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Visitor Perceptions of Black Bear Management Options in Big South Fork National River and Recreation Area

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VISITOR PERCEPTIONS OF BLACK BEAR MANAGEMENT OPTIONS IN BIG SOUTH FORK NATIONAL RIVER AND RECREATION AREA

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By

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Abstract

Human/bear interactions will continue to increase as humans continue to live and recreate in closer proximity to bear habitat. One area positioned for a marked increase in human/bear interactions is Big South Fork National River and Recreation Area (BISO). To make decisions on the best management options for the growing black bear population, BISO managers need information about park visitor beliefs and concerns. The purpose of this research was to examine stakeholder views related to black bear management options within BISO. We hypothesized that different stakeholders would have varying opinions about management actions towards black bears. The findings were that more informed visitors were more in favor of non-lethal black bear management options than less informed visitors. Urban visitors were less in favor of hunting as a management option. Urban visitors were more in favor of non-lethal management options than were rural visitors. Females were less in favor of hunting as a management option but had no difference of opinion concerning the use of euthanasia as a management option. Hikers, campers and wildlife viewers were more in favor of non-lethal management options than people who did not participate in those activities. In conclusion, broader information programs need to be developed to educate visitors and local stakeholders. More research needs to be completed to determine if gender is a factor in opinions on hunting. An educational program tailored specifically to urban visitors is needed. More research is needed to determine if other variables may be the cause of differing opinions on management options and if the activity undertaken by visitors is the reason for the opinion difference.

DEDICATION

This thesis is dedicated to my Grandma, Edna Reese Tungate, who told me I could accomplish anything I set my mind to and protected me with an impenetrable cloak during the darkest times of my childhood. Grandma was taken too early from this world but she gave me hope there is the possibility for happiness and contentment in life and the knowledge she imparted upon me allowed me to trudge forward when things seemed so hopeless without her protection. I try to give to others some of the patience, kindness and love she provided me. Thank you, Grandma.

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CHAPTER 1

Introduction

The study of human dimensions of wildlife management is a relatively new field. Aldo Leopold was one of the leading philosophers and proponents of human dimensions of wildlife management during the early 1900's (Brown 2009). Leopold's writings, philosophies, and animal advocacy created the landscape from which future human dimension studies would grow. Soon after Leopold began the human dimensions of wildlife conversation, three different groups of scientists began trying to understand people's views, both individual and group views, of wildlife management: biologists and naturalists, economists, and a group of noneconomic social scientists (Brown 2009). As the social scientists began investigating the importance of human dimensions of wildlife management, it became clear there was a need for this line of study. It quickly became clear to social scientists that biology, and biological impacts, were not the only area of study needed to adequately address ecological impacts. Social scientists realized understanding the principles and ideas that drive opinions on, and interactions with, ecosystems and the animals in those systems would be vital in making the changes necessary to allow for biological needs to be met.

This study aimed to understand visitor perceptions towards wildlife management options at Big South Fork National River and Recreation Area (BISO). The main objective is to contribute to the growing body of research and knowledge concerning conservation and protection of the American Black Bear (*Ursus americanus*) in BISO. This research adds to the already vigorous research completed by collecting data in two main areas. This study collected data on differing visitor perceptions of black bear

management options. The research also collected data on demographics and black bear interactions of park visitors. The data from this study can be used by park managers to evaluate visitor views on hunting (as a means of population control) based on the amount of previous black bear educational information given. Views on hunting will be compared with the reason for the park visit. Park managers can use the data to evaluate if visitors who are pursuing more immersive wilderness activities versus visitors pursuing activities such as train riding or picnicking view hunting in the same way. The data collected will provide statistical information to BISO park managers in designing and implementing black bear management programs that meet the biological goals of the park while keeping visitor input central in the program design.

