et al., 2015; Peterson, 2004).

### Approval of Hunting

Generally speaking, most Americans support or approve of hunting, though level of support varies greatly when a variety of specific factors are considered. Individual motivations for hunting and the species involved are particularly important issues. Studies indicate that, as of 2010, a little over three quarters of American adults approve of legal, regulated hunting (Duda, Jones, & Criscione 2010). Other studies have indicated that as many as 96% of Americans believe it is okay for other people to hunt, even they're not comfortable personally going hunting (Duda, Jones, & Criscione 2010). That trend could be shifting in recent years though. Anecdotal evidence suggests that adults lacking previous hunting experience and family support for hunting comprise a growing proportion of new hunters. Empirical evidence of such trends is lacking by many metrics though and the motivations and constraints for these “non-traditional” path hunters have not been well researched (Quartuch et al., 2017). Most public concerns center more on the behavior of hunters than the act of hunting. Research shows that many Americans are concerned that the majority of hunters violate hunting laws and regulations and engage in unsafe behaviors. Many people perceive the hunters violate these laws and engage in these behaviors consciously out of their overbearing desire to shoot something (Duda, Jones, & Criscione 2010).

Approval of hunting tends to be lower amongst kids than adults, according to previous research. Nationally, just 58% of youth approve of hunting according to a 2003 survey. This number closely reflected similar results from the 1980s (Duda, Jones, & Criscione 2010). Initially, this research caused concern that a broad attitudinal change was taking place at a societal level that would lead to substantially lower support for hunting in the future. However, recent research indicates that children become more accepting of hunting as they grow into adulthood (Duda, Jones, & Criscione 2010).

It is imperative to make a distinction between support/approval of hunting and interest in actually going hunting. Interest levels are much lower than approval levels, with those who are interested being a subset of those who approve and plenty of people approve of hunting but have no interest in participating (Duda, Jones, & Criscione 2010). If agencies hope to appeal to people's interests enough to get them to participate in hunting instead of just seeking their approval of hunting, then these programs must be designed with the social-psychological process of becoming a hunter in mind. Evidence implies that merely thinking about hunting or simply going hunting once or twice does not make someone a hunter (Larson et al, 2014).

### Becoming a Hunter

A person can go hunting once, twice, or even a few times, but the development of a personal and cultural identity as a hunter is necessary for long term commitment to hunting. Developing an identity as a member of the hunting community is rooted in the theory of self-determination (Deci & Ryan, 2011). This theory contends that people are

inherently active, intrinsically motivated, and programmed to develop naturally through integrative processes that shape their identity. In order for these processes to integrate with a person's development, the activities the processes must build on the psychological needs of people. Activities or programs must satisfy their intrinsic need to develop competence, autonomy, and relatedness if that activity or program is to help shape how they self-identify (Deci & Ryan, 2011).

Examining the development of hunter's through the lens of self-determination provides insight into the process of becoming a hunter. Traditionally, most hunters start this process with an introduction to hunting via their father and/or grandfather (Duda, Jones, & Criscione, 2010). The presence of other family members who hunt and the amount of exposure to hunting related activities typically creates an environment that is conducive to positively fostering hunting culture (Duda, Jones, & Criscione, 2010; Larson et al., 2014).

Through observing and learning from a mentor and interacting with experienced hunters, new hunters begin developing competency in the various facets of hunting until they eventually become autonomous and capable of confidently hunting alone. Once they reach this autonomous state, their sense of relatedness to hunting culture allows them to confidently interact with fellow hunters. Hunting gradually becomes part of their identity. Providing the educational foundation and social support needed to foster this identity progression among new hunters will be a key part of advancing hunting interests moving forward (Wentz & Seng, 2000). At a fundamental level, initiation into the hunting community is a social process experienced by an individual through a broad range of

personal experiences (Larson et al, 2014). The process generally begins with a cultivation of interest and awareness, which may lead to an apprenticeship or mentored relationship where aspiring hunters learn skills, values, and norms from experienced hunters, thereby being socialized into hunting culture (Duda, Jones, & Criscione 2010; Larson et al, 2014). Becoming a hunter is much more than just firing a firearm or bow an animal and it's more than just going into the woods intent on harvesting game (Wentz & Seng, 2000). Becoming a hunter is a process based as much on attitudes as it is actions. Becoming a hunter is a long-term multi-dimensional social experience that progresses over time.

As new hunters are assimilated into hunting culture, they go through several stages. First the non-hunter becomes aware of the activity (entry stage) before transitioning into a potential hunter after growing more interested through social support and cultural encouragement (socialization stage) (Responsive Management, 2017). In the subsequent stage, after trying out hunting and gaining confidence, the potential hunter becomes an apprentice hunter and then a recruited hunter. Recruited hunters then begin to self-identify as a hunter and continue hunting or they become sporadic in their participation before dropping out (Responsive Management, 2017).

Hunting is one of a multitude of recreational activities that can be considered serious leisure. Serious leisure activities offer opportunities for personal expression, self-identity enhancement, and personal fulfillment (Stebbins, 1982). One of the major aspects of serious leisure is the development of a unique ethos, or subculture surrounding serious leisure activities. These subcultures are built on shared beliefs, values, moral

principles, norms, and performance standards that create social worlds. These social worlds evolve around unstructured collections of individuals, organizations, events, and practices spanning across the country and amorphously linking people together through their shared preference for certain recreation activities (Stebbins, 1982). As people begin to identify with the social worlds associated with certain recreation activities, they begin to speak proudly, excitedly, and frequently about that activity to other people. Ultimately, association with that activity becomes part of how they self-identify as a person. In addition to the social and psychological steps a person must take to become a hunter, additional structural requirements must be met as well.

### Hunter Education Courses

Today, virtually all-new hunters (with few exceptions based on age) are required to take hunter education courses before they're legally allowed to go hunting (Wentz & Seng, 2000). These courses have acted as first step towards future hunting participation for decades, and State agencies have spent substantial amounts of time and money to train hunters through these educational programs.

These programs historically revolved around two objectives: promoting the responsible use of firearms and an understanding of hunting rules and regulations (Decker & Purdy, 1986). Many of the earliest hunter education courses failed to emphasize the multitude of benefits associated with hunting and ultimately failed to equip graduates with the confidence and skills they need to continue hunting or to feel a part of the hunting community. In recent years, however, hunter education courses have grown

to encompass a broader range of aspects related to hunting and hunting culture. Progress in this regard should remain a major priority for wildlife agencies and conservation organizations moving forward. These educational programs should focus not only developing technical competence related to hunting; they must positively influencing social competence as a hunter (Wentz & Seng, 2000). It's also necessary to develop educational programs that influence the attitudes of hunters and behaviors based on their knowledge of the ecological and financial role hunting plays in conservation (Decker & Connelly, 1998). Educating hunters about their role in wildlife management can be an essential step to advancing the success of hunters education programs. It can also help to affirm the legitimacy of claims that hunting is necessary tool for management (Decker & Connelly, 1990).

Some researchers contend that maintaining hunter education certification as a mandatory prerequisite for license purchase should not present any long-term barriers to someone becoming a hunter, as long as the courses are well designed and readily available (Wentz & Seng, 2000). Others disagree, however, noting that hunter education courses can act as a barrier in certain situations, but it should be noted that anecdotal evidence suggests agencies and organizations are working on reducing constraints leveraged by hunter education courses. Strictly requiring that all new hunters must complete a hunter's education course no matter the circumstances could dissuade a large percentage of people who want to tentatively explore hunting on a trial basis (Wentz & Seng, 2000).

While hunter education courses have at least partially satisfied objectives related to safety and responsibility while hunting, but the overall impact of these courses on hunting participation is often un-assessed. For example, though hunter education courses are an important part of the process of becoming a hunter, it is unclear what effect they have when it comes to actually creating new hunters (Wentz & Seng, 2000).

Studies indicate that 85% of hunter education course graduates eventually buy a license to go hunting. However, evidence also indicates that as many as 50% of hunter education graduates quit purchasing hunting licenses within five years of completing the hunter education course (Wentz & Seng, 2000). It's imperative that State wildlife agencies consciously reevaluate the purpose of their hunter education programs if they haven't done so already. Agencies should be implementing hunter education programs that not only satisfy safety requirements, but also educate students on the multitude of benefits associated with hunting. Programs should be designed to appeal to and attract new and non-traditional hunters instead of potentially inhibiting their participation (Wentz & Seng, 2000). In order to supplement the knowledge and skills attained through hunter education courses, many agencies and organizations are offering innovative recruitment, retention, and reactivation (R3) programs designed to do just that.

### R3 Programs

In recognition of long term declining participation in hunting and some of the short-comings associated with hunter education programs, state fish and wildlife agencies, conservation and shooting sports organizations, and hunting and shooting sports

industries have increasingly invested in the recruitment and retention of new hunters, as well as the reactivation of former hunters. Together these three objectives form the basis of what are collectively known as “R3” programs and initiatives (Council to Advance Hunting & The Shooting Sports, 2016). The majority of R3 programs historically placed an emphasis on recruiting hunters from traditional populations (i.e., white, rural families), but there is currently a growing interest in expanding R3 efforts to reach broader, more non-traditional audiences (Responsive Management, 2017).

Across the United States, there are over 450 individual R3 programs currently available throughout the year (Congressional Sportsmen’s Foundation, 2016.). However, coordinated research and thorough evaluation of these programs has been lacking until recently (Responsive Management, 2017), and the efficacy of most of these initiatives and programs remains unknown. Without formal assessments of program outcomes, it is difficult to know if and how these programs are achieving desired goals and outcomes (Congressional Sportsmen’s Foundation, 2016; Council to Advance Hunting & the Shooting Sports, 2016).

As research related to these R3 initiatives expands, there is an obvious recognition that R3 efforts must focus on inspiring more participants from non-traditional hunting backgrounds, not just educating prospective hunters on responsible firearm use and hunting regulations (Council to Advance Hunting & The Shooting Sports, 2016; Quartuch et al., 2017). Efforts to foster better communication practices and outreach programs centered on social experiences could help to generate a more inclusive hunting community (Peterson, 2004). Developing practical and effective programs will require



multi-pronged marketing campaigns and out-reach efforts and collaboration between multiples agencies and organizations. Agencies should continue to narrow their recruiting efforts down to focus on key-demographics and target audiences. It is important to reiterate that simply getting people to attend programs designed to introduce them to hunting does not mean those people have been successfully recruited into the hunting community.

As previously noted, for a new hunter to be considered “recruited” into the hunting community that person must developed a personal/cultural identity as a hunter (Wentz & Seng, 2000). A new hunter can be considered “retained” if they continue to maintain their self-perception as a hunter over an extended period of time (Wentz & Seng, 2000). It may be impossible to replicate the traditional path of hunting initiation passed down through family members, but agencies and organizations could considering the social and psychological aspects of that traditional path of initiation to satisfying the needs of newly developing, non-traditional hunters. To do this, programs should do more than briefly introduce new participants to the basics of hunting (Council to Advance Hunting & the Shooting Sports, 2016; Duda, Jones, & Criscione 2010; Deci & Ryan, 2011). Agencies and organizations will need to provide hands-on learning activities and opportunities for extended connections to hunters and hunting if these initiatives are to be successful (Council to Advance Hunting & the Shooting Sports, 2016). Programs should be designed to help new hunters develop a competent knowledge of the multiple benefits associated with hunting and the role hunting plays in wildlife conservation. They should foster a skill set that allows people to hunt autonomously and confidently, and engender

them with an ability to relate enough to other hunters that they begin to identify themselves as a hunter (Responsive Management, 2017). Agencies and organizations should strive to provide new hunters with opportunities satisfy multiple motivations if they hope to ensure their long-term participation (Wentz & Seng, 2000). Research reveals that some of the common elements of satisfaction for hunters includes getting outdoors to enjoy nature, seeing deer and signs of deer, getting shots at deer, challenging hunting skills, and getting away from everyday problems to relax (Decker, Brown, & Gutierrez 1980). Satisfaction of multiple motivations makes hunting a more integral part of a new hunters life while simultaneously helping the new hunter realize that going hunting is much more than simply shooting an animal, thus helping them better assimilate into hunting culture (Wentz & Seng, 2000).

The complete picture of recruitment, retention, and reactivation depends on a broad base of individual programs and initiatives customized to specific groups. There is not a one-size-fits-all solution that allows R3 efforts to be all things to all people (Responsive Management, 2017). By taking a closer look at some of the socio-demographic subgroups that current R3 initiatives are designed to serve, we see varying degrees of success with demographics like, youth, women, families, and “locavores.” Evaluating the successes and shortcomings of these programs can help guide the development of programs more readily capable of successfully recruiting non-traditional hunters into the hunting community.

### R3 Programs for Youth and Families

Historically, many R3 programs have focused on youth, and for good reason. Childhood socialization into hunting culture is an important part of generating hunting related behavior. A family tradition of hunting and access to hunting mentors are extremely important factors hunting-related behavior among youth (Hayslette, Armstrong, & Mirarchi 2010). Children start forming their opinion about hunting at the age of 10-12 years, and the more children are exposed to hunting related social experiences the more their acceptance of and enthusiasm for hunting increases (DiCamillo & Schaefer, 2000).

Despite warranted concerns about the aforementioned nature deficit disorder in kids, technology could actually play a potentially important role in increasing interest in hunting amongst youth in the future. Research shows video games about hunting have great potential for altering opinions about hunting, and websites and electronic games could be a vital part of generating initial interest in hunting amongst kids from non-traditional hunting backgrounds (DiCamillo & Schaefer, 2000). That said, there is still no substitute for actual hunting experience.

Many existing R3 initiatives provide children with introductory programs and educational opportunities related to hunting. These programs have been highly successful in some aspects and have fallen short in other regards (National Shooting Sports Foundation, 2016). Programs focused on recruiting and retaining youth hunters are part of the reason the number of millennial generation hunters increased from 2002-2011 in some parts of the country (Schorr, Lukacs, & Gude, 2014). However, because hunting

participation typically decreases as youth hunters' age, that rise may be short-lived.

Overall, the majority of initiatives aimed at youth have seemingly failed to broaden our nation's base of young hunters (Schorr, Lukacs, & Gude, 2014). Numbers indicate that a high number of 12-17 year olds are interested in exploring the world of hunting, but most of them ultimately fail to integrate into programs or habits that successfully sustain their long term interest in hunting (DiCamillo & Schaefer, 2000).

There is an additional problem. The general consensus in the conservation field is that most youth hunting programs have exclusively served youth from traditional hunting backgrounds, most of whom were likely participate in hunting even without additional outside support (Council to Advance Hunting & The Shooting Sports, 2016). Although effective by some metrics, these programs have failed to recruit new hunters from diverse populations. In many cases, demographically diverse potential non-traditional participants are either (a) not being provided with the educational opportunities they need to begin participating in hunting, or (b) not aware of opportunities that are available (Council to Advance Hunting & The Shooting Sports, 2016). If agencies can do a better job of making the general public aware of the hunting programs available for kids, they must also focus on programs designed to "create hunters" and not just "take someone hunting." If these programs are to be successful, they must find a way to welcome new hunters into the social world of hunting companions and mentors. Unfortunately, many youth hunting programs have failed to do so (Wentz & Seng, 2000). However, although the overall success of youth hunting programs as a recruitment tool has been questioned,

certain programs have proven capable of effectively providing kids from non-traditional hunting backgrounds.

The South Carolina Department of Natural Resources' Take One Make One (TOMO) program represents one good example. The TOMO program is designed to teach safe hunting practices to kids with no previous outdoor experience. The program aims to increase participant's awareness and respect for wildlife and the natural environment by pairing kids with experienced mentors willing to "pass on" their knowledge of traditional outdoor skills. The TOMO program utilizes mobile education trailers equipped with video simulators and hands-on air rifle to traverse the state to recruit kids from festivals and school events. Once kids enroll in the program, they're paired with experienced hunters who sponsor the kids and provide them with opportunities to actively hunt for a variety of different species of game throughout the year. The program has anecdotally been popular with children from foster/group homes, urban/suburban families, and single mother families.

Maintaining consistent hunting participation amongst kids can be difficult considering their high level of dependency on adults who are willing to take them hunting and pay for the necessary gear, licenses, and tags. Many agencies and organizations have therefore broadened their R3 efforts from focusing solely on kids to focusing on both kids and their parents at the same time. One great example is the Forever Wild Families program, where the Wyoming Game and Fish Department (WGFD) and their partners provide a safe environment and patient mentors for both kids and adults with little or no previous hunting experience. The program focuses on equipping participants with the

skills they need to hunt safety, ethically, and (eventually) independently. The program emphasizes building relations with local communities and connecting people, land, food and nature. Customized programs over the course of a year offer families multiple opportunities to experience various hunting and fishing related activities and develop the outdoor skills they need to be successful. In their second year, participant families are paired with mentors who help them explore more hunting and other outdoors pursuits in more depth (Wyoming Game and Fish Department, nd).

The Forever Wild Families program also has implemented other innovative strategies to help newly developing hunters feel more comfortable as well. Through the camo cache program, donated gear and hunting apparel are provided to families enrolled in the program free of cost. This allows participants to feel properly outfitted, which increases the likelihood that that they feel comfortable and enjoy spending time outdoors strengthens their propensity to continue hunting.

### Hunting Programs for Women

Females have traditionally participated in hunting at a much lower rate than men (Thomas & Peterson 1993). That still holds true today, though there has been rapid growth in the number of female hunters in America in recent years. The number of women who purchased hunting licenses in the U.S. exploded from just 1.8 million in 2001 to 3.3 million in 2013. That is an 85% increase in just over a decade (National Shooting Sports Foundation, 2016).

In some states, the increase in adult women purchasing hunting licenses has been more than 90% in recent years (Indiana Department of Natural Resources, 2016). There also appears to be a new wave of female youth hunters. In Indiana, for example, the number of girls under the age of 18 that purchased hunting licenses increased 114% from 2006-2014 (Indiana Department of Natural Resources, 2016). Limited research indicates that the motivations and constraints of hunting participation vary between men and women (Larson et al., 2014). Male and female prospective hunters also differ in how they approach the constraints they take to overcome on their hunting participation (Metcalf, Graefe, & Trauntvein, 2015).

Most female hunters are primarily motivated to hunt by the social experiences they enjoy with family and friends centered on hunting. The majority of new female hunters over the age of 18 are introduced to hunting through their partner or spouse. Research indicates that in most instances, a key male typically plays an important role in determining female participation (Quartuch et al, 2016; Heberlein 2008). Often times these romantic relationships with males that hunt play an important role in helping women develop and identity as a hunter. The relationship ensures they have opportunities to engage in activities and behaviors that encourage them to think of themselves as hunters (Wentz & Seng, 2000). The relationship also provides the social context needed to sustain a long-term and extremely personal interest in continuing to hunt (Wentz & Seng, 2000). Understanding the unique motivations and constraints of female hunters can help agencies better develop programs specifically designed for women. One such program is already exhibiting success on a national scale.

Recognizing the importance of social support when it comes to creating female hunters, many state agencies have begun offering *Becoming an Outdoorswoman (BOW)* programs. BOW is a non-profit, educational program that offers hands on workshops for adult women. These experiences are focused on learning, making friends, and having fun (National Shooting Sports Foundation, 2013). Workshops are typically 3 day events that offer multiple courses like fly fishing, archery, shotgun and rifle shooting, hunting, rock climbing, canoeing, kayaking, hiking, camping, nature photography and more (National Shooting Sports Foundation, 2013). There are more than 80 weekend long workshops provided throughout the country each year (National Shooting Sports Foundation, nd). Through these workshops, approximately half a million women have been introduced to new outdoors skills, including hunting, over the last 20 years (National Shooting Sports Foundation, nd).

Women hunters are also becoming increasingly respected within the hunting community. In fact, many people inside the hunting community would attest that a female is the most famous professional hunter in the country. Eva Shockey, the daughter of legendary television hunter, adventurer and conservationist Jim Shockey, has become more recognizable than her father to the general public after an ABC news report crowned her the new face of hunting. She has an endorsement deal with the major athletic brand Under Armour and helped them launch of a line of hunting apparel specifically designed for women. She was also only the second woman to be featured on the cover of the prestigious *Field and Stream* Magazine in the publication's 119-year history (the only other one was Queen Elizabeth II).



In an age dominated by electronics and social media, other female hunters are generating buzz in more traditional forms of media as well. A popular book titled *Call of the Mild* details the exploits of a female indie film producer from New York City who takes a reporting job across in the country in Oregon in search of a new adventure. The author, Lily Raff McCaulou, was raised as both an animal lover and a gun fearing environmentalist, but her perspective shifted as she began interviewing hunters for her new job. She takes up fly-fishing in hopes of spending more time with her new boyfriend, and describes fishing as her “gateway drug to hunting”. The book follows her journey through the process of becoming a hunter from square one and culminates with her packing out the meat of a public land, do it your self, backcountry elk she harvested herself. The book also focuses on the sustainable ethics of harvesting wild game as a source of local, free range, organic protein. McCaulou is not alone in expressing the importance of meat as a hunting motivation. In fact, the nutritional benefits of wild game may be the primary focus of another demographic that has been targeted for R3 initiatives.

### Hunting Programs for Locavores

The word locavore is derived from the “locavore movement,” a social movement driven by the idea that fresh, local meats and produce are healthier, more ecologically friendly, and better tasting than commercial alternatives (Tidball, Tidball, & Curtis 2014). The locavore movement originally blossomed alongside the organic food and environmental movement of the 1960’s and 70’s (Tidball, Tidball & Curtis, 2014). In

recent years, the word “locavore” has reemerged and gained renewed popularity to describe younger advocates of the locavore lifestyle (Tidball, Tidball, & Curtis 2014).

Wild game may be the most local, free-range, hormone free, and organic meat that exists. But despite the obvious associations between legally harvested wild game and the conscientious pursuit of healthy, local, food, hunting and fishing have not traditionally been associated with the locavore movement. However, connections between eating and ecology have been highlighted in recent years through several popular books (Tidball, Tidball, & Curtis 2014).

*The Omnivores Dilemma* by Michael Pollan shed light on America’s industrial food complex and the plight of commercially raised livestock and poultry. He also dissects the unrealistic pastoral description of the organic farming industry presented to the public. The book culminates when the author, a University of California Berkeley professor, goes hunting for feral pigs. The hunt clarifies countless misconceptions he had about hunting, and the delicious smoked pork that results helps Pollan develop a new appreciation for hunting.

Another book named *The Mindful Carnivore* details the author’s journey from vegan at the age of 20 to hunter at the age of 30. Health and nutritional reasons required Tovar Cerulli to start eating meat again later in life. In hunting, he found a source of local, organic, free-range meat that coincided with many of his motivations for becoming a vegan in the first place. Cerulli also coined the term “adult onset hunter” to describe himself, and it has become popular term for identifying certain non-traditional hunters in R3 efforts.

Non-traditional hunters motivated by meat have also received increasing attention from media sources like newspapers and magazines. *The New York Times* ran an article (2009) on an insurance salesman named Jackson Landers, who dubbed himself “the urban deer slayer.” Landers was born and raised in an urban area and did not grow up hunting but was gravitated to it later in life based on a desire to harvest and cook his game meat. Landers began offering courses for other urbanites interested in harvesting local, organic, free-range meat. His programs were popular and successful and Landers went on to write several books focused on teaching beginners to hunt for food. In line with Landers’ work, wildlife agencies have started targeting locavores in hopes that this demographic could significantly impact participation rates.

The rise of the locavore hunting movement has opened the window for more extensive research focused on the topic. Determining the extent to which this demographic is receptive to R3 efforts is a necessary step in determining the potential of locavores to substantially impact the sale of hunting licenses on a broad scale (Stedman et al, in press).

A recent study of locavores in New York indicated that a growing demographic of Americans that prefer local, free-range, organic meat and produce are open and willing to eating wild game meat (Stedman et al, in press). However, many of these individuals indicated that they lack the skills needed to hunt, harvest, process, and prepare wild game meat. Additionally, the amount of time required to hunt and a general disinterest in “killing animals “deters some of these people from hunting (Stedman et al, in press). Many locavores display an interest in learning the conservation benefits of eating wild

game (Tidball et al, 2014). About a quarter of locavores surveyed indicated they would be willing to try hunting, but ultimately most of these described locavores are more interested in the meal preparation and conservation aspects than they are in developing their own set of hunting skills.

However, other research indicates that many locavores are interested in developing and honing their own hunting skills with the goal of obtaining meat. Studies indicate that harvesting meat has become one of the primary motivations driving hunters in America, and the percentage of hunters motivated by harvesting meat continues to grow. A decade ago, the primary reason was to engage in sport or recreation; by 2013, harvesting meat was on top of that list (Responsive Management, 2017). Other motivations for hunting have remained stable over the last few decades, but the percentage of hunters indicating the meat was their primary motivation has doubled in that span of time.

Many ethical, economic, and sociocultural factors might be influencing the increasing importance of game meat as a motivating factor for hunting. Many younger locavore hunters are educated millennials who hail from urban and suburban areas. Though they lack traditional hunting mentors, they have nonetheless taken up hunting as young adults for reasons related to self-sufficiency, health and sustainability, and the desire to connect with nature. The growing popularity of the locavore movement is perhaps best exemplified by the fact that Mark Zuckerberg, founder of Facebook and icon of the millennial generation, has taken up hunting as a means to procure meat. He

contends that meat tastes better when you've hunted the animal yourself (Responsive Management, 2017).

The locavore movement presents agencies with an opportunity to educate a wider range of citizens about the benefits and values of hunting, as well the nutritional and conservation benefits associated with wild game meat (Stedman et al, in press). Many agencies have begun targeting locavores for recruitment into programs designed to help them attain the confidence and skills they need to begin hunting. Yet extensive research on this demographic is relatively new, and ongoing studies should provide more insight on how to better incorporate locavores into R3 initiatives (Decker et al., 2015; Stedman et al, in press).

It is imperative that wildlife agencies and organizations be cognizant of how they are attempting to recruit individuals in this particular demographic as well. A multitude of magazine and newspaper articles discuss the potential impact of meat seeking millennials from non-traditional backgrounds interest in harvesting local, organic, free-range meat and many of these articles are quick to anecdotally label this group as "Hipster Hunters." It's a clever term that creates a catch headline and relates to modern pop-culture for that age group, but anecdotal evidence suggests such labels could be counterproductive. Nevertheless, the growing popularity of hunting amongst young adults in the locavore demographic does suggest that the millennial age cohort could potentially be receptive to R3 efforts on a much broader scale.

## College Students

While substantial time and resources have been devoted to R3 efforts targeting the many different subgroups, one population of potential hunters has been conspicuously overlooked in traditional R3 efforts. Young adults include youth (or individuals just emerging from their adolescent years), women, and locavores, yet few existing R3 programs focus specifically on emerging adults (Duda, Jones, & Criscione 2010; Ryan & Shaw, 2011). Within the context of young adults, college students represent an ideal target audience. Nearly 42% of young adults ages 18-24 currently attend college, and that number has increased steadily since 1980 (National Center for Education Statistics, 2013). Land-grant universities, which often feature wildlife and natural resource-oriented majors and courses, collectively enroll about 2 million diverse students across the United States. For anyone hoping to connect with significant numbers of young adults, these colleges and universities are a great place to start. Efforts to understand the hunting-related perceptions and behaviors of young adults, generally, and college students, specifically, are critical for several reasons.

First, the hunting participation rates of young adults are currently lower than other age groups (United States Fish & Wildlife Service, 2016). For many years, wildlife agencies and organizations have viewed this decline as a reason to avoid targeting college students, often assuming that young adults lack the time, money, resources, or desire to hunt on a regular basis. Other research suggests that young people are seemingly not as enthusiastic about hunting as adults, and may be lacking in their understanding of conservation, wildlife management, or the ecological role of hunting (Dietz, 1990).

Furthermore, it is a widely held assumption that if people have not started hunting by their teenage years, and if an experienced family member does not mentor them, then they will never go hunting (Cerulli, 2011). That assumption holds true for the most part, yet one third of currently active hunters in the US started hunting at age 21 or older, and one in five start hunting at age 30 or older (Cerulli, 2011). Evidence indicates that new hunters from non-hunting families are primarily influenced by friends and are much more likely to initiate hunting participation after the age of 16 (Purdy & Decker, 1986). Recent research also shows that friends are a key driver of hunting participation for prospective hunters from non-hunting families (Quartuch et al., 2017). Research also hints at major misconceptions about the motives of hunters and the value of hunting among college students (Peterson et al., 2009). Therefore, these historically low participation rates could also be viewed as an opportunity for either recruiting new hunters or reactivating individuals who hunting participation may be waning in the college years. Both strategies would enhance R3 efforts.

This group is also an important R3 target because, as the cohort approach suggests, the views and actions of young adults will likely shape the long-term future of hunting. More than half of active hunters are 45 years old or older. If new young hunters are not recruited, hunting declines will likely be exacerbated in the future as this cohort ages (Responsive Management, 2017; Warnke & Winkler, 2013). However, this does mean there could be tremendous room for growth with younger generations. If agencies and organizations can create hunters in college while they're still emerging adults, the continuity of aging theory indicates that many of them will indeed remain hunters for life.

The foundation of this theory affirms that most individuals do not change all that much as they age, instead they just become “more” of what they have been with respect to their social and recreational pursuits (Agahi, Ahacic, & Parker 2006). Efforts to understand how social patterns associated with the cohort effect apply specifically to young adults could help to reverse the declining rate of hunting participation. For example, the potential for recruiting young adults is reaffirmed by the growth of millennials within the locavore movement and the evidence that hunting approval tends to increase between childhood and adulthood, even if participation does not (Dietz, 1990). Knowledge such as this might create new communication and outreach opportunities, and wildlife agencies are starting to notice. According to Jamie Cook, a Conservation Educator at the Kentucky Department of Fish & Wildlife, college students are experiencing their first taste of economic and individual freedom and hunting can be a way to express that freedom. College is also an ideal time for young hunters to develop lifelong hunting habits (Larson et al., 2017.)

Research shows that the developmental process of role exploration and identification that begins in adolescence intensifies with age, often peaking in the late teens and twenties (Arnett, 2004). For many Americans, that period of independent role exploration and leisure activity experimentation in emerging adulthood is the college experience (Ravert, 2009). Late adolescence is a time period where students explore new things, in breadth and in depth (Luyckxx et al., 2006), to determine what they might adopt. College students also report engaging certain behaviors in college because they feel they will lose those opportunities later in life, with over 75% of college students



indicating they engaged in certain types of behavior or activities for this reason (Agahi, Ahacic, & Parker 2006). Activities centered on travel and adventure often fall into this category, as well as social events. Action sports and activities that promote independence and personal expression are critical as well (Agahi, Ahacic, & Parker 2006). Hunting falls into all of these categories.

Emerging adulthood is also distinguished by relative independence from traditional social roles and societal expectations (Arnett, 2004), which indicates that students that were not directly exposed to hunting culture as teens or children might still be open to trying it when they are in college. Many college students may be looking for new activities to fill voids left by regimented schedules and extracurricular commitments of high school. As an added bonus, autonomous college students are able to easily circumnavigate many common barriers to hunting among children and teens, and they are not reliant upon adults to take them hunting or to purchase the necessary gear, licenses or tags (Larson et al., 2017). Considering this information it is plausible to believe that emerging adults could be the demographic *most* open to undergoing the self-identification process of becoming a hunter.

The social atmosphere of college also creates a subculture conducive to both behavior stabilization and change. Peer influence is a particularly powerful driver of behavior emerging adults, especially females, experiencing life transitions (e.g., going to college; Raymore et al. 2001). Hunting is a contagious activity in that it is taught by mentors and popularized and propagated by peers (Kramer et al., 2016). Hunting has also been described as “addictive”, in that positive hunting experiences lead individual hunters

to seek additional experiences. In that sense, the likelihood of hunting at an older age depends on positive hunting experiences at a younger age (Winkler & Warnke, 2013). Colleges represent a unique social environment where thousands of people from the same age cohort are concentrated on one campus. If hunting participation spreads and peer groups exist to facilitate and support it, interest in hunting might therefore grow rapidly due to its contagious nature. In fact, research indicates that the effect of peers in shaping entire age cohorts is strongest in college and diminishes in the years following (Carrel, Fullerton, & West, 2009). Strategically merging the potential receptivity of college students to R3 initiatives and the potential additive effects of the cohort effect could be one key way to reverse the declining rate of participation in hunting on a national scale. As an added bonus, many activities that individuals adopt in the college years ultimately lead to lifelong participation (Ravert, 2009). The question then becomes: how do we understand and influence the beliefs, attitudes, and behaviors of college students to help reshape the future hunting?

### Research Questions

Concerns about declining hunting participation have created a crisis in the wildlife conservation community, catalyzing a renewed emphasis on hunter recruitment, retentions, and reactivation. As an increasing number of new hunters enter the activity through non-traditional pathways, it will become increasingly important to define these pathways understand how hunting beliefs, attitudes, and behaviors vary across

demographic groups. As more and more wildlife agencies and conservation organizations design and offer R3 programs aimed at non-traditional hunting populations, it will become even more important to document the success of these programs and the factors that contribute to further development of these programs (Larson et al., 2014). Our research attempts to achieve both of these goals with a particular emphasis on college students.

In order to better assess both the current and potential impact of college students on hunting participation rates and support for hunting, our team developed a multi-phased research study focused on answering key research questions. In hopes of addressing two primary research objectives we explored the following questions in hopes of satisfying two major objectives.

- Objective 1: Understand the hunting-related beliefs, attitudes, and behaviors of college students and evaluate their potential support for hunting.
  - How many college students currently hunt, and how many would consider hunting in the future?
  - Who are the college student hunters?
  - What motivates college students to hunt?
  - What constraints do college student hunters face?
  - Who are the college students that do not hunt, but would consider it?
- Objective 2: Evaluate the efficacy of an R3 program specifically designed for college students.
  - Who attended the hunting clinic for college students?

- How often do college student participants hunt, and what influences that hunting participation? What effect did the clinic have on hunting participation?
- How confident are college students when it comes to hunting knowledge and skills? Did the clinic alter this level of confidence?
- What are some of the common motivations and barriers that influence hunting participation of college students?
- What do college students think about hunters and hunting? Were these perceptions altered as a result of the hunting clinic?
- What do college students generally think about the hunting clinic?

## Thesis Format

This thesis is written in manuscript format. Chapter 1 introduces the study, summarizes past research on hunting participation, R3 programs and initiatives, hunting motivations, constraints, benefits, and impacts, and factors that contribute to the social-psychological development of hunters. This chapter also presents the general research objectives that guided the development of this particular study. Chapters 2 and 3 are manuscripts that will be submitted to academic journals for publication. Chapter 4 includes recommendations based on the professional judgment the author developed while developing through out the course of the research conducted and conveyed in Chapters 2 and 3.

- Chapter 1 – Introduction and Literature Review
- Chapter 2 – Broadening the Base of Hunters and Hunting Advocates: A Critical Role for Colleges and Universities?
- Chapter 3 – Hunting Clinics for College Students: Challenges, Opportunities, and Implications for Wildlife Management and Conservation
- Chapter 4- Conclusion and Management Implications

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## CHAPTER TWO

### Broadening the Base of Hunters and Hunting Advocates: A Critical Role for Colleges and Universities?

#### Introduction

Hunting has played a prominent role throughout American history and continues to serve many important functions in our modern society (Marks, 1991). Today, recreational hunting continues to play an important role in multiple aspects of modern American society, generating a number of cultural, economic, and ecological benefits. Hunting fosters social connections and strengthens bonds within families and rural communities in many part of the country (Stedman & Heberlein, 2001). In many ways, hunting defines life in rural America (Stedman & Heberlein, 2001). Hunting is also a vital source of income for many rural economies, a critically important tool for wildlife management, and an obligatory source of conservation funding (Vrtiska et al, 2013). In fact, hunting and recreational shooting provide a substantial portion of the financial support that fuels wildlife conservation in America (Duda, Jones, & Criscione 2010). To date, hunters and recreational shooters alone have contributed billions and billions of dollars to conservation projects through excise taxes on equipment and hunting license sales (Congressional Sportsmen’s Foundation, 2016). This money is used by state wildlife agencies for habitat acquisition, restoration, and educational programs (DiCamillo & Schaefer, 2000), and creates hundreds of thousands of jobs nationwide (National Shooting Sports Foundation, 2013). Regulated hunting has also become the

primary mechanism for controlling certain populations of wildlife and restoring ecological balance in the absence of extirpated large predators (Brown et al, 2000). Hunting activity can help control population growth rates and densities of species in areas where their overabundance has undesirable impacts on ecosystems and people (Brown et al, 2000; Duda, Jones, & Criscione, 2010). Together, the cultural, economic, and ecological benefits of hunting form the foundation of the most successful model of wildlife conservation in the world.

Yet the backbone of this system – hunting – is currently in jeopardy as a decades long decline in hunting participation rates has increased public concern regarding the ability of state agencies to secure stable funding for wildlife conservation in coming years (Larson et al, 2014). In 1955, roughly 10% of the population of America hunted. By 1980, that number was down to around 7% of the population. Today, less than 5% of the population hunts (United States Fish & Wildlife Service, 2016; Congressional Sportsmen’s Foundation, 2016). Some projections suggest that adults’ hunting participation rates will continue to decline at rates of up to 12% by 2030 (White et al., 2016). In hopes of reversing declining participation rates, many state fish and wildlife agencies, conservation organizations, and hunting and shooting sports industries have increasingly invested in the recruitment and retention of new hunters and the reactivation of former hunters (Council to Advance Hunting and the Shooting Sports, 2016). To accomplish this managers must develop a more comprehensive understanding of hunting-related beliefs, attitudes, and behaviors across many different demographic groups.

Historically, programs and initiatives designed to increase hunting participation have attracted hunters from traditional hunting demographics. The general consensus in the conservation field is that most of the hunting programs – typically focused on youth - have exclusively served people from traditional hunting backgrounds, most of whom were likely to participate in hunting even without additional outside support (Council to Advance Hunting and The Shooting Sports, 2016). Although effective by some metrics, such programs have failed to recruit new hunters from diverse populations, and managers continue to look for ways to broaden the shrinking base of hunting supporters. But a growing number of programs are focusing on generating interest from broader audiences with limited previous exposure to hunters and hunting. These new efforts are specifically focused on recruiting and retaining new hunters from non-traditional hunting backgrounds (Council to Advance Hunting and the Shooting sports, 2016). These populations are typically demographically diverse and less of aware of hunting, potential benefits associated with hunting, and hunting opportunities (Council to Advance Hunting and The Shooting Sports, 2016). Yet demographic patterns suggest that these non-hunting populations will continue to grow, while the traditional hunting base declines (U.S. Census Bureau, 2010). These changes are accompanied by shifting views of hunters and hunting, with recent evidence suggest a national shift toward support of hunting primarily for food, conservation (e.g., restoring ecological balance), or civic-oriented purposes (e.g., reducing deer-vehicle collisions; Decker et al., 2015).

While substantial time and resources have been devoted to R3 (recruitment, retention, and reactivation) efforts targeting the many different subgroups, one population of potential hunters has been conspicuously overlooked in traditional R3 efforts. Young adults, or individuals just emerging from their adolescent years, have tremendous potential to impact license sales, yet few existing R3 programs focus specifically on emerging adults (Duda, Jones, & Criscione 2010; Ryan & Shaw, 2011). Within the context of young adults, college student's represent an ideal target audience. Nearly 42% of young adults ages 18-24 currently attend college, and that number has increased steadily since 1980 (National Center for Education Statistics, 2013). Land-grant universities, which often feature wildlife and natural resource-oriented majors and courses, collectively enroll about 2 million diverse students across the United States. For anyone hoping to connect with significant numbers of young adults, these colleges and universities are a great place to start.

Efforts to understand the hunting-related perceptions and behaviors of young adults, generally, and college students, specifically, are critical for several reasons. First, the hunting participation rates of young adults are currently lower than other age groups (USFWS, 2012) For many years, wildlife agencies and organizations have viewed this decline as a reason to avoid targeting college students, often assuming that young adults lack the time, money, resources, or desire to hunt on a regular basis. Other research suggests that young people are seemingly not as enthusiastic about hunting as adults, and may be lacking in their understanding of conservation, wildlife management, or the ecological role of hunting (Dietz, 1990). Furthermore, it is a widely held assumption that

if people have not started hunting by their teenage years, and if an experienced family member does not mentor them, then they will never hunt (Cerulli, 2011). That assumption holds true for the most part, yet one in three of today's hunters in the US started hunting at age 21 or older, and one in five start hunting at age 30 or older (Cerulli, 2011). Evidence indicates that new hunters from non-hunting families are primarily influenced by friends and are much more likely to initiate hunting participation after the age of 16 (Purdy & Decker, 1986). Recent research also shows that friends are a key driver of hunting participation for prospective hunters from non-hunting families (Quartuch et al., 2017). Research also hints at major misconceptions about the motives of hunters and the value of hunting among college students (Peterson et al., 2009). Therefore, these historically low participation rates could also be viewed as an opportunity for either recruiting new hunters or reactivating individuals whose hunting participation may be waning in the college years. Both strategies would enhance R3 efforts.

This group is also an important R3 target because, as the cohort approach suggests, the views and actions of young adults will likely shape the long-term future of hunting. More than half of active hunters are 45 years old or older. If new young hunters are not recruited, hunting declines will likely be exacerbated in the future as this cohort ages (Responsive Management, 2017; Warnke & Winkler, 2013). However, this does mean there could be tremendous room for growth with younger generations. If agencies and organizations can create hunters in college while they're still emerging adults, the continuity of aging theory indicates that many of them will indeed remain hunters for life.

The foundation of this theory affirms that most individuals do not change all that much as they age, instead they just become “more” of what they have been with respect to their social and recreational pursuits (Agahi, Ahacic, & Parker 2006). Efforts to understand how social patterns associated with the cohort effect apply specifically to young adults could help to reverse the declining rate of hunting participation. For example, the potential for recruiting young adults is reaffirmed by the growth of millennials within the local organic meat, or “locavore,” movement and the evidence that hunting approval tends to increase between childhood and adulthood, even if participation does not (Dietz, 1990). Knowledge such as this might create new communication and outreach opportunities, and wildlife agencies are starting to notice. According to Jamie Cook, a Conservation Educator at the Kentucky Department of Fish & Wildlife, college students are experiencing their first taste of economic and individual freedom and hunting can be a way to express that freedom. College is also an ideal time for young hunters to develop lifelong hunting habits (Larson et al., 2017.)