Brief history of the Human Dimensions of Wildlife Management

Aldo Leopold, through his writings and dialogues, began the conversation of human wildlife interactions and wildlife management in America. Leopold began the discussion in the mid nineteenth century but much of the topic stayed undefined for nearly forty more years. Social science research related to the human dimensions of wildlife management has grown significantly over the past 40 years since the term was introduced by Dr. John Hendee while speaking at the North American Wildlife and Natural Resources Conference (Manfredo, Decker, & Duda 1998). Pioneers in the field (see Hendee, Heberlein, Shaw, Kellert, and Brown) have paved the way for the current leaders in the field such (see Decker, Manfredo, Vaske, and Teel) (Brown 2009). As human populations continue to encroach upon the areas once dominated by wildlife, the ability to manage those interactions will become even more important for both the

humans and the wildlife. Many variables must be examined when determining people's attitudes towards wildlife management, (e.g. sex, race, age, education, household income, community size, and length of residency) (Bowman et. al. 2004), thus understanding how and why these attitudes and demographic variables influence people's views on management policies necessitates the need for additional research. Wildlife managers are finding the reintroduction of predators, and perceived predators (e.g. animals that may be thought of as predators but rarely, if ever, attack humans) to be a challenge on the human dimensions front. The American Black Bear, (*Ursus americanus)* is one of the predators whose population is rapidly increasing, through natural migration and repopulation, which is causing wildlife managers to engage the public more often.

The importance and value of wildlife has continued to increase since the beginning of the 20th century and many species have been able to make a successful comeback due in part to conservation laws and policies such as the Clean Air Act of 1970 and the Water Pollution Control Act Amendments of 1972. Other legislation included the National Environmental Policy Act (NEPA), signed into law in 1970, which established a United States Environmental Protection Agency and a Council on Environmental Quality; the Marine Protection, Research, and Sanctuaries Act of 1972; and the Endangered Species Act of 1973 (Hristienko & McDonald 2007, Reiger 1986, Miller 1990). As the United States population has grown in number and migrated from the rural settings to mostly urban dwellings, the overall views on wildlife have become increasingly positive (Kellert 1992). By drawing on several different research reports, Kellert (1992) finds that rural populations and those who survive through resource dependent means are more likely to have an attitude of exploitation towards wildlife. As

education has increased and more people are living in urban areas their views on the attitudes towards animals spectrum, from negativistic to naturalistic, has moved steadily upward (Kellert 1985, Kaezensky, Blazic, & Goossow, 2004). In 1985, Kellert developed a typology (Table 1), which includes definitions of people's attitudes towards wildlife, most of which still holds true today.

Table 1
Kellerts typology of wildlife attitudes

Naturalistic	Primary interest and affection for wildlife and the outdoors.
Ecologistic	Primary concern for the environment as a system, for interrelationships between wildlife species and natural habitats.
Humanistic	Primary interest and strong affection for individual animals, principally pets. Regarding wildlife, focus on large attractive animals with strong anthropomorphic associations.
Moralistic	Primary concern for the right and wrong treatment of animals, with strong opposition to exploitation of and cruelty toward animals.
Scientistic	Primary interest in the physical attributes and biological functioning of animals.
Aesthetic	Primary interest in the artistic and symbolic characteristics of animals.
Utilitarian	Primary concern for the practical and material value of animals.
Dominionistic	Primary satisfactions derived from mastery and control over animals typically in sporting situations.
Negativistic	Primary orientation on avoidance of animals due either to indifference, dislike or fear.

With the importance people place on the restoration and protection of black bears, many prominent human dimensions researchers are undertaking the task to better understand the intricacies of the human dimensions of black bear management. To

understand the need to protect and conserve black bears in the United States, and specifically for this study, BISO, it is helpful to have background of the history of the black bear in the United States and North America.

Brief History of Black Bears in the United States

Black bear populations began to increase in the 1970's, after decades of being pushed out of their natural habitat by encroaching human populations and extreme hunting that extirpated the black bear in many areas (Figure 1). Black bear populations then continued to increase, and stabilize, throughout the 1980's (Garshelis & Hristienko 2006). Black bear populations are increasing and there is a growing desire to interact and see the black bear in the wild (Kellert 1992, Carlos, Bright, Teal, & Vaske 2009). Thus, human-bear interactions are also increasing and the need for focused studies in the human dimensions of black bear management is essential (Siemer, Hart, Decker, & Shanahan 2009).