Research shows that the developmental process of role exploration and identification that begins in adolescence intensifies with age, often peaking in the late teens and twenties (Arnett, 2004). For many Americans, that period of independent role exploration and leisure activity experimentation in emerging adulthood is the college experience (Ravert, 2009). Late adolescence is a time period where students explore new things, in breadth and in depth (Luyckxx et al., 2006), to determine what they might adopt. College students also report engaging in certain behaviors in college because they feel they will lose those opportunities later in life, with over 75% of college students

indicating they engaged in certain types of behavior or activities for this reason (Agahi, Ahacic, & Parker 2006). Activities centered on travel and adventure often fall into this category, as well as social events. Action sports and activities that promote independence and personal expression are critical as well (Agahi, Ahacic, & Parker 2006). Hunting falls into all of these categories.

Emerging adulthood is also distinguished by relative independence from traditional social roles and societal expectations (Arnett, 2004), which indicates that students that were not directly exposed to hunting culture as teens or children might still be open to trying it when they are in college. Many college students may be looking for new activities to fill voids left by regimented schedules and extracurricular commitments of high school. As an added bonus, autonomous college students are able to easily circumnavigate many common barriers to hunting among children and teens, and they are not reliant upon adults to take them hunting or to purchase the necessary gear, licenses or tags (Larson et al., 2017). Considering this information it's plausible to believe that emerging adults could be the demographic *most* open to undergoing the self-identification process of becoming a hunter.

The social atmosphere of college also creates an atmosphere conducive to both behavior stabilization and change. Peer influence is a particularly powerful driver of behavior emerging adults, especially females, experiencing life transitions (e.g., going to college; Raymore et al. 2001). Hunting is a contagious activity in that it is taught by mentors and popularized and propagated by peers (Kramer et al., 2016). Hunting has also been described as “addictive”, in that positive hunting experiences lead individual hunters



to seek additional experiences. In that sense, the likelihood of hunting at an older age depends on positive hunting experiences at a younger age (Winkler & Warnke, 2013). Colleges represent a unique social environment where thousands of people from the same age cohort are concentrated on one campus. If hunting participation spreads and peer groups exist to facilitate and support it, interest in hunting might therefore grow rapidly due to its contagious nature. In fact, research indicates that the effect of peers in shaping entire age cohorts is strongest in college and diminishes in the years following (Carrel, Fullerton, & West, 2009). Strategically merging the potential receptivity of college students to R3 initiatives and the potential additive effects of the cohort effect could be one key way to reverse the declining rate of participation in hunting on a national scale. As an added bonus, many activities that individuals adopt in the college years ultimately lead to lifelong participation (Ravert, 2009). The question then becomes: how do we understand and influence the beliefs, attitudes, and behaviors of college students to help reshape the future hunting?

As an increasing number of new hunters enter the activity through non-traditional pathways, it will become increasingly important to define these pathways to understand how hunting beliefs, attitudes, and behaviors vary across demographic groups (Larson et al., 2014). Our research attempts to advance this understanding in a critical population that has been historically overlooked: college students. Specifically, we explored the following research questions across different groups of students, focusing on comparisons based on previous hunting experience (past hunters vs. hunting associates vs. non-hunters). This chapter focuses on satisfying one major objective.

Objective 1: Understand the hunting-related beliefs, attitudes, and behaviors of college students and evaluate their potential support for hunting.

- How many college students currently hunt, and how many would consider hunting in the future?
- Who are the college student hunters?
- What motivates college students to hunt?
- What constraints do college student hunters face?
- Who are the college students that do not hunt, but would consider it?

## **Methods**

### Sampling Strategy

To enhance understanding of college students' perspectives regarding hunting, we conducted a Qualtrics-based web survey of a random sample of undergraduate students (age 35 or younger) at two major land-grant universities (Clemson University in South Carolina and Kansas State University in Kansas) in spring 2016. Our research team chose not analyze data submitted by students over the age of 35 because we wanted to focus on a more traditional sample of college attendees.

The Clemson University Office of Institutional Research provided 3,000 randomly selected student email addresses. Kansas State University provided email addresses for the entire undergraduate student body (22,206 students). Using an adapted version of Dillman's (2007) multiple contact approach, students at both universities were reminded to complete the survey at weekly intervals for three weeks. Students in the

sample frame who did not respond during that three-week period were emailed once more and asked to take a significantly shortened version of the same web-based survey. The truncated follow-up survey was an attempt to check for non-response bias.

### Survey Instrument

The survey instrument consisted of several sections, all designed to measure different dimensions of college students' participation in, or engagement with, hunting and wildlife conservation. For this particular report we focused on simply the results from the hunting related portion of the survey instrument (see Appendix A). However, data related to the wildlife conservation portion of the survey has been analyzed and accepted to be presented at The Pathways Conference later this fall and an abstract for that presentation has been included in the appendix (see Appendix B).

In order to evaluate the level of exposure that college students have to hunting culture we asked them a series of questions designed to determine if their family and friends hunt. Students were asked to indicate all of the people in the lives that hunt from a list of family members and friends (e.g., father, mothers, friends.) To further gauge the extent that students are exposed hunting culture through television programs, social media, web content and magazines, we used a five point Likert scale to determine how often students participated in certain hunting related activities. The scale range included the following options: never, rarely, sometimes, often, or very often.

We then directly asked students to indicate whether or not they had ever been hunting and provided an option that included accompanying someone on a hunt but not

personally hunting. Students who reported previous experiences as hunters (including those that had been afield with others) were also asked a few additional questions about hunting including hunting frequency, locations, and species pursued. Students who indicated that they had accompanied someone on a hunt but did not personally hunt are referred to as hunting associates in the results and discussion section (Larson et al., 2014).

Students were asked to indicate whether or not they had purchased a hunting license and they were asked to write in the states in which they had purchased a license, if applicable. Students were also asked to indicate how many times they had gone hunting in the last 12 months in addition to how many times they go hunting on an average year.

Students that had been hunting before were then asked to select the species of game (deer, turkey, etc) that they had harvested at some point in their life. There was also an option to write in any species that may not have been listed but may have been harvested.

In order to gain insight as to where exactly students did the majority of their hunting we asked them to select where they typically hunt (private land, public land, etc.) from a list of options. Students who hunted in multiple locations were permitted to select multiple options. Students could also write in other types of land that they may hunt but were not listed on the survey instrument. We also asked students that hunt to rate the importance of a set of reasons to hunt on a 4 point Likert scale including the following options: not at all important, slightly important, moderately important, and very

important. The list of hunting motivations included connecting with nature, harvesting meat, spending time with family and friends, as well as others.

To gauge the extent that potential barriers prevent non-hunters from participating and limit the participation of students that do hunt we used a three point likert scale to determine the prevalence of selected barriers. The scale included the following options: not a barrier, minor barrier, and major barrier. We broke the barriers down into two groups as research reveals quite nuanced differences between constraints different type of hunters have (Metcalf, 2015), logistical factors like lacking the knowledge and skills required to hunt or concerns about the cost of hunting licenses, tags, permits, and equipment.

So we could better assess the attitudes and beliefs that students have towards hunters and hunting we asked them a series of questions designed to gauge their approval level of legal, regulated hunting using a five point likert scale ranging from strong disapproval to strong approval. We also asked students to rate more detailed individual justifications/motivations for hunting, like engaging in sport/recreation, connecting to nature, or obtaining a trophy using the same likert scale. For the complete list of motivations and justifications included on the survey please refer to the complete survey found.

A five point likert scale was used to determine student opinions on various statements about wildlife conservation. The scales ranged from strongly disagree to strongly agree. The statements about wildlife conservation included general importance and some detailed statements regarding access to wildlife conservation, access to public

land, and natural resource development. The next section of the survey asked them to rate cultural/person factors like reluctance to shoot an animal and moral/ethical objections to hunting.

Students were then asked to indicate how likely they are to hunt the future. The survey presented them with a list of options that let them indicate that they would never hunt, they would consider hunting, they plan to hunt occasionally (at least once every year or two), or that they plan to hunt regularly (multiple times per year).

The final section of the survey was designed to develop socio-demographic information about college students. Respondents were asked to indicate their sex, their racial and ethnic background and the area where they grew up. Students were also asked to indicate what their major or field of study, with responses later grouped into five categories: Undecided and Unknown Majors, Natural Resource and Outdoor Recreation, STEM, Humanities and Social Sciences, and Business Majors. In order to help establish the context of people's opinions about hunting and conservation we asked them to indicate if they were a member of various types of conservation and environmental organizations like Ducks Unlimited or the Sierra Club. Students were also asked to indicate what other outdoor-recreation or nature-based activities (camping, hiking, fishing, kayaking, etc) they participated in.

Finally, students were also asked to provide an email address if they were interested in receiving more information about instructional hunting clinics and mentored hunting opportunities through their respective state fish and wildlife agency.

The follow up survey used for the non-response check was based on this survey but shortened in hopes of creating a simple tool that would minimize response burden and increase the likelihood that all individuals – including those for whom hunting might not be a salient topic or interest – would respond. The shortened survey focused on four of the original survey questions:

1. What is your college major or field of study?
2. Have you ever been hunting?
3. How likely are you to hunt in the future?
4. Please indicate the extent to which you disapprove or approve of legal, regulated hunting

#### Data Analysis

With virtually no preexisting research on the topic being addressed by this study, our goal was to lay the foundation for future research and to develop avenues to expand the research to other University's and in that regard this project has been extremely successful even without advanced statistical analysis. This chapter provided the foundation of a grant proposal currently being reviewed by the American Association of Fish and Wildlife Agencies and if the grant is funded the project will expand this project to 10 other colleges across the country opening the door for more advances analysis. It is also important to note that numerical rounding was implemented in the data analysis process and therefore some of the percentages

#### Research Limitations

The potential for bias within our sample is certainly possible with this project due to a variety of factors that could potentially influence our results. The results of this study

have all been collected from just two universities, so generalizing our findings to representative of all college students is premature at this point, and additional research should be conducted to explore these results more in depth. The geographic scope of this study is also limited to the southeast and Midwest, two relatively rural areas with perceived strong hunting cultures, so it's important to note that results could vary from a geo-spatial perspective. Given that hunting is a topic that could potentially be polarizing to some demographics, it's also important to recognize the possibility that our results are skewed towards representing only students with pre-conceived interest in hunting and therefore further evaluation is needed. Despite the known limitations of this research, the results are still extremely insightful and hopefully have begun to scratch the surface of the valuable information that replicating this study on a broader scale could produce.



## Results

Our web-based survey effort generated 5,046 completed survey responses for the full survey version across both universities, which equates to a response rate of about 20% (2.1). Given the sample frame discrepancies, a majority of responses were from Kansas State.

**Table 2.1** Survey Responses

<b>Variables</b>	<b>Clemson</b>	<b>KSU</b>	<b>Total:</b>
Total students surveyed	3000	22,206	25,206
Started survey	777	5,494	6,271
Completed full survey version	433	4,859	5,292
Incomplete surveys (deleted from analysis)	16	230	246
Surveys completed by individuals over age 35	3	243	246
Effective sample size for full survey version	430	4,616	5,046
Completed short (non-response) survey version	328	405	733
Response Rate:	14%	21%	20%

Having a more balanced sample from each of the two schools would have been ideal, but given the number of students each school permitted us to survey, it was not possible with this study. It should be noted, however, that comparisons of responses by school revealed very few differences. As a result, most of the data presented below were drawn from the pooled sample of college students across both universities.

We also tested for differences between the sample of students that completed the full survey and those that answered the shortened version used as a non-response check (n = 733). We found slight variations between the two versions with respect to variables

like hunting participation (short version respondents were slightly less likely to hunt) and major (short version respondents were slightly less likely to be in a natural resource or outdoor recreation field), but the differences were not statistically significant. We therefore concluded that response bias was minimal.

More females than males participated in the survey, and participation between genders was different between the two schools. The vast majority of respondents at both schools were white (2.2)

**Table 2.2:** Demographic Information

<b>Variables</b>	<b>Clemson</b>	<b>KSU</b>	<b>Total:</b>
Sample Size (n=)	433	4,859	5,292
Male	53%	42%	44%
Female	47%	47%	47%
White	92%	81%	83%
Large City or Urban Area	23%	33%	32%
Small City or Town	45%	23%	26%
Rural Area	21%	31%	30%

\*Percentages may not add up to 100% due to numerical rounding

### Hunting Participation

Roughly 41% of total students indicated that they had been hunting before compared to 47% of students who said they had never been hunting. Just over 12% of students indicated that they had accompanied a hunter afield before, but they did not personally hunt.

Most of the students that hunt match demographic composition of the traditional American hunting populous. Students that hunt were more likely to be a white male from a rural area whose father and friends hunt. (Table 2.3)

**Table 2.3:** Demographic profile of college student hunters and non-hunters

<b>Variables</b>	<b>Hunters:</b>	<b>Non-Hunters:</b>
Sample Size (n=)	2,059	2,334
White:	91%	77%
Male:	68%	29%
From a rural area:	45%	16%
Have a father that hunts:	73%	14%
Have friends that hunt:	51%	17%

\*Percentages may not add up to 100% due to numerical rounding

About 22% of female students indicated they had been hunting before, and an additional 18% of female students indicated that had accompanied someone afield but they did not personally hunt. Although 41% of students indicated that they had been hunting before, almost 60% of students indicated their hunting participation had decreased since they began college; 28% said their hunting participation stayed the same in college and just 14% said that their hunting participation had increased in college.

**Table 2.4:** College Students' Hunting Participation by Major/Fields of Study

<b>Major Category</b>	<b>Been hunting before</b>	<b>Accompanied someone hunting</b>	<b>Never been hunting</b>
Sample Size (n=)	2,059	653	2,334
Natural Resource and Outdoor Rec	60%	11%	29%
Business	42%	11%	53%
Undecided or Unknown	36%	13%	51%
Humanities, Social Science, Languages	29%	16%	65%
STEM	28%	16%	66%

\*Percentages may not add up to 100% due to numerical rounding

Roughly 60% of students with natural resource or outdoor recreation majors had been hunting before, followed by 42% of business majors and 36% of undecided majors. Students with STEM majors or Humanities, social science, or language majors indicated that they participated in hunting at about half the rate of natural resource and outdoor recreation majors.

Of the total students with previous hunting experience (n = 2,059), the majority of them reported that they primarily hunt on private land owned by family or friends. About a third of the students that hunt said they hunt on other private land, like hunting leases, clubs, or other land for which they've obtained permission to hunt. Few students hunted on public land with fewer than 20% of students at each school indicating they utilize public land for hunting and preferred hunting locations were not significantly different between the two schools. Clemson students slightly more likely to hunt on leases or at hunt clubs while KSU students were slightly more like to hunt on public land (Table 2.5).

**Table 2.5:** Hunting areas by school

<b>Type of Land</b>	<b>Clemson</b>	<b>KSU</b>
Private land owned by family and friends	42%	45%
Hunting leases, clubs, or land with permission	22%	14%
Public Land	13%	17%

Students that hunt indicated that they had harvested a variety of game species.

Upland birds like dove quail and pheasants were the most commonly harvested species of game, followed by deer. Waterfowl was the least commonly harvest type of game, but still over a third of hunters said they had harvested ducks and/or geese before.

**Table 2.6:** Species Harvested by College Students

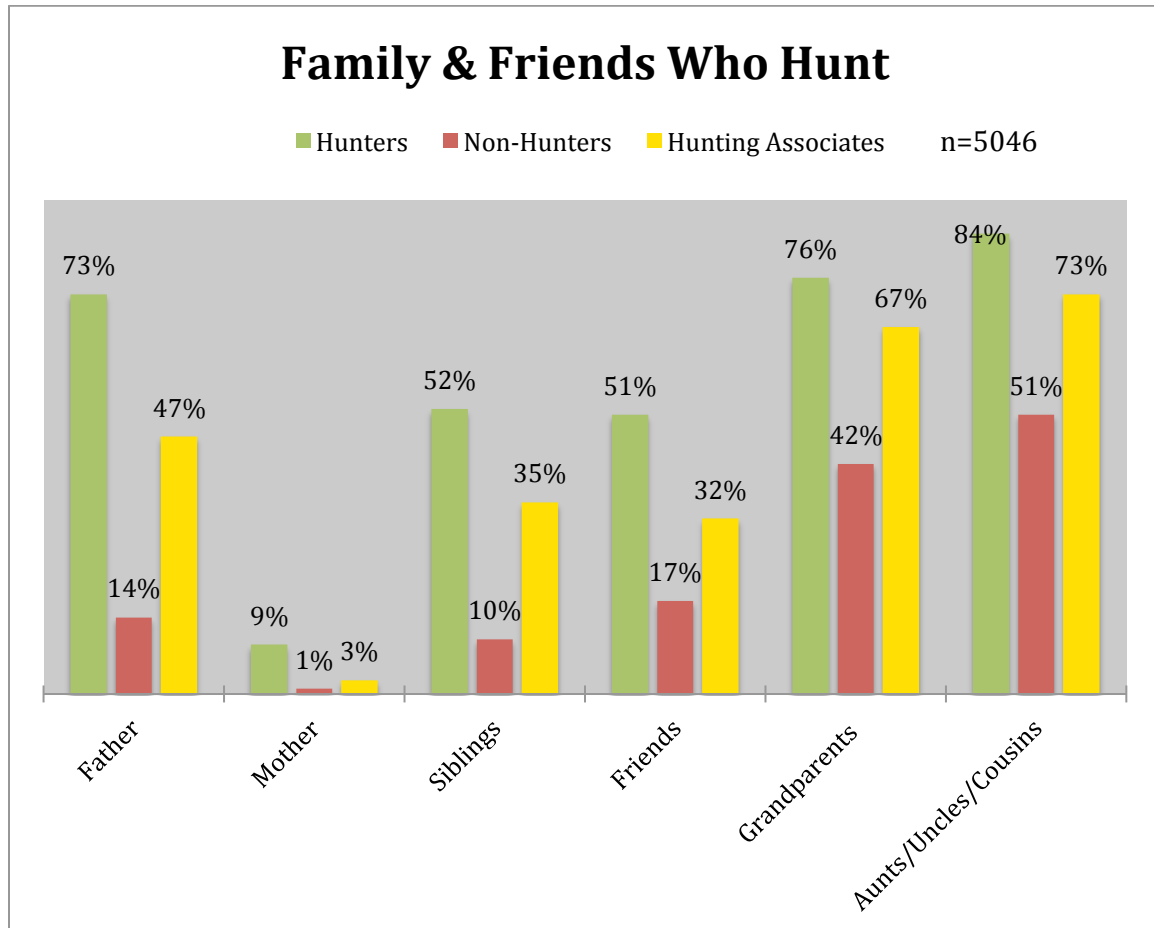
<b>Game Species</b>	<b>Harvest Percentages</b>
Upland Birds (dove, quail, etc.)	73%
Deer	70%
Small Game: (rabbits, squirrels, etc.)	61%
Turkey	45%
Waterfowl	38%

### Exposure to Hunting Culture

Hunting participation rates were associated with respondents' socialization within hunting culture. The overall hunting participation rates of family and friends were consistent between both schools but varied greatly between hunters and non-hunters. Students that hunt were more likely to have family members that hunt - particularly their fathers and extended family members (Figure 2.1). They were also much more likely to have friends that hunt. Hunting associates were more likely to have family and friends

that hunt than non-hunters, who rarely reported associations with hunters of any kind (except for extended family members).

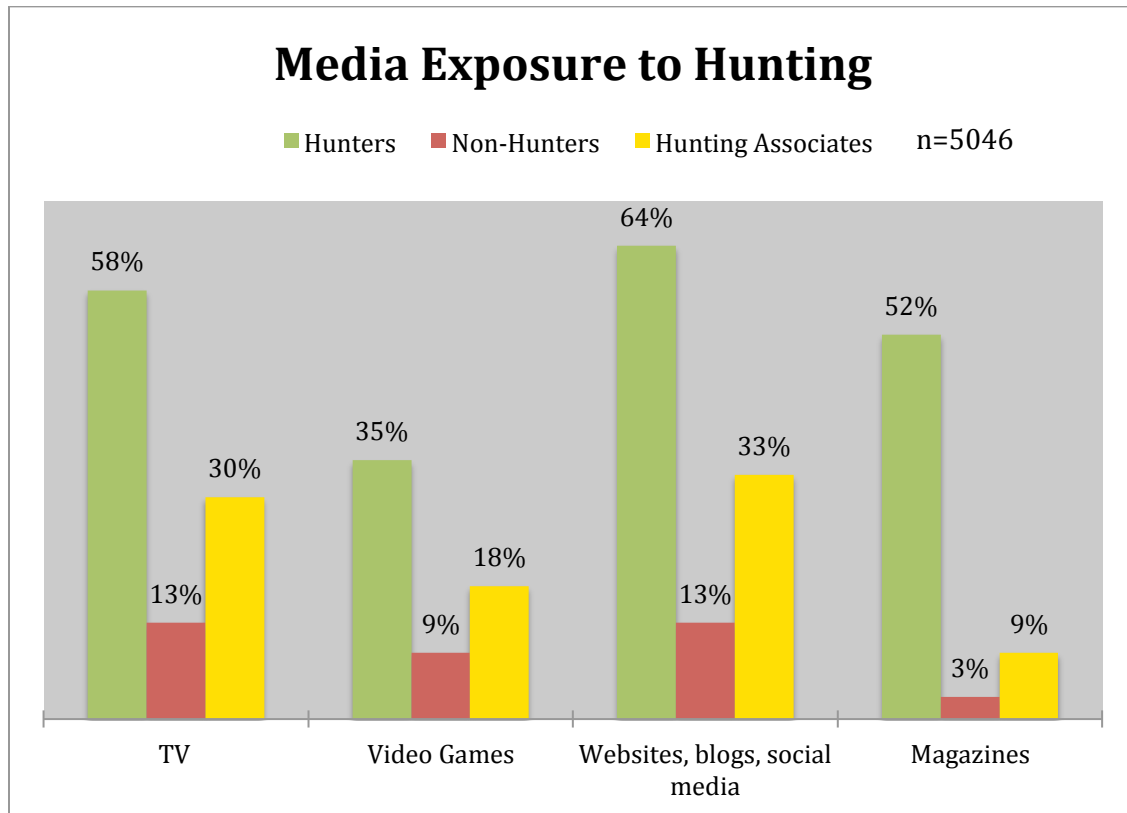
**Figure 2.1:** Who in their life hunts?



Hunters were more likely than non-hunters to consume hunting related media (Figure 2.2). Hunting associates were more likely than non-hunters, but less likely than hunters to consume hunting related media. The most commonly accessed source of hunting related media for all groups of students were websites, blogs and social media,

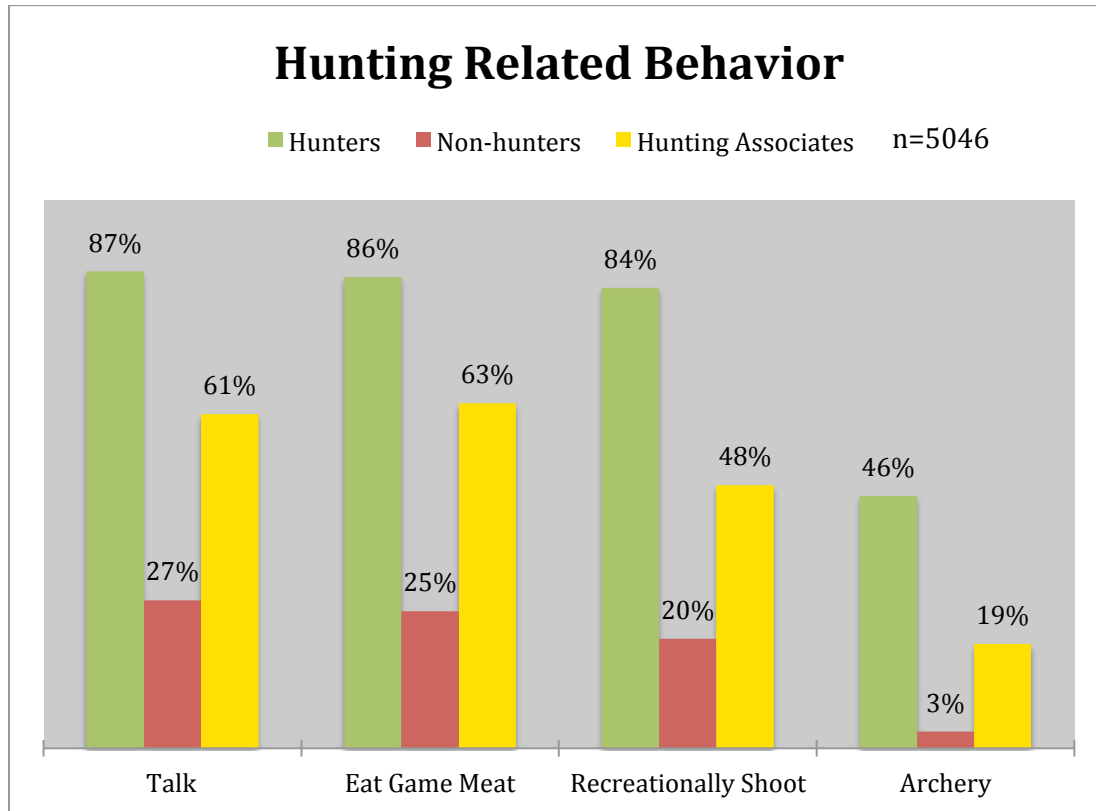
followed by television. Hunters were disproportionately more likely to read hunting magazines than non-hunters compared to other media outlets.

**Figure 2.2:** Hunting related media consumption



Hunters were also significantly more likely to engage in hunting related behaviors like talking about hunting, eating wild game, and recreational shooting (Figure 2.3), but a substantial portion of hunting associates and non-hunters also engaged in many of these activities. For example, over 60% of hunting associates said they eat game meat and talk about hunting at least sometimes. Roughly a quarter of non-hunters indicate that they recreationally shoot, eat game meat, and talk about hunting at least sometimes.

**Figure 2.3: Hunting Related Behavior**



### Barriers to Hunting Participation

As one might expect, non-hunting college students reported more barriers to hunting than students with previous hunting experience. Not completing a hunter's education course, lacking the knowledge and skills required to go hunting and preparing game meat were the most prevalent barriers preventing hunting associates and non-hunters from participating (Table 2.7). The most common technical or logistical barriers for hunters had to do with moving away from hunting areas or a lack of available hunting



land near their college residence. Costs were also a barrier for many students that hunt, and even more so for hunting associates and non-hunters.

**Table 2.7:** Perceived barriers to participation

<b>Barriers</b>	<b>Hunters Affected</b>	<b>Hunting Associates Affected</b>	<b>Non-Hunters Affected</b>
Sample Size (n=)	2059	653	2334
Preference for other activities	56%	78%	76%
Hunters education requirements:	15%	69%	69%
Lack knowledge base and skill set required to hunt	33%	65%	68%
Costs associated with hunting	53%	62%	61%
Lack knowledge & skills required to preserve & prepare game meat	20%	56%	66%
No one to go hunting with	49%	43%	45%
Lack of available hunting land near current residence	57%	39%	31%
Moved away from area I would hunt to attend college	69%	38%	10%
Reluctance to personally shoot an animal	0%	50%	70%
Feeling uncomfortable around firearms	0%	31%	53%
Moral/ethical objections to hunting	0%	28%	45%
Feel uncomfortable around hunters	0%	20%	45%
Worried non-hunting family and friends may judge me	0%	17%	12%

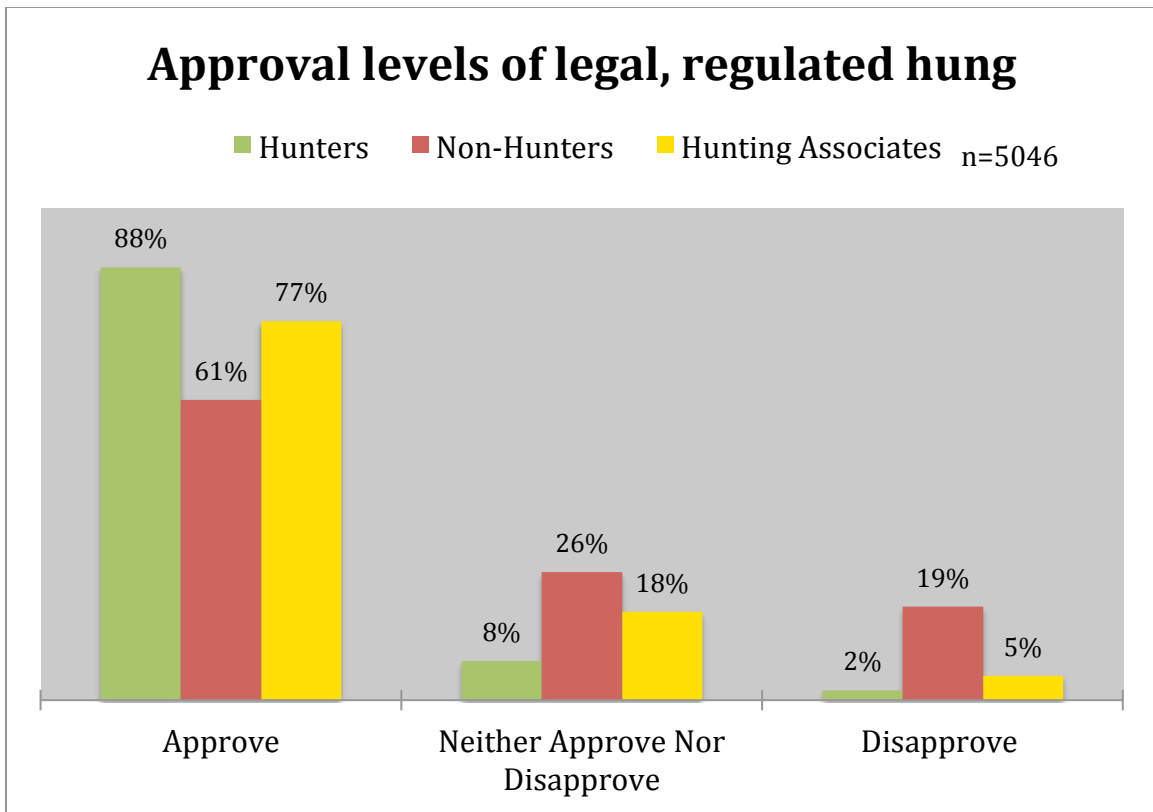
Note: Percentages reflect ratio of respondents selecting “minor barrier” or “major barrier” for each item. Percentages may not add up to 100% due to numerical rounding

### College Students’ Approval of Hunting

The vast majority of students approve hunting regardless of their personal participation. Overall, 49% of students said they strongly approve of hunting, 24% moderately approve, 17% neither approve nor disapprove, 7% moderately disapprove, and 4% strongly disapprove. More than 75% of hunting associates approved of legal, regulated hunted and more than 60% of non-hunters approved of legal, regulated hunting

(Figure 2.4). Approval of various reasons to hunt varied across the three categories, for example hunting to obtain meat or to spend time with family and friends was more widely accepted than trophy hunting (table 2.8)

**Figure 2.4:** Overall approval of hunting



**Table 2.8:** Approval of specific reasons to hunt

<b>Approval of Reasons to hunt</b>	<b>Hunters</b>	<b>Hunting Associates</b>	<b>Non-Hunters</b>
Sample Size (n=)	2059	653	2334
To control wildlife populations causing damage to ecosystems	90%	65%	73%
To be closer to nature	89%	71%	54%
Spend time with family and friends	89%	71%	53%
To control wildlife populations causing human-wildlife conflict	87%	77%	65%
To obtain local, free range meat	87%	81%	67%
To seek a new adventure	82%	62%	45%
To relax and escape	80%	54%	35%
To engage in sport and recreation	76%	53%	31%
To harvest a trophy animal	51%	24%	12%

Note: Percentages reflect ratio of respondents selecting “strongly approve” or “moderately approve) for each item

### Motivations for Hunting

Motivations for hunting (or likely motivations for hunting among hunting associates and non-hunters) also varied between groups of students based on previous hunting experience. Obtaining local, free range meat and controlling populations that cause problems for humans were among the most common motivations for hunting across all groups. Non-hunters said they would be more strongly motivated by controlling wildlife populations causing damage to ecosystems than any other reason. Trophy hunting was the least prevalent motivation for all groups, though it was still important to a majority of college students who currently hunted.

**Table 2.9:** Motivations for hunting

<b>Reason to hunt:</b>	<b>Hunters</b>	<b>Hunting Associates</b>	<b>Non-Hunters</b>
Sample Size (n=)	2059	653	2334
To obtain local, free range meat:	96%	88%	66%
To control wildlife populations causing human-wildlife conflict:	96%	88%	66%
To spend time with family and friends	96%	87%	65%
To connect with nature	96%	81%	58%
To seek a new adventure:	95%	84%	62%
To control wildlife populations causing damage to ecosystems:	96%	54%	70%
To relax and escape	93%	73%	56%
To engage in Sport and recreation	88%	67%	45%
To harvest a trophy animal	75%	43%	23%

Note: Percentages reflect ratio of hunters that indicated each item is a reason they do while percentages for hunting associates and non-hunters reflect reasons students said they would consider hunting

### College Students' Beliefs about Hunters and Hunting

Overall, students that hunt viewed hunting and hunters more favorably than the other two groups (Table 2.10). Hunting associates generally had more positive views of hunting and hunters than non-hunters. All groups were most likely to agree that hunting is an ethical means to acquire local free-range meat. The statement that all three groups agreed with the least was that hunting is acceptable even if doesn't benefit wildlife or people.

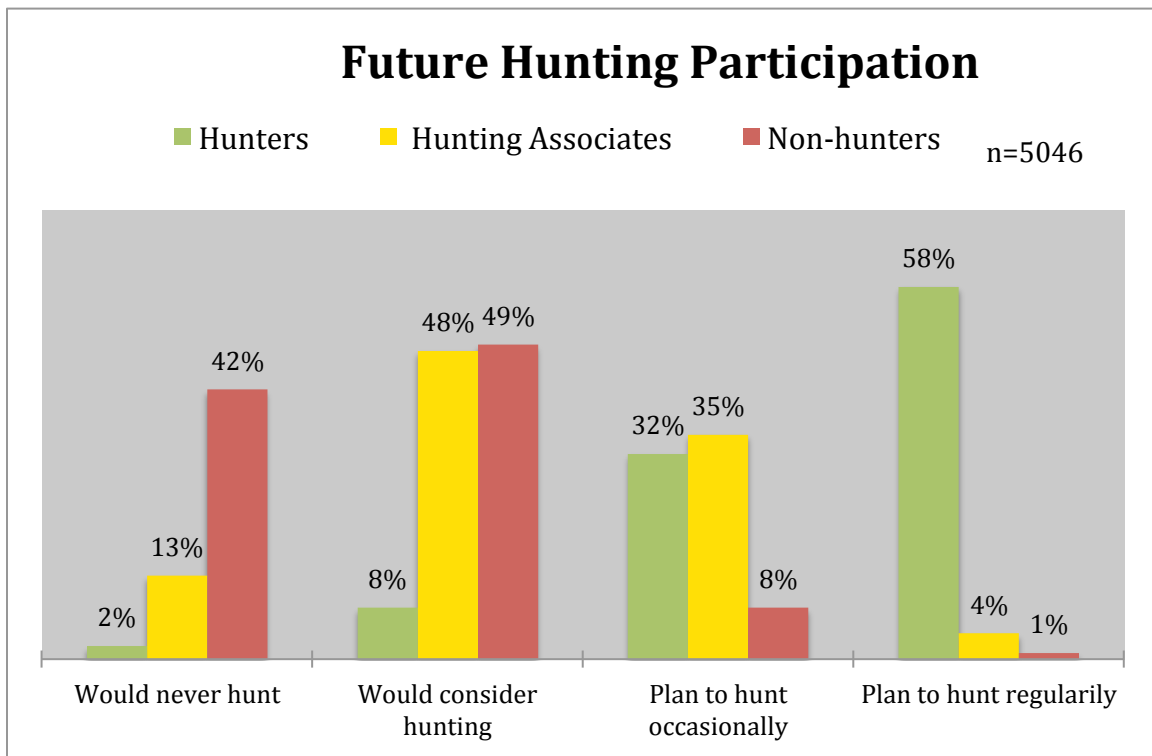
**Table 2.10:** Student agreement regarding statements about hunting and hunters

<b>Statement about hunters or hunting</b>	<b>Hunters</b>	<b>Hunting Associates</b>	<b>Non-Hunters</b>
Sample Size (n=)	2,059	653	2,334
Hunting can be an ethical means to acquire local, free range meat	94%	86%	71%
Hunting provides a way to directly connect with nature	90%	73%	49%
Hunting is a wise use of natural resources	87%	66%	41%
Hunters financially contribute to wildlife conservation	81%	59%	37%
Hunting is a safe activity	78%	55%	33%
Hunters care about conserving wildlife	76%	56%	35%
Hunters behave responsibly and follow hunting laws	65%	54%	37%
Most hunters are primarily motivated by harvesting a trophy	46%	39%	41%
Hunting is acceptable even if it doesn't benefit wildlife or people	44%	25%	14%

### College Students' Future Hunting Participation

Most college students with previous hunting experience indicated that they would continue to hunt in the future. More surprising, however, was the number of non-hunting students who were contemplating future hunting (Figure 2.5). Almost half of hunting associates said they would consider hunting in the future and roughly another third said they plan to hunt regularly. Almost half of non-hunters also said they would consider hunting, but less than 10% said they planned do so at some point. More than 40% of non-hunters indicated that they would never hunt

**Figure 2.5: Future Hunting Participation**



To help determine what segments of college students might provide the highest return on recruitment efforts, active hunters were removed from the sample and interest in future hunting participation among non-hunters was examined through the scope of gender, race, and college major and data indicates that white males were the most likely demographic to consider going hunting. Almost half the students who actively participate in other outdoor recreation activities like hiking; mountain biking, paddle sports and fishing also indicated that they would at least consider going hunting. In order to effectively determine who organizations and agencies should focus their recruitment efforts on, potential hunters were broken down into market segments (Table 2.11).

**Table 2.11: Market Segments of Potential Hunters**

<b>Variable</b>	<b>Plan on Hunting</b>	<b>Would Consider Hunting</b>	<b>Would Never Go Hunting</b>
Sample Size (n=)	2,383	1,675	1,099
White	93%	87%	79%
Natural Resource/Outdoor Rec Majors	28%	13%	10%
STEM Majors	32%	32%	30%
Business Majors	13%	13%	10%
Undecided Majors	4%	6%	7%
Humanities/Languages/Social Science Majors	23%	37%	42%
Birders	11%	11%	13%
Campers	76%	53%	46%
Hikers	80%	79%	76%
Paddlers	50%	39%	38%
Anglers	84%	45%	20%
Wildlife Photographers	35%	33%	37%
From a rural area	44%	26%	13%
From a small city or town	25%	27%	30%
From a large town or urban Area	25%	39%	45%

### Discussion

Results of our survey suggest that college students might be an ideal population to target for agencies hoping to boost hunter recruitment and retention. First, a large percentage of college students (about 40%) have previous hunting experience. This is much higher than the national average, which is less than 5% (United States Fish & Wildlife Service), but it also suggests that those students who grew up hunting may abandon the activity during or shortly after their college years. Recruitment and reactivation efforts focused on this group could therefore be fruitful. Equally important, however, is the fact that a large number of college students without previous hunting

experience (e.g., hunting associates and non-hunters) approved of hunting and would consider hunting in the future. This means that colleges and universities might also serve a fertile ground for recruitment, broadening the base of support for and participation in hunting across diverse groups.

The demographic profile of students that hunt does reflect national patterns, as students with hunting experience were more likely to be white, from a rural area, with friends and fathers that hunt. Our numbers support previous research that indicates that hunting is predominantly male and overwhelmingly white (Responsive Management, 2017), even among college students. It also supports the connection between socialization into hunting culture and hunting participation, which substantiates previous research that indicates a family tradition of hunting is an extremely important factor in determining the likelihood that a person hunts (Hayslette, Armstrong, & Mirarachi, 2010).

Hunters were also more likely to have family and friends that hunt and are more likely to consume or to be exposed to hunting related media, which indicates that marketing hunting programs through traditional hunting media outlets will not effectively reach potential hunters from non-traditional hunting backgrounds.

Furthermore, an overwhelming number of students in our study indicated that they do the majority of their hunting on private land, which is on par with the national average, as research indicates that 4 to 5 times as many hunters use exclusively private land compared to exclusively public land (Responsive Management, 2017). Worth noting, however, is the support for hunting that was observed among non-traditional hunting populations such as women and students in a major not linked to natural



resource-oriented majors. A high proportion of female students are interested in learning to hunt which parallels national trends. The number of women who purchased hunting licenses in the U.S. exploded from just 1.8 million in 2001 to 3.3 million in 2013. That is an 85% increase in just over a decade (National Shooting Sports Foundation, 2016).

In some states, the increase in adult women purchasing hunting licenses has been more than 90% in recent years (Indiana Department of Natural Resources, 2016). There also appears to be a new wave of female youth hunters. In Indiana, for example, the number of girls under the age of 18 that purchased hunting licenses increased 114% from 2006-2014 (Indiana Department of Natural Resources). Limited research indicates that the motivations and constraints of hunting participation varied between men and women. Male and female prospective hunters also differ in how they approach the ways they take to overcome constraints on their hunting participation (Metcalf, Graefe, & Trauntvein, 2015).

Survey results also yield important insights regarding college students' hunting motivations and barriers. Key motivations for hunting included obtaining local free range meat, controlling wildlife populations, spending time with family and friends, connecting with nature, seeking a new adventure, and relaxing and escaping from the hustle and bustle of the real world. Even non-hunters were interested in hunting for the purpose of obtaining meat, connecting with nature, and managing wildlife populations which supports previous research showing growing public support for conservation and civic-oriented hunting purposes (Decker et al., 2015). The importance that students place on

the aspects of hunting related to meat highlights the potential crossover college students could have with the locavore demographic.

Barriers varied between hunters, non-hunters, and hunting associates and a preference for other activities was the biggest constraint for all three groups. While that is somewhat disheartening, it is important to note that a preference for hunting may develop the more students are exposed to hunting. The costs associated with hunting were another prevalent barrier for all three groups, but state agencies can take steps to assuage the cost of hunting by offering discounted or in-state license fees for college students, which the South Carolina Department of Natural Resources (SC DNR) already does. Offering and advertising hunter education courses on college campuses could also be an effective means to not only break down barriers but to recruit new hunters as well. Hunting participation for students may remain volatile during the college years and with the move away from familiar areas (where active hunters previously hunted) to attend school and a lack of available hunting opportunities (or perceived opportunities) near their campus. But these same barriers can also create opportunities if certain constraints associated with them are addressed. Developing ways to recruit students to attend hunting clinics and ways to mitigate constraints to their participation is extremely important for shaping the future of hunting, as the cohort approach suggests, the views and actions of young adults will likely shape the long-term future of hunting.