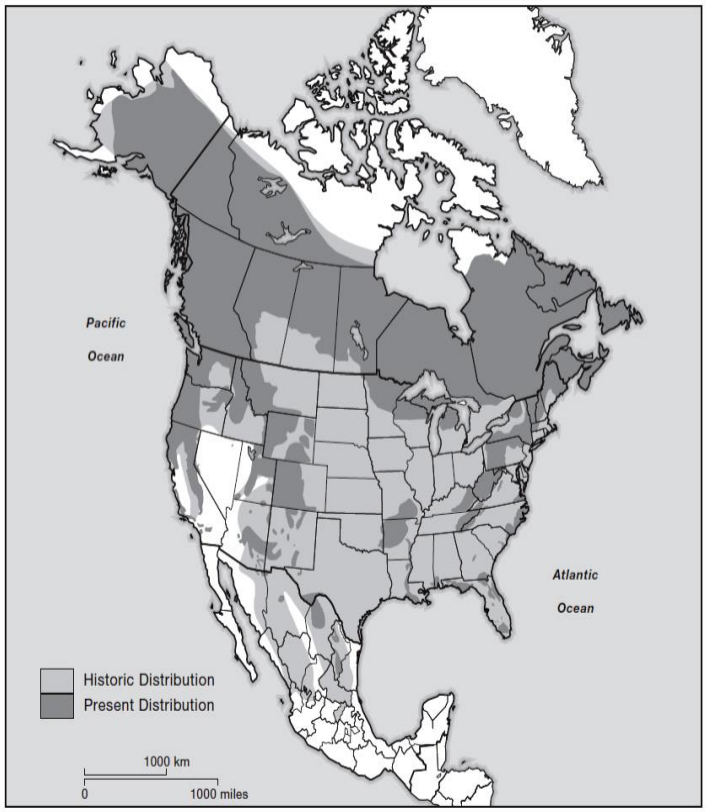

Figure 1. Present and Historical Distribution of Black Bears in North America Source: American Black Bear Conservation Action Plan (Chapter 8, Figure 8.1, page 146) –"Historic and present distribution of black bears (Ursus americanus) in North America" Retrieved from http://www.drellenrudolph.com/blackbear/html/range.html

Black bears once roamed freely throughout all of what are now the United States and the North American continent (Hall, 1981). Settlers quickly, from roughly 1803 to 1910 (Huntington 1998), migrated east to west in North America and the rapid expansion, coupled with unregulated hunting and loss of habitat, extirpated the bears in much of the United States by the turn of the 20th century (Fergus 2005). A growing conservation minded group of citizens, beginning as early as 1887 with the founding of the Boone and Crockett Club by Theodore Roosevelt , began to realize something must be done to protect black bears and their natural habitat (Clark et al. 2002). Conservation laden attitudes, laws, and ordinances laid the groundwork for bears to reestablish their place in the United States. One of the earliest successful attempts to reintroduce black bears was in 1933 in Yosemite National Park where roughly 30 black bears were released into the wild (Clark et al. 2002). Park managers at BISO took an active role in reintroducing the black bear to the eastern United States.

Brief History of Black Bear in the Big South Fork Area

The loss of the American chestnut tree, habitat destruction, and continual human harassment nearly eliminated black bears from Tennessee and Kentucky by the 1900s ("Black Bear on the Plateau" 2013). There were occasional sightings of the black bear between the early 1940's to the mid-1990's, but a stable population was not to be found in the Cumberland Plateau before the re-introduction of the black bears in 1996 ("Black Bear on the Plateau" 2013). In 1996 and 1997 14 female black bears were released in BISO in an attempt to study relocation options for black bears and to determine if the park could sustain a black bear population ("Black Bear on the Plateau" 2013). Black bears thrive in regions like BISO and because of the abundance of food the bear

population has grown from the original 14 females and cubs to around 245 bears in 2013 ("Relocated Black Bear Numbers" 2013). With black bear populations continuing to grow, through natural migration and repopulation efforts (Stambaugh 2011), and a human population on the rise in the BISO area ("Tennessee Bear Population" 2007; Lindsey & Adams 2006; Baruch-Mordo, Breck, Wilson, & Theobald 2008), human-bear interaction opportunities such as hiking, riding horses, fishing, rafting, and local stakeholders encountering black bears on their property, are increasing and steps are needed to understand the human dimensions of possible black bear management options in BISO. The research presented here will begin to quantitatively measure differing visitor perceptions concerning black bear management options in BISO.