More than half of active hunters are 45 years old or older, so if new young hunters are not recruited, hunting declines will likely be exacerbated in the future as this cohort ages (Responsive Management, 2017; Warnke & Winkler, 2013). However, this does

mean there could be tremendous room for growth with younger generations. If agencies and organizations can create hunters in college while they are still emerging adults, the continuity of aging theory indicates that many of them will indeed remain hunters for life. The foundation of this theory affirms that most individuals do not change all that much as they age, instead they just become “more” of what they have been with respect to their social and recreational pursuits (Agahi, Ahacic, & Parker 2006). Efforts to understand how social patterns associated with the cohort effect apply specifically to young adults could help to reverse the declining rate of hunting participation.

Recruiting broad spectrums of college students also provides agencies with the potential to capitalize on other trends like the growing popularity of hunting among women and locavores. While programs targeting specifically these demographics have been met with mixed reviews, offering programs that appeal to a wide range of potential hunters with a myriad of different focus areas increases the likelihood a diverse array of students sign up for programs.

Emerging adulthood is also distinguished by relative independence from traditional social roles and societal expectations (Arnett, 2004), which indicates that students that were not directly exposed to hunting culture as teens or children might still be open to trying it when they are in college. Many college students may be looking for new activities to fill voids left by regimented schedules and extracurricular commitments of high school. Additionally, autonomous college students are able to easily circumnavigate many common barriers to hunting among children and teens, and they are not reliant upon adults to take them hunting or to purchase the necessary gear, licenses or

tags (Larson et al., 2017). Considering this information coupled with the high percentage of students with no hunting experience that indicated that they would least consider going hunting, it is certainly plausible to believe that emerging adults could be the demographic *most* open to undergoing to the self-identification process of becoming a hunter. Agencies should continue outreach efforts focused on non-traditional hunting demographics as diversifying our nations base of hunters is vital to sustaining our nations hunting heritage, but agencies can no longer afford to ignore potential license buyers from more traditional hunting backgrounds. Just because most hunters are white men it does not mean that most white men are hunters, and given that white male students were the most interested in learning to hunt agencies should continue trying to recruit this demographic as well because evidence suggests these efforts could positively impact license sales on a large scale.

### Conclusion

What have we learned from this process? First, many college students like to hunt, and many who don't currently hunt would like to try it. These patterns are also reflected in the immense popularity of the hunting, shooting, and archery classes offered to undergraduates at both institutions, which increasingly attract a wide range of diverse participants (including large numbers of women and first-time hunters). Second, although rationales may shift and vary depending on individual beliefs and backgrounds, college students are generally supportive of hunting.

In many cases this support focuses more on hunting food and conservation-related purposes than recreation or sport. Even if students do not hunt in the future, strategic education and outreach efforts (including those linked to formal college curricula) that highlight the multiple benefits of hunting could help these students become hunting associates or advocates. Ultimately, this could increase public interest and investment in wildlife management and conservation. Finally, our data suggest that colleges and universities provide a deep pool of potential hunters and could be a target-rich environment for hunting-related marketing and programming that capitalizes on social influence and peer interactions. Future work should explore this potential in different geographical regions and contexts (e.g., smaller schools, private schools). With growing concerns about the future of hunting and limited resources to support R3 efforts, college campuses might be a great place to start.

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## CHAPTER THREE

### Hunting Clinics for College Students: Opportunities, Challenges, and Implications for Wildlife Management and Conservation.

#### Introduction

Hunting has played a prominent role throughout American history and continues to serve many important functions in our society today (Marks, 1991). America's unique hunting culture evolved from subsistence hunting on the frontier, but as the wilderness was subdued and the nation became industrialized, hunters continued going afield (McCorquodale, 1997). Today, hunting fosters social connections and strengthens bonds within families and rural communities in many part of the country (Stedman & Heberlein, 2001). Hunting is also a critical source of income for many rural economies, a critically important tool for wildlife management, and obligatory source of funding conservation (Vrtiska et al, 2013).

As the United States population grew and human expansion threatened natural ecosystem dynamics, hunting has become an increasingly vital tool for sustainably maintaining the ecological balance of nature (Brown et al, 2000). Hunting activity can help control growth rates and densities of species in areas where wildlife populations have outgrown socially and ecologically acceptable numbers. Overabundant wildlife populations have undesirable impacts on both ecosystems and people (Duda, Jones, &

Criscione 2010). Many wildlife experts contend that hunting is the very foundation of wildlife conservation in North America and that no other viable alternatives for managing wildlife populations over broad landscapes currently exist (Brown et al, 2000).

The conservation ideology and hunting ethics of America are rooted in a globally unique combination of ecological, historical, cultural, political, legal, ethical, and economic factors. These factors culminated in the development of revolutionary policies, regulations, and values that collectively formed what is known as The North American Model of Wildlife Conservation (Duda, Jones, & Criscione 2010). The Model is founded on the principles that fish and wildlife should be managed as a public resource, the commercial sale of wildlife should be illegal, and that conservation efforts should be funded through direct taxation of the citizens that consumptively utilize fish and wildlife resources. The North American Model is widely considered to be the most successful system of conservation in the world. The system balances public ownership of fish and wildlife resources and the promotion and cultivation of sustainable populations of those resources (Duda, Jones, & Criscione 2010).

Yet the backbone of this system – hunting – is currently in jeopardy as a decades long decline in hunting participation rates has increased public concern regarding the ability of state agencies to secure stable funding for wildlife conservation in coming years (Larson et al, 2014). In 1955, roughly 10% of the population of America hunted. By 1980, that number was down to around 7% of the population. Today, less than 5% of the population hunts (United States Fish and Wildlife Service, 2016; Congressional Sportsmen’s Foundation, 2016).

## The Evolution of R3 Programs

Almost all new hunters are required to take hunter education courses to before they are legally allowed to participate (Wentz & Seng, 2000), and specific requirements vary with each state. Studies indicate that 85% of hunter education course graduates eventually do participate in hunting, but evidence also indicates that as many as 50% of hunter education graduates quit purchasing hunting licenses within five years of completing the hunter education course (Wentz & Seng, 2000). Most hunter education courses focus on developing technical competence related to hunting, but little consideration is directed towards influencing social competence as a hunter (Wentz and Seng, 2000). It is also increasingly important that hunter education programs move beyond an historic emphasis on hunter safety and hunting regulations to consider hunters' broader roles in both ecological and social landscapes (Decker & Connelly, 1989).

In recognition of long term declining participation in hunting and some of the shortcomings associated with hunter education programs, state fish and wildlife agencies, conservation and shooting sports organizations, and the hunting and shooting sports industries have increasingly invested in the *recruitment* and *retention* of new hunters and the *reactivation* of former hunters through new and innovative means. Together these three objectives form the basis of what are collectively known as “R3” programs and initiatives (Council to Advance Hunting and The Shooting Sports, 2016).

Nationwide, there are over 450 individual R3 programs currently available throughout the year, and that number continues to grow (Congressional Sportsmen's

Foundation, 2016.). However, coordinated research and thorough evaluation of these programs has been lacking until recently, and the effectiveness and outcomes of most of these initiatives and programs has previously gone unmeasured and unknown. Without formal assessments of program outcomes, it is difficult to know if and how these programs are achieving desired goals (Council to Advance Hunting & the Shooting Sports, 2016). The complete picture of recruitment, retention, and reactivation depends on a broad base of individual programs and initiatives customized to specific groups – there is no one size fits all approach allowing R3 efforts to be all things to all people (Responsive Management, 2017).

As research related to these R3 initiatives grows, there is a recognition that R3 efforts must focus on actively generating more participants from new and existing target audiences, not just educating potential hunters on responsible firearm use and hunting regulations (Council to Advance Hunting & The Shooting Sports, 2016). The hunting community is also in need of fostering better communicative practices and outreach programs centered on social experiences that help to create a more inclusive hunting community (Peterson, 2004).

Similar to hunter education courses, R3 programs must be designed to help new hunters develop a competent knowledge of the multiple benefits associated with hunting and the role hunting plays in wildlife conservation, a skill set that allows them to hunt autonomously and confidently and to relate enough to other hunters that they begin to identify themselves as a hunter. Agencies and organizations should strive to provide new hunters with opportunities to satisfy multiple motivations if they hope to ensure their

long-term participation (Wentz & Seng, 2000). Satisfaction of multiple motivations makes hunting a more integral part of a new hunters life while simultaneously helping the new hunter realize that going hunting is much more than simply shooting an animal, thus helping them better assimilate into hunting culture (Wentz & Seng, 2000).

Examining the development of new hunters through the lens of self-determination provides insight into the process of becoming a hunter. Traditionally, most hunters engage in this process with support from family members, who help them assimilate into hunting culture (Duda, Jones, & Criscione, 2010). First the non-hunter becomes aware of the activity before transitioning into a potential hunter after growing more interested through social support and cultural encouragement (Responsive Management, 2017). In the subsequent stage, after trying out hunting and gaining confidence, the potential hunter becomes an apprentice hunter and then a recruited hunter. Recruited hunters then begin to self-identify as a hunter and continue hunting or become sporadic in their participation before dropping out (Responsive Management, 2017). Through observing and learning from a mentor and interacting with experienced hunters, new hunters begin developing competency in the various facets of hunting until they eventually become autonomous and capable of confidently hunting alone. Once they reach this autonomous state, their sense of relatedness to hunting culture allows them to confidently interact with fellow hunters. Hunting slowly becomes part of their identity. Providing the educational foundation and enhancing social support for new hunters will be a key part of advancing hunting interests moving forward (Duda, Jones, & Criscione, 2010). R3 programs are designed to accomplish all of this by setting the initial hunting process in motion.

Historically, R3 efforts have focused on women, kids, families, and other demographic groups (Council to Advance Hunting & the Shooting sports, 2016). The majority of R3 programs historically placed an emphasis on recruiting hunters from traditional populations (i.e., white, rural families), but there is currently a growing interest in expanding R3 efforts to reach broader, more non-traditional audiences (Responsive Management, 2017).

### R3 Efforts Targeting College Students

While substantial time and resources have been devoted to R3 efforts targeting the many different subgroups, one population of potential hunters has been conspicuously overlooked in traditional R3 efforts (Duda, Jones, & Criscione 2010; Ryan & Shaw, 2011). Within the context of young adults, college student's represent an ideal target audience. Nearly 42% of young adults ages 18-24 currently attend college, and that number has increased steadily since 1980 (National Center for Education Statistics, 2013). Land-grant universities, which often feature wildlife and natural resource-oriented majors and courses, collectively enroll about 2 million diverse students across the United States. For anyone hoping to connect with significant numbers of young adults, these colleges and universities are a great place to start. Efforts to understand the hunting-related perceptions and behaviors of young adults, generally, and college students, specifically, are critical for several reasons.

Research shows that the developmental process of role exploration and identification that begins in adolescence intensifies with age, often peaking in the late

teens and twenties (Arnett, 2004). For many Americans, that period of independent role exploration and leisure activity experimentation in emerging adulthood is the college experience (Ravert, 2009). Late adolescence is a time period where students explore new things, in breadth and in depth (Luycx et al., 2006), to determine what they might adopt. College students also report engaging certain behaviors in college because they feel they will lose those opportunities later in life, with over 75% of college students indicating they engaged in certain types of behavior or activities for this reason (Agahi, Ahacic, & Parker 2006). Activities centered on travel and adventure often fall into this category, as well as social events. Action sports and activities that promote independence and personal expression are critical as well (Agahi, Ahacic, & Parker 2006). Hunting falls into all of these categories.

Emerging adulthood is also distinguished by relative independence from traditional social roles and societal expectations (Arnett, 2004), which indicates that students that were not directly exposed to hunting culture as teens or children might still be open to trying it when they are in college. Many college students may be looking for new activities to fill voids left by regimented schedules and extracurricular commitments of high school. As an added bonus, autonomous college students are able to easily circumnavigate many common barriers to hunting among children and teens, and they are not reliant upon adults to take them hunting or to purchase the necessary gear, licenses or tags (Larson et al., 2017). Considering this information it's plausible to believe that emerging adults could be the demographic *most* open to undergoing to the self-identification process of becoming a hunter. Anecdotal evidence suggests that a variety of



agencies and organizations are starting to recognize the potential benefits of recruiting college students to participate in hunting programs but research focused on those programs have not been conducted on an impactful scale.

In this study, we worked with a state wildlife agency to develop, implement, and evaluate two separate, approximately 4-hour long, deer hunting clinics designed specifically for college students with no previous hunting experience, although some students who attended had been hunting before but were still looking to further their knowledge. Our evaluation was designed to answer the following research questions with the goal of informing the design and execution of future R3 programs targeting similar young adult audiences:

The clinic evaluations were built on the following research questions:

- Who registered for the hunting clinics and why?
- What effect did the hunting clinic have on participants' experience during the workshop, confidence with respect to hunting knowledge and skills, perceptions of hunters and hunting, hunting barriers, and hunting participation.
- How confident are college students when it comes to hunting knowledge and skills? Did the clinic alter this level of confidence?
- What are some of the common motivations and barriers that influence hunting participation of college students?
- What do college students think about hunters and hunting? Were these perceptions altered as a result of the hunting clinic?
- What do college students generally think about the hunting clinic?

## Methods

Clinic coordination, implementation, and evaluation were all a joint effort by our research team and our agency partner. Our research team was responsible for recruiting participants (with limited previous hunting experience), designing the survey instruments, implementing a pre-clinic survey (in the form of online questionnaire), and working with the agency to implement post surveys immediately after each hunting clinic. The agency was responsible for implementing the hunting clinic.

### The Hunting Clinics

The hunting clinics offered exclusively to Clemson Students by The South Carolina Department of Natural Resources consisted of 4 different stations, each lasting about 45 minutes each. The clinic is designed for students with very little or no previous hunting experience and students with limited previous hunting experience were permitted to register even though the clinics were intended to be introductory. Students were separated into groups of approximately five people to ensure that each student had the chance to personally interact with instructors and participate in each activity offered. “The Wild Meats Good Eats” portion of the clinic gave students a chance to hone their culinary skills by preparing donated venison for lunch. Students were instructed on how to properly store and prepare wild game meat. Instructors went over a variety of recipes and students were provided with hard copies of those recipes to take home and students worked with instructors to prepare venison chili, mustard fried cube steaks. The Marksmanship portion of the clinic placed a tremendous focus on safely and responsibly

handling firearms. Using life sized diagrams of deer students were instructed on ethical shot selection and placement and each student had the chance to fire several shots at a life sized deer target at 100 yards.

SC DNR also provided several tree stands and hunting blinds to be used for demonstrations. Much of this session also focused on safety equipment that prevents dangerous falls from tree stands and students had the chance to test safety gear as they utilized climber stands, hang on stands, ladder stands, and ground blinds. Information on appropriate areas or types of hunting that coincide with certain types of blinds and stands was also explained to participants.

The “know before you go” session focused on rules and regulations and conservation officers from DNR went through the hunting rules and regulations in the state of South Carolina. Students were also provided with a hard copy of The Official South Carolina Hunting and Fishing Regulations guide.

After each group rotated through each of the four stations participants all came together to enjoy a venison lunch. After lunch students had the option of staying to participate in a demonstration on how to properly field dress and butcher a real deer. SC DNR was lucky enough to have someone donate a recently harvested deer for the first clinic but despite their best efforts clinic instructors were not able to find a freshly harvested deer to use for a demonstration and several participants noted that they wish they could have participated in this highly education portion of the clinic. For a clinic itinerary please refer to the appendix (see appendix C).

## Subject Recruitment and Data Collection Protocol

Clinic participants were recruited through a variety of outreach efforts. Flyers advertising the clinic were posted on campus roughly a month and a half before the clinic and administrative assistants for all of Clemson's major departments were also crucial to the recruiting efforts as they sent out emails to their entire departments, reaching thousands of students at once. Students who took part in a larger survey focused on conservation also had the option of providing their email address if they wanted to be notified about hunting clinics and programs and that was another successful avenue for recruiting participants.

The pre-survey for the clinics was administered online and it was a requirement to register for the clinic. Registrants completed all of these pre-clinic surveys as part of the registration process between 7 days and 1 day before the start of the clinic, the follow up survey was administered on-site (in person) by the lead researcher directly following the clinics. The surveys were also designed to allow for comparisons between the pre and post survey to gauge the effectiveness and impact of the clinic.

Overall, the two hunting clinics that were held reached 39 young adult attendees. A total of 52 students (both undergraduate and graduate students) completed the online pre-clinic surveys as part of the registration process, but not all of these individuals actually attended the clinics (Table 3.1). In 2015, 17 students attended the clinic and all of them completed a post-clinic survey. In 2016, 22 students attended the clinic but, since several of them had to leave early, only 15 completed a post-clinic survey. Overall, 82% of participants (32 total) completed both a pre and post-clinic survey (Table 3.1).

Data collected from all 52 registrants was analyzed for introductory questions that were only asked on the pre-survey while with the questions that compare statistical data from the pre and post surveys, only input from students who participated in the clinic and filled out the post survey was analyzed.

**Table 3.1:** College Clinics Evaluated at Clemson University

Date	Location	Focus	Total Participants	Survey Respondents	
				Pre only	Pre & Post
Nov 14, 2015	Clemson	Deer	17	28	17
Oct 22, 2016	Clemson	Deer	22	24	15
<b>TOTAL</b>			39	52	32

Web-based pre-clinic surveys were available to all 30 individuals who registered for the clinic in advance. Not everyone who registered attended the clinic, however, resulting in cases where the numbers of completed pre-clinic surveys were higher than the number of actual clinic attendees.

#### Survey Instrument Design

To facilitate pre-post comparisons and assess program impacts, similar questions were asked on both the pre- and post-clinic surveys. The questionnaires were designed to gauge participants' previous experience with hunting, their hunting-related beliefs, attitudes, and participation before and after the program, and their opinions of the program itself. Please refer to appendix (see Appendix D &E) to view the full set of pre- and post-clinic survey questions. Topic areas are described in more detail below.

On the pre survey, we directly asked students to indicate whether or not they had ever been hunting (yes or no) and provided an option that included accompanying someone on a hunt but not personally hunting. Students who reported previous experiences as hunters (including those that had been afield with others) were also asked a few additional questions about hunting. Students who indicated that they had accompanied someone on a hunt but not personally hunt are referred to as hunting associates in the results and discussion section.

In order to evaluate the level of exposure that college students had to hunting culture heading into the clinic, we asked them a series of questions designed to determine if their family and friends hunt. Students were asked to indicate all of the people in the lives that hunt from a list of family members and friends (e.g., father, mothers, friends, etc.). In order to further gauge the extent of which students were exposed hunting culture, we used a five point Likert scale to determine how often they students participated in certain hunting related activities, like watching hunting related television shows, reading hunting magazines, or browsing content related to hunting online This set of questions was only included on the pre-survey. The scale range included the following options: never, rarely, sometimes, often, or very often.

To assess the effectiveness of the clinics with respect to hunting-related skills and abilities, a series of questions were asked to establish a baseline of confidence for clinic participants. Students were asked to rate their self-confidence regarding a number of activities (shooting skills, fire arm safety, cooking wild game meat) on a range from “not at all confident” to “extremely confident”. In order to assess the effectiveness of the

clinics when it comes to improving the confidence students have in their knowledge and skills related to hunting, students were also asked to assess the same set of questions following the clinic.

To assess the attitudes and beliefs that students have towards hunters and hunting, we asked them a series of questions on the pre-survey designed to evaluate their perceptions using a five point likert scale ranging from strong disapproval to strong approval. Example items included things like trophy hunting, spending time with family and friends, obtaining meat. The same set of questions was also asked on the post-survey in order to evaluate any clinic-mediated change.

We also asked students that hunt to rate the importance of a set of reasons to hunt on a 5-point Likert scale including the following options: not at all important, slightly important, moderately important, and very important, and extremely important. The list of hunting motivations included items such as connecting with nature harvesting meat, spending time with family and friends. Ahead of the clinic students were asked to indicate whether or not a variety logistical factors like lacking the knowledge and skills required to hunt or concerns about the cost of hunting licenses, tags, permits, and equipment were a barrier to their hunting participation. The list of barriers also included cultural/personal factors like reluctance to shoot an animal and moral/ethical objections to hunting. Students were also asked to evaluate the same set of barriers following the clinic to determine if the clinics were effective in breaking down these barriers.

The final section of the survey was designed to capture socio-demographic and other background information about college students. Respondents were asked to indicate

their sex, the racial and ethnic background and the area where they grew up. Students were also asked to indicate what their major or field of study (grouped into one of five categories: undecided, natural resource and outdoor recreation, other STEM fields, humanities and social sciences, business). Students were also asked to indicate what other outdoor-recreation or nature-based activities (camping, hiking, fishing, kayaking, etc) they participated in. There was also the opportunity to write in any activities that were not listed. In order to help establish the context of people's opinions about hunting and conservation we asked them to indicate if they were a member of various types of conservation and environmental organizations like Ducks Unlimited or the Sierra Club. Students were also asked to provide an email address if they were interested in receiving more information about instructional hunting clinics and mentored hunting opportunities through their respective state fish and wildlife agency.

The post-clinic survey also included a series of closed and open-ended questions designed to gather participants' thoughts about the clinic structure itself. Closed-ended questions included an item regarding overall satisfaction with the clinic, and evaluation of particular elements such as each of the individual sessions. Other items asked about broader clinic impacts (examples). Open-ended questions asked participants to indicate what they liked about the clinic, what they didn't like, and what could be improved for future clinics.



## Data Analysis

For most questions, simple descriptive statistics such as means and frequencies were calculated to create a profile of clinic participants and their interests, experiences, beliefs and backgrounds. Similar approaches were adopted for post-clinic responses, facilitating assessment of clinic satisfaction and impacts. Open-ended questions were thematically coded to identify key topics and themes. To evaluate clinic impacts with respect to items on the pre- and post-clinic surveys, we used paired samples t-tests in order to determine whether or not significant changes had occurred. It is also important to note that the values in certain tables may not add up evenly due to rounding.

## Research Limitations

Various issues regarding the set of data analyzed for this portion of the research project also have the potential to influence our results or create bias. The results for this portion of the study are based on a relatively small sample size limited to students from just one university and expanding related research on the topic is necessary to strengthen any claims made in this particular report. The data related to knowledge and skill development in this report is also self-reported by students who completed the survey which always means the sample could be potentially biased. Creating some sort of test to measure knowledge and skill development may lead to more accurate research in the future. Since post surveys were completed immediately after the clinic was finished, the potential for social desirability also exists given the possibility that clinic participants may just have filled out the response they thought researchers or clinic instructors wanted

to see. Follow up surveys have been collected and could potentially expose social desirability bias but due to time constraints and deadlines data from the follow up surveys is not included in this report.

## Results

### Description of Participants

A variety of information about participants can be inferred from the pre-clinic registration surveys (n = 52). According to these pre-clinic surveys, a majority (87%) of the individuals who registered for the clinics (including those who actually participated), were undergraduate students, with a few graduate students and one university employee (who attended the clinic with his son, an undergraduate student) comprising the rest of the attendees.

About 58% of participants were 21 years old or younger, 87% were under age 25, and all but two participants were under the age of 30. Half of the participants were women, a number that is substantially higher than the average rate of female hunting participation observed in the general population. Most were from either large cities or urban areas (21%) or small cities or town (56%), with only 23% coming from rural areas. About 90% of the participants were white. Other racial/ethnic groups that were represented in our sample included African Americans (6%) and Asians (4%), including three international students. Only 17% of students were members of some type of conservation organization, and only four were linked to organizations with ties to hunting or fishing (e.g., Trout Unlimited, The Wildlife Society), and participants engaged in a

variety of other outdoor recreation activities, including hiking (79%), fishing (62%), camping (56%), backpacking (31%), and paddling (12%). Almost half (44%) had shopped at local farmers' markets, and 20% engaged in edible gardening, highlighting in keen interest in healthy, sustainable food among many student participants. Students who registered from the clinic came from a variety of different academic backgrounds. As expected, about half (54%) were in majors focused on natural resource management and conservation (e.g., wildlife and fisheries, parks and recreation, conservation biology, agriculture), but 35% came from other STEM disciplines (e.g., engineering, physical sciences, life sciences) and 6% came from majors related to business or finance (e.g., accounting, economics, management).

#### Hunting Participation (Before and After Clinics)

Most college hunting clinic participants (77%) had never been hunting before, though 21% had accompanied hunters into the field without carrying a firearm. Only 23% had been hunting prior to the clinic. Of those that hunted, deer (39%) and small birds (35%) were the most common game species pursued, and most individuals (75%) had been hunting for 3 years or more (Mean = 5.4 years). For the most part, participants had relatively little previous exposure to hunting through their families (39% had a father who hunted, 23% had grandparents who hunt, 12% had sibling who hunt, and 2% had mothers who hunt, though 50% said extended family members hunt). However, over half of the participants (62%) reported having friends who hunt. All of these numbers were

much lower among individuals with no previous hunting experience, though 55% of individual without hunting experience still reported having friends who hunted.

Not surprisingly, few participants regularly engaged in activities related to hunting. Activities with the most respondents indicating that they participated often or very often were target shooting (37%), talking to others about hunting (33%), playing hunting video games (29%), and eating game meat (27%). Hunters were significantly more likely than non-hunters to do all of these things except target shooting (non-hunters participated in this activity at approximately the same rate). Relatively few participants, regardless of hunting experience engaged with hunting-related media such as magazines (16%), websites, blogs or social media posts (16%), or TV shows (12%) often or very often.

#### Confidence in Hunting Knowledge/Skills (Before and After Clinic)

Entering the clinics, college students reported relatively low levels of confidence in most hunting-related skills except firearm safety and shooting (Table 3.1). About 50% of students were confident or extremely confident in their ability to safely handle a firearm and 42% were confident or extremely confident in their shooting skills. About 31% were confident in their ability to cook harvested game meat. But initial confidence rates were much lower in other areas such as identify ethical shot placement on a hunt (23% confident), field recovery of game (15%), understanding hunting rules and regulations (14%), and choosing the right hunting gear (11%). Less than 10% of students felt confident in their ability to scout and select good hunting spots, field dress a

harvested animal, or butcher and preserve game meat.

Participants were substantially more confident in almost every hunting-related skill after completing the clinic (Table 3.1). Following the clinic, over 90% of students said they were confident in their ability to safely handle a firearm, 88% were confident in their shooting skills, and 88% were confident in their ability to identify ethical shot placement. Significant confidence gains were also observed with respect to cooking harvested game meat (66% now confident or very confident), choosing the right hunting gear (60%), understanding hunting rules and regulations (50%), and field recovery of game (50%). Fewer participants expressed confidence with respect to field dressing harvested animals (36%), butchering and preserving game meat (36%), and scouting and selecting good hunting spots (32%), though all of these ratios were substantially higher than those on the pre-clinic survey.

**Table 3.1:** Mean Ratings of Confidence in Various Hunting-related Skills Reported by College Students Before and After Attending Hunting Clinics

Hunting-related Skill	Pre-clinic (Mean)	Post-Clinic Change	Sig. Diff?
Ethical shot placement	2.00	+ 2.47	***
Choosing the right hunting gear	1.53	+ 1.88	***
Field recovery of game	1.44	+ 1.83	***
Hunting regulations ( <i>season, license requirements, etc.</i> )	1.78	+ 1.75	
Scouting and selecting good hunting spots	1.28	+ 1.72	***
Butchering and preserving game meat	1.45	+ 1.49	***
Field dressing wild game	1.35	+ 1.46	***
Cooking harvested game meat	2.31	+ 1.39	***
Firearm safety	3.06	+ 1.25	***
Shooting skills	2.94	+ 1.00	***

Rated on a scale from 1=Not at all confident to 5=Extremely confident; Includes pre and post-clinic survey data \*, \*\*, and \*\*\* denote statistical significant of pre-post paired t-test comparison at  $\alpha = 0.10, 0.05,$  and  $0.01,$  respectively. Percentages may not add up to 100% due to numerical rounding.

### Motivations & Barriers to Hunting

Similar to youth clinic participants, college student clinic participants were more strongly motivated to hunt for fun and enjoyment than any other purpose (85% rated as very important). Seeking adventure (73%), testing and challenging outdoor skills (73%), and obtain meat to eat (73%) were the next most popular motivations (Table 3.2). Other hunting motivations noted as very important by more than half of college student participants were being closer to nature (69%), connecting with food sources (65%), contributing to conservation (65%), learning about animals and their habitats (58%), and spending time with friends and family (57%). The least important motivations for college students appeared to be harvesting a trophy animal and using hunting equipment (Table 3.2).

Significant difference in motivations between individuals with and without previous hunting experience was observed for 3 items: spending time with friends and family, reducing wildlife populations causing problems, and harvesting a trophy animal. In all cases, current hunters were more strongly motivated by these factors than current non-hunters.

**Table 3.2: Mean Ratings of Motivations for Hunting**

Motivations for Hunting	% Very Important	Mean Rating
To have fun	85%	3.71
To seek a new adventure	73%	3.67
To test and challenge my outdoor skills	73%	3.62
To obtain meat to eat	73%	3.56
To be closer to nature	69%	3.58
To connect more closely to sources of food	65%	3.52
To contribute to wildlife conservation	65%	3.44
To learn about animals and their habitat	58%	3.42
To spend time with family and friends	57%	3.37
To help reduce wildlife populations causing problems for people and natural ecosystems	44%	3.12
To use my hunting equipment	27%	2.62
To harvest a trophy animal	10%	2.08

Rated on a scale from 1=Not at all important to 5=Very important; Includes pre and post-clinic survey data \*, \*\*, and \*\*\* denote statistical significant of pre-post paired t-test comparison at  $\alpha = 0.10, 0.05,$  and  $0.01,$  respectively

Participants were also asked about potential barriers to hunting participation before and after the clinic. Before the clinic, the biggest obstacle noted by a majority of students (75%) was a lack of knowledge and skills required to hunt, followed by a lack of knowledge and skills required to prepare game meat (48%; Table 3.3). Other prominent pre-clinic barriers included not knowing where to hunt (48%), not having anyone to hunt with (44%), and lacking knowledge about hunting and firearm laws in SC (33%). The clinic had a significant positive effect on almost all of the barriers, so that post-clinic less than 25% of all participants believed they were still an obstacle for hunting participation (Table 3.3). Moral and ethical objection to hunting also decreased to 0%. These trends suggest that the South Carolina Department of Natural Resources clinic was effectively reducing or minimizing many potential barriers to hunting for college students. One

exception was not having anyone to hunt with, where numbers didn't change before or after the clinic. This finding suggests that more could be done to foster connections and potential mentoring opportunities for young adult hunters.

Two barriers actually increased in prevalence following the clinic: lacking free time required to hunt and costs associated with hunting (3.3). This pattern might be attributed to the fact that fewer students were initially aware of (or did not consider) these issues as potential barriers until they learned more about them at the clinic. Future follow-up survey research might help to illustrate if these perceived constraints translated into lower levels of actual hunting participation.

**Table 3.3:** Barriers Reported by College Students Attending Hunting Clinics

Potential Barriers to Hunting	Percentage of Participants Reporting Barrier		Sig Diff?
	Pre-Clinic	Post-Clinic	
Lack knowledge/skills required to hunt	75%	25%	***
Lack knowledge/skills required to prepare meat to eat	48%	13%	***
Don't have anyone to hunt with	44%	44%	
Don't know where I'm allowed to hunt	48%	28%	
Lack knowledge about hunting and firearm laws in SC	33%	9%	***
Lack free time required to hunt	37%	56%	*
Costs associated with hunting (license, equipment, travel)	35%	56%	*
Would rather do other activities	14%	19%	
Don't feel comfortable around other hunters	8%	9%	
Feel personally reluctant to shoot an animal	8%	9%	
Have a moral/ethical objection to hunting	6%	0%	
Don't feel comfortable around firearms	4%	3%	
Lack transportation to get to hunting areas	2%	3%	

Barriers rated as yes/no binary variable\*, \*\*, and \*\*\* denote statistical significant of pre-post paired t-test comparison at  $\alpha = 0.10$ ,  $0.05$ , and  $0.01$ , respectively



### Perceptions of Hunters & Hunting (Before and After Clinic)

College student participants generally expressed positive views of hunting prior to the clinic (Table 3.4), with the highest levels of agreement related to the statements “hunting can be an ethical means to acquire locally sourced meat” (96% agreeing or strongly agreeing), “hunting is a wise use of natural resources” (88%), “hunting provides a direct way to connect with nature and ecosystems” (87%), and “hunting is a safe activity” (81%). Positive views about hunters were slightly less pronounced but still generally supportive with respect to statements like “hunters contribute financially to wildlife conservation” (73% agreeing or strongly agreeing), “hunters care about conserving wildlife and natural resources” (71%), and “hunters behave responsibly and follow hunting laws” (64%).

All of these positive perceptions were strengthened and solidified during the clinic (Table 3.4). For example, after the clinic, 93% agreed or strongly agreed that hunting was a wise use of resources, 87% of participants viewed hunting was a safe activity, 87% of participants thought hunters behaved responsibly, and 87% of participants acknowledged that hunters care about and contribute to conservation. In fact, the only view that did not change significantly following the clinic was the belief that harvesting a trophy motivates hunters.

**Table 3.4.** Mean Ratings for Perceptions of Hunters and Hunting

<b>Statement About Hunting</b>	<b>Pre-clinic (Mean)</b>	<b>Post-Clinic Change</b>	<b>Sig. Diff?</b>
Hunting can be an ethical means to acquire locally sourced meat	4.37	+ 0.30	**
Hunting provides a direct way to connect with nature and ecosystems	4.13	+ 0.47	***
Hunting is a wise use of natural resources	4.10	+ 0.52	***
Hunters contribute financially to wildlife conservation	3.87	+ 0.53	***
Hunters care about conserving wildlife and natural resources	3.77	+ 0.60	***
Hunting is a safe activity	3.80	+ 0.47	***
Hunters behave responsibly and follow hunting laws	3.53	+ 0.70	***
Hunters are motivated by harvesting a trophy	3.00	+ 0.30	

Rated on a scale from 1=Strongly disagree to 5=Strongly agree; Based on pre and post-clinic survey data. \*, \*\*, and \*\*\* denote statistical significant of pre-post paired t-test comparison at  $\alpha = 0.10, 0.05,$  and  $0.01,$  respectively.

### General Feedback Regarding the Clinics

College student participants rated their overall experience in the clinics as very positive, reporting a mean score of 4.77 (on a scale ranging from 1=Very negative to 5=Very positive) and 97% of them said their overall experience was positive or very positive (77% very positive). A majority of students also indicated that each aspect of the clinic was “very good” (Table 3.5), with the highest ratings for items related to instructors’ knowledge and skills and the sessions on cooking and game meat preparation. Most participants also indicated that the skill level of the program, the program length, and the number of participants was about right, with 100%, 97%, and 90% agreeing with each aspect, respectively. College students generally agreed that clinics were effective or very affective in achieving intended goals with respect to

increasing the likelihood of future hunting participation, increasing interest in hunting, and providing participants with skills needed to hunt (Table 3.5). Though generally effective, it appears that there is additional room for growth with respect to three outcomes: building knowledge/skills relating to game meat preparation, increasing knowledge of the roles that hunters play in conservation, and providing opportunities to connect with fellow hunters.

Open-ended questions allowed participants to highlight aspects of the clinics they enjoyed the most as well as opportunities for improvement. College student participants generally loved the array of hands-on activities and appreciated the wealth of new information and knowledge gained from the experience. For students, the most enjoyable aspects of the clinic were cooking and meat preparation (noted by about 53% of participants who responded), and shooting/marksmanship (41%), followed by tracking and blood trailing (34%), tree stand logistics and safety (22%), and learning about hunting laws and regulations (19%). In general, however, most people seemed to enjoy everything. As one participant noted: “All of the sessions were very interesting. I enjoyed myself immensely at all the stations and would do it again. It gave me a basic knowledge of everything!” Another newcomer to hunting highlighted another benefit: “it helped create realistic expectations and images for me – particularly the tracking and scouting session.” Many participants appreciated the culinary connections, a sentiment effectively captured by this comment: “I enjoyed learning how to cook deer meat in tasty recipes!” Others simply enjoyed interacting with people who shared their interest in hunting.

A few participants highlighted aspects of the clinic that they disliked, but a vast majority said things like “don’t change anything” or “honestly, I have no complaints.” The most commonly cited “things liked the least” were inadequate hands on learning opportunities (particularly at the tree stand station) and the absence of an authentic field dressing experience (for one of the clinics, instructors were unable to obtain a recently harvested deer), but only a few participants noted either of these. Several recommendations for future clinics were also noted. Some of the individuals with absolutely no previous hunting experience craved more details and felt the course moved too quickly. As one student noted, “I am brand new to hunting, so I would have liked a little more of the basics covered: times to go, where to go, kinds and types of people I should go with.” Some new hunters felt the discussion of rules and regulations was not comprehensive enough, while others wanted to spend more time testing and trying out gear and learning how to maintain hunting equipment. The most common recommendation was a request for more information about how to find places to hunt in the area. Most college students were relatively new to the area (or at least this particular region of SC), and more information about hunting locations and navigating public/private land issues would have been very helpful. Overall, however, participants had very few complaints or suggestions.

**Table 3.5:** College Student Mean Ratings of Specific Elements of Hunting Clinics

<b>Element of Hunting Clinic</b>	<b>Mean Rating</b>	<b>% Very Good</b>
Instructor's knowledge and experience	4.93	93%
Quality of information/instruction	4.77	77%
Instructors' ability to explain and demonstrate	4.71	77%
Usefulness and practicality of information/instruction	4.67	70%
Amount of information/instruction	4.53	60%
SESSION on cooking meat and preparation	4.80	83%
SESSION on marksmanship	4.71	71%
SESSION on safety & gear	4.65	71%
SESSION on rules & regulations	4.52	65%

Rated on a scale from 1=Very poor to 5=Very good; based on post-clinic survey data

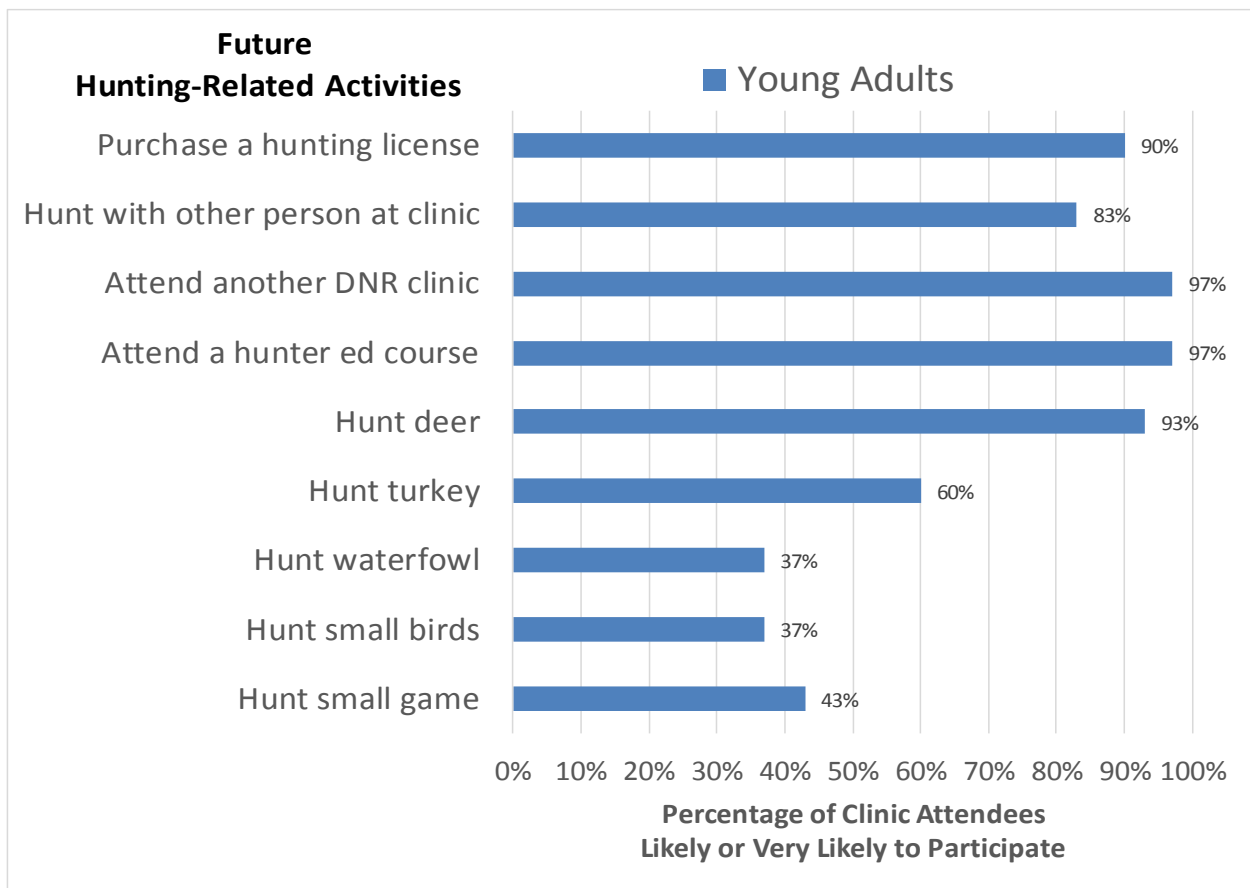
**Table 3.6:** Mean Ratings of Hunting Clinics' Efficacy in Achieving Various Intended Outcomes

<b>Intended Outcome of Hunting Clinic</b>	<b>Mean Rating</b>	<b>% Very Effective</b>
Increasing YOUR interest in hunting	3.72	72%
Providing students with the skills and knowledge needed to hunt safely	3.71	71%
Helping you facilitate hunting with family and friends	3.44	60%
Providing opportunities for you to meet and connect with fellow hunters	3.22	44%
Providing students with the skills and knowledge needed to prepare game meat	3.13	33%
Increasing your knowledge of the roles hunters play in conservation	3.09	38%

Rated on a scale from 1=Not at all effective to 4=Very effective; Based on post-clinic survey data.

A majority of participants indicated that their hunting participation was likely or very likely to increase as a result of attending the clinic (Figure 3.3). For example, 90% said they would purchase a hunting license, 97% said they would be interested in attending another DNR hunting clinic, and 97% said they would be interested in taking a

hunter education course. About 93% of participants said they would likely hunt deer following the clinic. The discrepancy between the number of students that said they would hunt deer and those that said they would buy a license could indicate that some students already had a hunting license for that year or that some new hunters misunderstood license requirements (and implications associated with poaching). About 83% of participants said they were likely to go on some type of a hunt with one of their fellow clinic attendees. These intentions with respect to future hunting participation could potentially be tested with the follow-up surveys.



**Figure 3.1:** Percentage of College Clinic Participants Likely or Very Likely to Engage in Various Hunting-related Activities Following the Clemson Hunting Clinic.

## Discussion

Anecdotal evidence suggests that every dollar invested in youth hunter recruitment at the expense of millennial recruitment is a dollar wasted (Responsive Management, 2017). This study supports that assertion, demonstrating the great potential of R3 programs geared towards college students. Our college student clinics were well received, with student participants reporting very high approval ratings (4.77 out of 5). In addition to providing a source of fun and enjoyment, the clinics also appeared to achieve many of their desired goals with respect to influencing college students' beliefs, attitudes, and behaviors with respect to hunting. In short, it appeared that these R3 clinics were indeed a viable mechanism for recruiting and retaining young adult hunters.

Clinics attracted a number of non-hunters (only 23% of attendees had previous hunting experience). About half of these participants were female, and many came from majors outside of natural resources. This highlights the growth in young female hunters that has been observed in other parts of the country – and an opportunity to expand the base of future female hunters (Metcalf et al., 2015). Research shows that capitalizing on emerging women hunters could help with recruitment efforts for further clinics (Responsive Management, 2017).

Overall, most students attending the clinic said that the experience increased their interest in hunting, their hunting-related knowledge and skills, and their likelihood of hunting in the future. In fact, 90% of participants said they were likely to purchase a hunting license following the clinic, and 72% said the clinic very effectively increased their interest in hunting. This indicates that the clinics are successful at helping students

move from the entry phase of the hunting adoption model into the socialization stage, but further opportunities like mentored hunts are needed to ensure that new hunters continue to progress and develop an identity as a hunter that leads to long-term retention (Larson et al., 2014; Responsive Management, 2017). Future longitudinal research that explores actual hunting participation of clinic participants in years following the program itself should explore this possibility.

Clinics produced significant gains in participants' confidence with respect to every hunting-related skill that was assessed. Pre-existing positive perceptions of hunting were also reinforced by the clinics, with the biggest positive change coming in how hunters are viewed. Although participants did recognize more concrete links between hunting and conservation after the clinics, they also indicated the clinics were not particularly effective when it came to highlighting those connections. This underscores the importance of effectively communicating about hunting with new hunters or non-hunters to avoid misperceptions (Peterson et al., 2009) and highlight the broader benefits of hunting that might be of interest (Decker et al., 2015; Larson et al., 2014). For example, many participants expressed interests related to natural resource conservation, and several indicated that more information on that topic would be beneficial. Focusing on recruiting participants using a recent wave of books and articles portraying hunting as an ecological and civic responsibility could help create more positive conceptualizations about hunters and hunting, which would in turn help create an emerging concept of hunting that appeals to a more diverse audience of potential hunters (Decker et al., 2015;



Responsive Management, 2017). Future clinics could leverage these assets and spend more time highlighting connections between hunting and conservation.

If recruiting efforts are going to be fruitful, it is important to know what motivates prospective hunters. The most important hunting motivations among college students were to have fun, to seek a new adventure, and to challenge outdoor skills and abilities. These motives – coupled with high levels of engagement in other forms of outdoor recreation among participants - underscore college students' desire to experience new and exciting challenges in the outdoors (Agahi et al, 2006; Raver, 2009). In this context, hunting can be particularly alluring. Such findings also highlight another potentially rich pool for recruiting new hunters: outdoor recreation programs (e.g., Clemson Outdoor Recreation and Education, Leisure Skills courses). By learning more about participant motivations for coming to R3 programming, prior to the program, programs might be able to focus on certain areas which will help usher students into the active hunter phase by better satisfying their pre-determined motivational goals (Responsive Management, 2017).

The most significant barriers to college student hunting before the clinics were inadequate hunting-related knowledge and skills. These, coupled with other logical barriers that emerged in our study (e.g., lack of free time) are common barriers to hunting noted by many non-hunters (Quartuch et al., 2017). The clinic helped in these areas, and it also helped participants understand more about hunting rules and regulations (minimizing another prominent barrier). However, the clinic didn't help much with respect to 2 items: not knowing where to hunt and not having anyone to hunt with. Future

clinics could address these issues by providing more information about places to hunt and more opportunities to connect with fellow hunters (especially for new hunters seeking mentors), and evidence suggests that it is important to focus on a social support structure and expanding mentorships to sustain hunting participation (Responsive Management, 2017) . Offering some form of training before the clinic delivered via online presentation might be an effective way to start addressing inadequate knowledge before the clinic while not increasing location, budget, or time constraints (Responsive Management, 2017). For many new hunters, the course moved very quickly. Some participants requested a slower-paced session with more information and specifics about topics such as optimal hunting strategies, places to go hunting, rules and regulations, different types of equipment and maintenance recommendations, and field dressing game. Placing a greater emphasis on where to hunt would greatly improve the clinics, as research shows that prospective new hunters lack of awareness of access points or routes and trails to public hunting lands, as well as their perception that public lands are not accessible to hunting, are all issues that could be addressed through education during the clinic (Responsive Management, 2017).

It is also important to consider that psychological constraints like being uncomfortable around firearms or other hunters t can be as substantial a barrier as actual physical constraints when it comes to preventing participation,. Future programs must take into consideration that it is not enough to only address physical and logistical aspects of hunting if participants have psychological constraints that are still present (Responsive Management, 2017).

While college student participants enjoyed all aspects of the clinic, it was the session focused on cooking and meat preparation that drew the most positive reviews. Obtaining meat to eat was also among the most popular motivations for hunting among students, a finding that aligns well with the growing emphasis on locavore hunters and this notion is supported by the success some agencies are having with recruiting locavores in certain communities (Responsive Management, 2017). Although, other researchers have found support for food-related hunting initiative programs is unlikely to significantly impact the trend of license sales (Stedman et al., in press), but this doesn't mean there aren't benefits to recruiting "foodies." Even if an emphasis on local food does not generate new hunters, it has the capacity to positively influence support for hunting and perceptions of hunting within the non-hunting community (Larson et al., 2014; Stedman et al., in press) It also appears that there is additional room for growth in clinic design and implementation with respect to knowledge/skills relating to game meat preparation, as other programs have shown more substantial growth in this area (Responsive Management, 2017).

Recruiting efforts for future clinics should continue to go through email chains associated with different departments. The administrative assistants in each department are more than willing to send out recruiting emails to thousands of undergrads at a time. Recruiting through student organizations like Ducks Unlimited, Quality Deer Management Association, Fly Fishing Club, The Wildlife Society etc. was quite productive and should continue in the future.

Collectively, these data suggest that the R3 clinics targeting college students are functioning as designed and are indeed serving as a tool for recruiting new pools of potential hunters. Marketing and recruiting strategies that seemed to promote this diversity and enthusiasm included targeting the list-serves' of different campus departments (administrative assistants typically manage those lists) and working through student organizations focused on hunting and fishing (e.g., Ducks Unlimited, Quality Deer Management Association, The Wildlife Society), whose members can then reach out to their peers. Keeping in frequent contact with students helping to organize future events is imperative for their successful implementation, for the behavior of college students is often heavily shaped by peer and social influences (Raymore et al., 2001). Research shows that utilizing the excitement of fellow new hunters can be extremely effective for recruiting program participants. The agencies having the most success with their R3 clinics say they communicate regularly with their customer base through emails, social media, and blogs to give timely stories, information, and updates on topics of interest (Responsive Management, 2017).

### Conclusion

This study demonstrates that, as hypothesized, many college students are readily receptive to R3 efforts and they are willing to attend hunting programs if those programs are offered to them. Not only is this age group receptive to recruiting efforts, but they also tend to be more diverse than some other demographic groups that R3 initiatives have targeted, particularly when it comes to females and individuals from non-hunting

backgrounds. As marketing efforts for these programs expands, enthusiasm should be reinforced as hunting-related themes slowly permeate more peer-to-peer interactions on campus. If organizations and agencies continue to improve programs focused on helping college students develop the skills and experiences they need to self-identify as hunters, then it is more likely these people will continue hunting for life. To save hunting in America, it is essential to cultivate a new cohort of young adults that is interested in hunting. Programs like the R3 clinics evaluated in this study have the capacity to do just that. A unified national effort to expand similar programs, perhaps even integrating hunting programs for college credit, may be one of the most effective strategies for creating a new generation of Americans ready to honor our nation's hunting heritage and work to conserve wild ecosystems through participation instead of protection.

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## CHAPTER FOUR

### Conclusion, Management Implications, and Future Research

Our results indicate that many college students like to hunt, and many who don't currently hunt would like to try it. These patterns are also reflected in the immense popularity of the hunting, shooting, and archery classes offered to undergraduates at both institutions, which increasingly attract a wide range of diverse participants (including large numbers of women and first-time hunters). Second, although rationales may shift and vary depending on individual beliefs and backgrounds, college students are generally supportive of hunting.

In many cases this support focuses more hunting food and conservation-related purposes than recreation or sport. Even if students do not hunt in the future, strategic education and outreach efforts (including those linked to formal college curricula) that highlight the multiple benefits of hunting could help these students become hunting associates or advocates. Ultimately, this could increase public interest and investment in wildlife management and conservation. Finally, our data suggest that colleges and universities provide a deep pool of potential hunters and could be a target-rich environment for hunting-related marketing and programming that capitalizes on social influence and peer interactions. Future work should explore this potential in different geographical regions and contexts (e.g., smaller schools, private schools). With growing concerns about the future of hunting and limited resources to support R3 efforts, college campuses might be a great place to start.



This study also demonstrates that, as hypothesized, many college students are readily receptive to R3 efforts and they are willing to attend hunting programs if those programs are offered to them. Not only is this age group receptive to recruiting efforts, but they also tend to be more diverse than some other demographic groups that R3 initiatives have targeted, particularly when it comes to females and individuals from non-hunting backgrounds. As marketing efforts for these programs expands, enthusiasm should be reinforced as hunting-related themes slowly permeate more peer-to-peer interactions on campus. If organizations and agencies continue to improve programs focused on helping college students develop the skills and experiences they need to self-identify as hunters, then it is more likely these people will continue hunting for life. To save hunting in America, it is essential to cultivate a new cohort of young adults that is interested in hunting. Programs like the R3 clinics evaluated in this study have the capacity to do just that. A unified national effort to expand similar programs, perhaps even integrating hunting programs for college credit, may be one of the most effective strategies for creating a new generation of Americans ready to honor our nation's hunting heritage and work to conserve wild ecosystems through participation instead of protection.

The clinic for college students did attract a number of non-hunters (only 14% of attendees had previous hunting experience), and many of these participants were from a diverse background. Recruiting efforts for future clinics should continue to go through email chains associated with different departments. The administrative assistants in each department are more than willing to send out recruiting emails to thousands of

undergrads at a time. Recruiting through student organizations like Ducks Unlimited, Quality Deer Management Association, Fly Fishing Club, The Wildlife Society etc. was quite productive and should continue in the future.

Clinics produced significant gains in participants' confidence with respect to every hunting-related skill that was assessed, but some areas received noticeably higher scores than other areas. Perhaps creating a PowerPoint, or online program focused on the role hunting plays in conservation, public land access in South Carolina, and hunting regulations could fill in the gaps of what the clinics don't have as much time to focus on in person.

College students were generally less motivated to hunt than the youth and adults who attended the youth hunting clinics. The most important hunting motivations among college students were having fun and experiencing a new adventure, conservation, challenging skills and abilities, and connecting to local food sources. This indicates that many of the students interested in hunting are students that are already spending a lot of time doing other outdoor recreation activities like fishing, hiking, camping, and paddling. Working with Clemson University's CORE (Clemson Outdoor Recreation Education) program and the PRTM Leisure Skills department could be fruitful in terms of recruiting students ready to commit to becoming a hunter if they can be recruited to attend a clinic.

The most significant barrier to college student hunting (reported by 75% of respondents) was a "lack of hunting knowledge and skills." Other barriers included lack of free time, not having anyone to hunt with, uncertainty regarding meat preparation, and inadequate knowledge about hunting laws/regulations and where to go to hunt. The

hunting clinic can help in almost all of these areas. College students' generally positive perceptions of hunters were reinforced by the clinics.

The clinic was very well received by attendees, and better preparing students for the clinic with more in depth information to read ahead of time if they're interested, but leaving them the option of reading it avoids the clinics time commitment from becoming a burden. For most participants, the clinic increased their interest in hunting and their likelihood of future hunting participation.

In order to further validate the results of this project, there is a need to expand scope to other universities in geographically diverse locations. Collecting input from a larger sample size and a more statistically proportionate group of non-hunters to mitigate potential sampling bias could also be beneficial to future research. Expanding research also provides the opportunity for more advanced statistical analysis that could help gain better understanding of non-hunters who might consider hunting and those who wouldn't. Improving and refining scales and supplement self-reported data used in clinic evaluations could also provide more accurate results and future researchers could consider other pathways into hunting (e.g., hunting with dogs, small game vs. deer), explore the need for long-term follow-up research, and perhaps even implement qualitative research to dig in more deeply and tell the stories that go along with the data.

## Appendix A

### **Perspectives on Hunting & Wildlife Conservation**

Our team of researchers at Clemson University is working with the South Carolina Department of Natural Resources to learn more about college students' beliefs about hunting and wildlife conservation. **Whether or not you hunt (or even if you have no interest in hunting), your answers will help us to understand general perceptions and identify hunting-related barriers and opportunities.** Your participation in this study is voluntary, but we sincerely hope you will take a few minutes to answer our questions. All of your responses will be kept completely confidential, and the information you provide will never be associated with your name. Thank you for your help!

#### **Section 1: Your Previous Experience with Hunters and Hunting**

**1. Do any of the following people in your life hunt? (Check ALL that apply.)**

- |  |                                       |
|--|---------------------------------------|
| <input type="checkbox"/> Father  | <input type="checkbox"/> Mother       |
| <input type="checkbox"/> Brother/sister                                  | <input type="checkbox"/> Grandparent  |
| <input type="checkbox"/> Other family member (uncle, aunt, cousin, etc.) |                                       |
| <input type="checkbox"/> Friends   | <input type="checkbox"/> Other: _____ |

**2. How often do you participate in the following activities related to hunting?**  
(Circle ONE response for each item.)DD

	Never	Rarely	Some- times	Often	Very Often
Watch TV shows or videos about hunting	1	2	3	4	5
Play video games about hunting	1	2	3	4	5
Read websites, blogs, or social media (Facebook) posts about hunting	1	2	3	4	5
Read magazines about hunting	1	2	3	4	5
Talk to family and friends about hunting	1	2	3	4	5
Eat game meat obtained through hunting	1	2	3	4	5
Help process or prepare wild game meat to eat (field dress, cut/package, or cook game)	1	2	3	4	5
Recreational Shooting	1	2	3	4	5
Archery	1	2	3	4	5

**3. Have you ever been hunting?** (*Check ONE response.*)

- Yes                       I have accompanied someone hunting, but did not personally hunt.  
 No (*If you have NEVER been hunting, skip to Question #8.*)

*If you HAVE been hunting yourself or if you have accompanied someone hunting, continue with Question #4. If you have not, please skip to Question #8...*

**4. How many times have you gone hunting in the last 12 months?**

\_\_\_\_\_ separate hunting trips in the last 12 months

**5. How has your participation in hunting changed since you started college?**

- Decreased                       Stayed about the same                       Increased

**6. Which of the following types of animals, if any, have you harvested at some point in your life?** (*Check ALL that apply. If you have NEVER harvested game, move on without checking a box.*)

- Deer                       Upland birds (quail, pheasants, etc)                       Furbearers  
(coyotes, foxes, etc.)                       Turkey                       Small game (rabbits, squirrels, etc.)  
 Feral hog  
 Waterfowl                       Other (please specify):

**7. Where do you typically hunt** (*Check ALL that apply.*)

- Private land owned by family or friends  
 Other private land (hunting clubs, leases, lands with permission to hunt, etc.)  
 Public land (State WMA's, BLM Land, National Forest Land, etc.)  
 Other (specify):

*If you HAVE been hunting before, please continue. If you have NEVER been hunting before, begin answering questions again below...*

**8. Have any of the following factors been a barrier to your hunting participation (or a reason you do not hunt)?** *(Circle ONE response for each item.)*

	<b>Not a barrier</b>	<b>Minor Barrier</b>	<b>Major Barrier</b>
Would rather do other activities	1	2	3
Lack the free time required to go hunting	1	2	3
Don't have anyone to go hunting with	1	2	3
Lack of available hunting land where I currently live	1	2	3
Moved away from the area I typically hunt to attend college	1	2	3
Lack transportation to get to hunting areas	1	2	3
Lack knowledge/skills required to hunt	1	2	3
Lack knowledge/skills required to prepare game meat to eat	1	2	3
Lack knowledge about hunting and firearm laws	1	2	3
Costs associated with hunting (licenses, tags, equipment, firearms, travel, etc.)	1	2	3
Have not completed a hunter education course	1	2	3

**9. Have any of these additional factors been a barrier to your hunting participation (or a reason you do not hunt)?** *(Circle ONE response for each item.)*

	<b>Not a barrier</b>	<b>Minor Barrier</b>	<b>Major Barrier</b>
Have moral/ethical objections to hunting	1	2	3
Reluctant to personally kill an animal	1	2	3
Don't feel comfortable around firearms	1	2	3
Don't feel comfortable around hunters and hunting culture	1	2	3
Worried non-hunting friends and family may judge me	1	2	3
Feel discouraged or frightened by negative experiences I've had in the outdoors	1	2	3
Don't feel comfortable due to the lack of racial and ethnic diversity associated with hunting	1	2	3
Other (please describe): _____	1	2	3

**10. How likely are you to hunt in the future? (Check ONE response.)**

- I would never hunt
- I would consider hunting
- I plan to hunt occasionally (at least once every few years)
- I plan to hunt regularly (multiple times per year)

**Section 2: Your Attitudes about Hunters and Hunting**

**11. Please indicate the extent to which you disapprove or approve of legal, regulated hunting in general? (Check ONE response)**

- Strongly disapprove
- Moderately disapprove
- Neither Approve nor disapprove
- Moderately approve
- Strongly approve

**12. People hunt for a variety of reasons. First, (1) indicate whether you disapprove or approve of hunting for the following purposes. Then, to the right, (2) indicate how likely YOU would be to hunt for those same purposes. (Circle TWO responses for each item.)**

	<b>(1) Do you approve of hunting for this purpose?</b>			<b>(2) Would YOU hunt for this purpose?</b>		
	<b>Disapprove</b>	<b>Neutral</b>	<b>Approve</b>	<b>No</b>	<b>Maybe</b>	<b>Yes</b>
To engage in sport and/or recreation	1	2	3	1	2	3
To relax or escape from everyday life	1	2	3	1	2	3
To be closer to nature and the outdoors	1	2	3	1	2	3
To harvest a trophy animal	1	2	3	1	2	3
To spend time with family and friends	1	2	3	1	2	3
To seek a new adventure	1	2	3	1	2	3
To obtain local, free-range meat	1	2	3	1	2	3
To control wildlife populations that are causing problems for people	1	2	3	1	2	3
To control wildlife populations that are damaging ecosystems	1	2	3	1	2	3

**13. How do you feel about the following statements related to hunting and hunters?**  
*(Circle ONE response for each item.)*

<b>z</b>	<b>Strongly disagree</b>	<b>Disagree</b>	<b>Neutral</b>	<b>Agree</b>	<b>Strongly agree</b>
Hunting is a safe activity.	1	2	3	4	5
Hunting is a wise use of natural resources	1	2	3	4	5
Hunters behave responsibly and follow hunting laws	1	2	3	4	5
Hunters care about conserving wildlife and natural resources	1	2	3	4	5
Hunting can be an ethical means to acquire locally sourced meat	1	2	3	4	5
Hunting provides a direct way to connect to nature and ecosystems	1	2	3	4	5
Hunters financially contribute to wildlife conservation	1	2	3	4	5
Hunting is acceptable even when it does not benefit wildlife or other people	1	2	3	4	5
Hunters are motivated by harvesting a trophy	1	2	3	4	5



### **Section 3: Your Beliefs about Wildlife Conservation**

#### **14. How do you feel about the following statements related to wildlife conservation?**

*(Circle ONE response for each item.)*

<b>z</b>	<b>Strongly disagree</b>	<b>Disagree</b>	<b>Neutral</b>	<b>Agree</b>	<b>Strongly agree</b>
Wildlife conservation is very important to me	1	2	3	4	5
Wildlife conservation and habitat protection should be one of society's highest priorities	1	2	3	4	5
Wildlife should be conserved for future generations	1	2	3	4	5
Hunters care about conserving wildlife and natural resources	1	2	3	4	5
I am willing to voluntarily spend my own money on wildlife conservation	1	2	3	4	5
Access to public land for hunting and other types of wildlife recreation is important to me	1	2	3	4	5

**15. Would you oppose or support the following potential strategies to help fund wildlife conservation?** (Circle ONE response for each item.)

Potential strategy for helping to fund wildlife conservation:	Strongly Oppose	Oppose	Neutral	Support	Strongly Support
Additional sales (or excise) tax on hunting and fishing equipment purchases ( <i>guns, ammunition, rods and reels, tackle, etc.</i> )	1	2	3	4	5
Additional sales (or excise) tax on other types of outdoor recreation equipment purchases ( <i>hiking gear, tents, kayaks, bikes, binoculars, etc.</i> )	1	2	3	4	5
Rounding outdoor recreation equipment purchases to the nearest dollar, with that spare change supporting conservation	1	2	3	4	5
Requiring outdoor recreation outfitters ( <i>Cabela's, Bass Pros Shops, REI, etc.</i> ) to contribute a portion of their annual revenue to conservation	1	2	3	4	5
Requiring companies that profit from natural resource extraction ( <i>oil/gas, timber, mining, etc.</i> ) to contribute a portion of their annual revenue to conservation	1	2	3	4	5
Permitting the regulated sale of legally harvested game meat, with proceeds supporting conservation	1	2	3	4	5

**16. Do you belong to any of the following organizations?** (Check ALL that apply.)

- Hunting or wildlife conservation organizations  
(*Ducks Unlimited, Rocky Mountain Elk Foundation, etc.*)
- Other environmental or nature-based organizations  
(*The Nature Conservancy, The Audubon Society, Sierra Club, etc.*)
- I am not a member of any hunting, conservation, or environmental organizations

#### **Section 4: Demographic Information**

**17. Which of the following outdoor recreation or nature-based activities do you participate in?**

*(Check ALL that apply.)*

- |   |  |   |
|---|--|---|
| <input type="checkbox"/> Adventure sports<br><i>(climbing, surfing, etc.)</i> | <input type="checkbox"/> Driving ATVs    | <input type="checkbox"/> Motor boating                  |
| <input type="checkbox"/> Bird watching  | <input type="checkbox"/> Fishing         | <input type="checkbox"/> Swimming                       |
| <input type="checkbox"/> Camping  | <input type="checkbox"/> Hiking/walking  | <input type="checkbox"/> Wildlife viewing/photography   |
| <input type="checkbox"/> Canoeing/kayaking                                    | <input type="checkbox"/> Jogging/running | <input type="checkbox"/> Other ( <i>specify</i> ) _____ |

**18. What is your college major or field of study?**

\_\_\_\_\_

**19. In what year were you born? Year: \_\_\_\_\_**

**20. What is your gender?     Female         Male**

**21. Which of the following best describes your racial/ethnic background? (*Check ALL that apply.*)**

- |  |  |
|--|--|
| <input type="checkbox"/> White                     | <input type="checkbox"/> Asian           |
| <input type="checkbox"/> Hispanic/Latino           | <input type="checkbox"/> Native American |
| <input type="checkbox"/> Black or African American | <input type="checkbox"/> Other: _____    |

**22. How would you best describe the area where you grew up? (*Check ONE response.*)**

- |   |
|---|
| <input type="checkbox"/> A large city or urban area (more than 50,000 people) |
| <input type="checkbox"/> A small city or town (10,000 to 50,000 people)       |
| <input type="checkbox"/> A rural area (10,000 people or less)                 |
| <input type="checkbox"/> Other (describe): _____                              |

**23. Are you interested in learning more about hunting opportunities through instructional hunting clinics and/or mentored hunting programs for beginners?**

*(Check ONE response.)*

- |  |  |  |
|--|--|--|
| <input type="checkbox"/> Not at all interested | <input type="checkbox"/> Somewhat interested | <input type="checkbox"/> Very interested |
|--|--|--|

\*For additional information about these opportunities, please provide your email address below:

## Appendix B

**Title:**

Students' Beliefs about Conservation: Implications for the Future

**Authors:**

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**Abstract:**

Contemporary demographic and cultural shifts are presenting substantial challenges to America's current system of wildlife conservation. Regulated hunting has long been a centerpiece of this system, but hunting participation has been declining for decades. These trends have produced a management crisis, increasing pressure on wildlife professionals and policy-makers to devise innovative solutions.

Young adults, who represent the outdoor recreationists and conservationists of the future, are a critical piece of this puzzle. To better understand their beliefs about and support for hunting and conservation, we surveyed a randomly selected group of 5,101 undergraduate students at two major land grant universities during spring 2016. We found that 72% of students moderately or strongly approved of legal, regulated hunting, including 55% of non-hunters. Approval ratings were highest when hunting was conducted for conservation (controlling wildlife damaging ecosystems) or civic-oriented (controlling wildlife causing problems for people) purposes, followed by obtaining local meat. Both groups expressed general support for wildlife based on the "conservation caring" scale, with hunters scoring slightly higher than non-hunters. About 58% of respondents acknowledged that hunting provides financial contributions to wildlife conservation. This number was much higher among hunters (81%) than non-hunters (42%).

Hunters and non-hunters displayed similar patterns of support for various hypothetical conservation funding strategies. Strongest support was observed for "requiring companies

that profit from natural resource extraction to contribute a portion of their annual revenue to conservation” (73% support), “rounding outdoor recreation equipment purchases to the nearest dollar with spare change supporting conservation” (65%), and “requiring outdoor recreation outfitters to contribute a portion of their annual revenue to conservation (58%). Strongest opposition was observed for any tax increase, including additional taxes on general outdoor recreation equipment (45% oppose) and hunting/fishing equipment (19%). Result align with the Blue Ribbon Panel on Sustaining America’s Diverse Fish & Wildlife Resources (2016) recommendations for dedicating revenues from energy development on federal lands to support conservation and transforming programs and agencies to engage broader constituencies (e.g., non-consumptive recreationists). College students appear ready to embrace these directives and help chart a new course for wildlife conservation in the United States. Will policy-makers follow?

**Presentation Format: Individual Abstract (poster preferred)**

**Related Topics/Themes:**

**The changing nature of wildlife conservation**

**Changing demographic and fish and wildlife management**

**Communication and education**

## Appendix C

### Adult Deer Clinic

**From choosing a rifle to placing the meat on your plate, our clinic covers every basic element of deer hunting.**

**Date:** 14 Nov 2015

**Time:** 9:00 am until 1:30 pm

**Location:** Clemson Rifle range

9:00 am	WELCOME	Please sign in at the registration table
9:10-9:55 am	A B C D	Wild Meats, Good Eats: Venison Marksmanship Safety and the gear to go with it Know before you go
10:00-10:45	B C D A	Wild Meats, Good Eats: Venison Marksmanship Safety and the gear to go with it Know before you go
10:50-11:35	C D A B	Wild Meats, Good Eats: Venison Marksmanship Safety and the gear to go with it Know before you go
11:40-12:25	D A B C D	Wild Meats, Good Eats: Venison Marksmanship Safety and the gear to go with it Know before you go
12:30-1:00	lunch	Followed by a group session proper game care and dressing.

## Appendix D

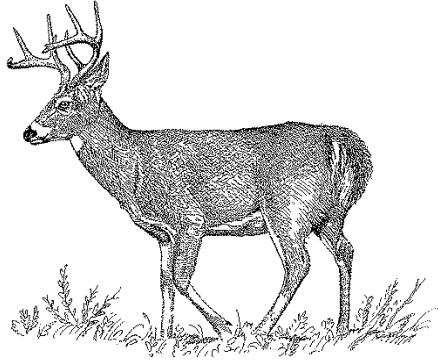
# ***Deer Hunting for Beginners: Pre-Program Participant Survey***



### **Introduction and Instructions**

Before we begin the clinic, we'd like to learn more about you and your views towards hunting; we'll be asking some similar questions at the end of the program. Your responses will help us improve future clinics and gain a better understanding of the motivations driving first time hunters. Thanks in advance for your participation.

**Although we need you to provide your contact information for clinic registration purposes, all of your responses will be kept completely confidential. No data collected will ever be associated with your name.**



**Background Information**

**Your Name:**

\_\_\_\_\_

\_\_\_\_\_ *First* \_\_\_\_\_ *Last*

**Your Address:**

\_\_\_\_\_

*ZIP* \_\_\_\_\_ *Street* \_\_\_\_\_ *City* \_\_\_\_\_ *State* \_\_\_\_\_

**Your Phone Number:** \_\_\_\_\_

**Your Email Address:**

\_\_\_\_\_

**Which of the following best describes your current academic standing/position:**

- Undergraduate student     Graduate student     Other (please specify): \_\_\_\_\_

**Hunting Experience**

**1. Have you ever been hunting before? (Check one.)**

- Yes                                       I have accompanied someone hunting, but did not personally hunt.
- No (*Skip to Question 2.*)

**1a. About how many years have you been hunting? \_\_\_\_\_ years**

**1b. Approximately how many times have you gone hunting in the last 12 months? \_\_\_\_\_ times**



**1c. Which of the following types of animals, if any, have you harvested?  
(Check ALL that apply.)**

- |                                    |  |
|------------------------------------|--|
| <input type="checkbox"/> Deer      | <input type="checkbox"/> Small birds (dove, quail, etc.)       |
| <input type="checkbox"/> Turkey    | <input type="checkbox"/> Small game (rabbits, squirrels, etc.) |
| <input type="checkbox"/> Waterfowl | <input type="checkbox"/> Other: _____                          |

**2. Do any of the following people in your life hunt? (Check ALL that apply.)**

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Father            | <input type="checkbox"/> Grandparent    | <input type="checkbox"/> Close friends                      |
| <input type="checkbox"/> Mother            | <input type="checkbox"/> Other relative | <input type="checkbox"/> Other person (write answer below): |
| <input type="checkbox"/> Brother or Sister | (Aunt/uncle, cousin, etc.)              | _____   |

**3. Have any of the following been a barrier to your previous hunting participation?  
(Check ALL that apply.)**

- Would rather do other activities
- Lack free time required to hunt
- Lack knowledge/skills required to hunt
- Don't have anyone to hunt with
- Lack knowledge/skills required to prepare game meat to eat
- Lack of knowledge about hunting and firearm laws in South Carolina
- Lack transportation to get to hunting areas
- Don't know where I'm allowed to hunt
- Costs associated with hunting (license, equipment, travel, etc.)
- Don't feel comfortable around firearms
- Don't feel comfortable around other hunters
- Worried that non-hunting family and friends may judge me
- Had a moral/ethical objection to hunting
- Felt reluctant to personally kill an animal

**4. How often do you participate in the following activities related to hunting?**

*(Circle ONE response for each item.)*

	Never	Rarely	Often	Very often
Watch TV shows or videos about hunting	1	2	4	5
Play video games about hunting	1	2	4	5
View websites, blogs, or social media about hunting (YouTube, Facebook, etc.)	1	2	4	5
Read magazines about hunting	1	2	4	5
Talk to family and friends about hunting	1	2	4	5
Eat game meat obtained through hunting	1	2	4	5
Target shooting	1	2	4	5
Archery	1	2	4	5

**5. How confident do you feel about your skills and knowledge in the following areas?**

*(Circle ONE response for each item.)*

	Not at all confident	Slightly confident	Somewhat confident	Confident	Extremely confident
Firearm safety	1	2	3	4	5
Shooting skills	1	2	3	4	5
Hunting regulations (seasons, license requirements, etc.)	1	2	3	4	5
Choosing the right hunting gear	1	2	3	4	5
Scouting and selecting good hunting spots	1	2	3	4	5
Ethical shot placement	1	2	3	4	5
Field recovery of game	1	2	3	4	5
Field dressing wild game	1	2	3	4	5
Butchering and preserving game meat	1	2	3	4	5
Cooking harvested game meat	1	2	3	4	5

**7. How do you feel about the following statements related to hunting and hunters?**  
*(Circle ONE response for each item.)*

	<b>Strongly disagree</b>	<b>Disagree</b>	<b>Not sure</b>	<b>Agree</b>	<b>Strongly agree</b>
Hunting is a safe activity.	1	2	3	4	5
Hunting is a wise use of natural resources.	1	2	3	4	5
Hunters behave responsibly and follow hunting laws.	1	2	3	4	5
Hunters care about conserving wildlife and natural resources.	1	2	3	4	5
Hunting can be an ethical means to acquire locally sourced meat.	1	2	3	4	5
Hunting provides a direct way to connect with nature and ecosystems	1	2	3	4	5
Hunters contribute to wildlife conservation.	1	2	3	4	5
Hunting is acceptable even when it does not benefit wildlife or other people.	1	2	3	4	5
Hunters are motivated by harvesting a trophy.	1	2	3	4	5

**8. How important to you is each of the following reasons to hunt?**  
*(Circle ONE response for each item.)*

	<b>Not at all important</b>	<b>Slightly important</b>	<b>Moderately important</b>	<b>Very important</b>
To learn about animals and their habitat	1	2	3	4
To be closer to nature	1	2	3	4
To spend time with family and friends	1	2	3	4
To obtain meat to eat	1	2	3	4
To test and challenge my outdoor skills	1	2	3	4
To help reduce wildlife populations causing problems for people and natural ecosystems	1	2	3	4
To use my hunting equipment	1	2	3	4
To connect more closely to sources of food	1	2	3	4
To seek a new adventure	1	2	3	4
To harvest a trophy animal	1	2	3	4
To contribute to wildlife conservation	1	2	3	4
To have fun	1	2	3	4

**Other Recreation Activities**

**9. What other outdoor-recreation activities do you participate in, if any?** *(Check ALL that apply.)*

- Backpacking
- Mountain Biking
- Bird watching
- Rock Climbing
- Camping
- Skiing/snowboarding
- Fishing
- Wildlife Viewing/Photography
- Hiking
- Other: \_\_\_\_\_
- Kayaking/canoeing

**10. What cooking or food sourcing activities do you participate in, if any?** *(Check ALL that apply.)*

- Edible Gardening
- Foraging
- Cooking classes
- Shopping at farmers markets

**11. Do you belong to any conservation-oriented organizations (e.g., Nature Conservancy, Ducks Unlimited, Sierra Club)?** *(Please list ALL that apply.)*

---

---

**Demographic Background**

**12. Age:** \_\_\_\_\_ years

**13. Gender:**  Male  Female

**14. What best describes the area where you grew up?** *(Check only one answer)*

- A large city or urban area
- A rural area, not on a farm
- A small city or town
- A rural area, on a farm
- Other: \_\_\_\_\_

**15. What is the highest level of education you have completed?** *(Check only one answer.)*

- High school graduate or equivalent
- Associate degree or trade school degree
- Bachelor's degree
- Advanced degree (e.g., M.S., Ph.D.)

**16. Which of the following best describes your racial/ethnic background?** (*Check ALL that apply.*)

White  
American  
 Asian

Black or African American  
 Hispanic/Latino

Native  
 Other

---

*Thank you for participating in our program and for taking the time to complete this questionnaire.*

## Appendix E

# ***Deer Hunting for Beginners Post-Program Participant Survey***

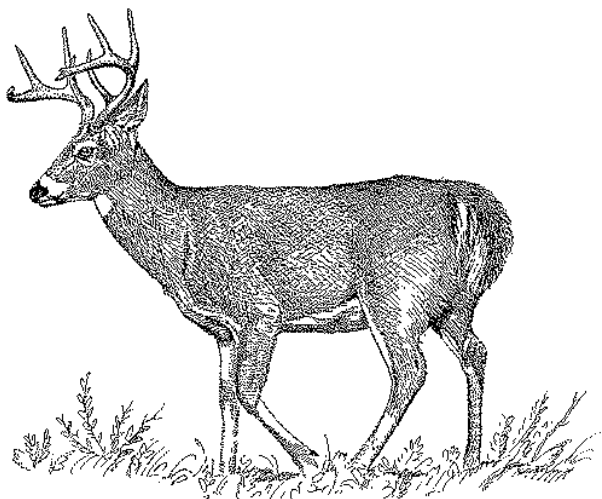


### **Instructions**

Thank you for participating in our *Deer Hunting for Beginners* clinic. We'd like to ask a few questions to evaluate how this clinic shaped your perception of and interest in hunting. Your responses will help us improve future clinics and gain a better understanding of the motivations driving first time hunters.

Thanks in advance for your participation.

**All of your responses will be kept completely confidential.  
No data collected will ever be associated with your name.**



**Name:**

---

**1. Overall, how would you rate your experience during today's hunting clinic?**

Very negative    Negative    Neutral    Positive    Very positive

**2. Would you say the length of the program was...**

- Too long     About right     Too short

**3. Would you say the number of participants in the program was....**

- Too many     About right     Too few

**4. Would you say the skill level of the program was...?**

- Too advanced     About right     Too novice

**2. How would you rate each of the following aspects of today's hunting clinic?**

*(Circle ONE response for each item.)*

	<b>Very poor</b>	<b>Poor</b>	<b>Fair</b>	<b>Good</b>	<b>Very good</b>
Quality of information/instruction	1	2	3	4	5
Amount of information/instruction	1	2	3	4	5
Usefulness and practicality of information/instruction	1	2	3	4	5
Instructors' knowledge and experience	1	2	3	4	5
Instructors' ability to explain and demonstrate	1	2	3	4	5
SESSION on rules and regulations	1	2	3	4	5
SESSION on safety and gear	1	2	3	4	5
SESSION on marksmanship	1	2	3	4	5
SESSION on cooking & meat preparation	1	2	3	4	5

**3. How effective was today's hunting clinic in accomplishing each of the following?**  
*(Circle ONE response for each item.)*

	<b>Not at all effective</b>	<b>Somewhat effective</b>	<b>Effective</b>	<b>Very effective</b>
Providing opportunities to meet and connect with fellow hunters	1	2	3	4
Providing you with the skills and knowledge needed to begin hunting safely	1	2	3	4
Providing you with the skills and knowledge needed to clean and prepare wild game meat	1	2	3	4
Increasing your interest in hunting	1	2	3	4
Helping you facilitate hunting with your family and friends.	1	2	3	4
Increasing your knowledge of the role hunters play in conservation	1	2	3	4

**4. What did you enjoy the most about this course?** What topics and skills covered did you find most helpful for yourself and the child with you today?

**5. What did you like the least about this course?** Anything else we could have done to make your learning experience more effective and enjoyable? Any additional hunting skills that you would like to have learned from this course?



**9. In the future, how likely are YOU to participate in the following hunting-related activities? (Circle ONE response for each item.)**

	Very unlikely	Unlikely	Not sure	Likely	Very likely
Attend another SC DNR hunting clinic	1	2	3	4	5
Attend a hunter education course	1	2	3	4	5
Purchase a hunting license	1	2	3	4	5
Hunt deer	1	2	3	4	5
Hunt turkey	1	2	3	4	5
Hunt waterfowl	1	2	3	4	5
Hunt small birds (dove, quail, etc.)	1	2	3	4	5
Hunt small game (rabbits, squirrels, etc.)	1	2	3	4	5
Go on any type of hunt with another participant in todays clinic	1	2	3	4	5
Eat game meat obtained through hunting	1	3	3	4	5

**10. How do you feel about the following statements related to hunting and hunters?**

	Strongly disagree	Disagree	Not sure	Agree	Strongly agree
Hunting is a safe activity.	1	2	3	4	5
Hunting is a wise use of natural resources.	1	2	3	4	5
Hunters behave responsibly and follow hunting laws.	1	2	3	4	5
Hunters care about conserving wildlife and natural resources.	1	2	3	4	5
Hunting can be an ethical means to acquire locally sourced meat.	1	2	3	4	5
Hunting provides a direct way to connect with nature and ecosystems.	1	2	3	4	5
Hunters contribute to wildlife conservation.	1	2	3	4	5
Hunting is acceptable even when it does not benefit wildlife or other people.	1	2	3	4	5
Hunters are motivated by harvesting a trophy	1	2	3	4	5

*(Circle ONE response for each item.)*

**11. How confident do you feel about your skills and knowledge in the following areas?**

*(Circle ONE response for each item.)*

	Not at all confident	Slightly confident	Somewhat confident	Confident	Extremely confident
Firearm safety	1	2	3	4	5
Shooting skills	1	2	3	4	5
Hunting regulations (seasons, license requirements, etc.)	1	2	3	4	5
Choosing the right hunting gear	1	2	3	4	5
Scouting and selecting good hunting spots	1	2	3	4	5
Ethical shot placement	1	2	3	4	5
Field recovery of game	1	2	3	4	5
Field dressing wild game	1	2	3	4	5
Butchering and preserving game meat	1	2	3	4	5
Cooking harvested game meat	1	2	3	4	5

**12. Do you expect any of the following to be a barrier to your future hunting participation?**

*(Check ALL that apply.)*

- Would rather do other activities
- Lack free time required to hunt
- Lack knowledge/skills required to hunt
- Don't have anyone to hunt
- Lack knowledge/skills required to prepare game meat to eat
- Lack of knowledge about hunting and firearm laws in South Carolina
- Lack transportation to get to hunting areas
- Don't know where I'm allowed to hunt
- Costs associated with hunting (license, equipment, travel, etc.)
- Don't feel comfortable around firearms
- Don't feel comfortable around other hunters
- Worried that non-hunting family and friends may judge me
- Had a moral/ethical objection to hunting
- Felt reluctant to personally kill an animal

**13. Please list any additional recommendations or comments you may have about this hunting clinic below:**

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