CHAPTER 2

Human Dimensions

To understand why additional research is needed for black bears in the BISO region we must first understand what the human dimensions of wildlife management consist of and why have they become so important. Wildlife managers must answer to the public concerning any decisions about methods chosen for management because wildlife is a resource owned by the public under what is known as the public trust doctrine (The Wildlife Society 2010). Along with the public trust doctrine, the National Environmental Policy Act (NEPA) of 1970 mandates that when decisions are made to manage something on public lands, a public forum will most likely have to be held to obtain public input. Because the public owns wildlife, the human dimensions of wildlife management is becoming more important. Human dimensions attempts to determine people's perceptions versus their attitudes, and how they act on those thoughts, concerning wildlife and wildlife management and, just as important, human dimensions seeks to understand why people think and act in certain ways concerning wildlife. Human dimensions is grounded in social sciences (e.g., social psychology, communication, education) and the social science theories concerning peoples' values, beliefs, attitudes, social norms and motivations such as the theory of planned behavior. This theory suggests the best predictor of a person's actions is their intentions. The humanistic theory of motivation suggests people have a set of needs which must be met and their actions are based upon meeting those needs, Maslow's hierarchy of needs being an example (Conover 2002; Decker et al. 2001). These constructs are critical to the

understanding of human dimensions of wildlife. The appropriate social science concepts; such as the impact socio-economic factors have on people's opinions, how education frames ideas, how religion impacts individuals and families, are used to frame studies that attempt to elicit information through mostly quantitative data collection concerning human values and beliefs toward wildlife and wildlife management. These studies, and the knowledge gained from the studies, gives the public a "voice" in the decision-making process of wildlife management (Conover 2002; Decker et al. 2001).

The human dimensions area of study includes a wide variety of social science disciplines. These include, anthropology, economics, geography, mass communication, marketing, political science, psychology, recreation, sociology and social psychology (Manfredo, Decker, & Duda 1998). This research deals with human dimensions as it relates to the social aspect of people and how they make decisions based upon their perceptions, values and beliefs. Human dimensions deals with the assessment and application of social science information in wildlife management decisions (Decker et al. 1992; Decker and Enck 1996; Manfredo et al. 1995b). The application portion of human dimensions deals with tools, procedures, and ideologies, which include influencing public policy, navigating political bureaucracy, and overcoming belief systems which reject or negate the need and importance of conservation and/or preservation, connected with policy making and managerial use of the information derived from the human dimension studies (Manfredo et al. 1998).

Black Bear/Human Interactions

There is a growing body of research on the human dimensions of wildlife management and particularly of the human dimensions of black bear management and

bear/human interactions. Kellert's work with the wolf and black bear has been instrumental in the understanding of the human dimensions of wildlife management. Understanding how people conceptually see and define bears is an important step in understanding their views on black bear management options. Kellert (1985, 1994) and Blekesaune & Ronningen (2010) found people view black bears as a predator in the wild and while bear attacks on humans is rare, people still feel bears are dangerous. This view of bears as a hunter is contrary to their usual habits, which consist of mostly herbivorous food gathering habits.

Kellert (1985) found that predators are a group of animals generally not liked by people and animals thought to be most responsible for property damage and/or human injury were particularly disliked, and this is important to note with people considering the American black bear to be a predator. Black bears and wolf populations have grown significantly since 1985 and Zinn, Mannfredo, & Vaske (2000) found that personal experience with wildlife related problems makes people less accepting of that wildlife. With people-wildlife interactions increasing there is good chance that public opinion on the importance of saving wildlife could decrease due to problems encountered when having human wildlife interactions. Like or dislike of predators may also influence levels of fear towards certain predators. Fear of carnivores and predators cannot be disregarded in a sustainable management plan for the carnivores (Johansson et al. 2012). Johansson et. al. (2012) found that addressing public anxieties of brown bear and wolf attacks may change perceived risks of attacks by these animals. Park and protected area managers need to understand visitor's motivations, fear and anxiety over bears, to design the most effective educational and informative programs. The uneasiness and fear found

by Johansson may be different because the carnivore being dealt with is the brown bear (*Ursus arctos*) and not the black bear (*Ursus americanus*). A recent study found that most people hold a generally positive view of the American black bear, or at least indifferent, regardless of the conflict created by the black bears (Lowery Morse & Steury 2012). Johansson (2012) found people have a more negative view towards bears than does the above research and this difference may be due to Johansson studying brown bears and Lowery, Morse, & Steury (2012) studying black bears.

Hunting as a Management Option

Knowledge about the full causes of human/bear interactions will be important in changing both educational and hunting programs for bear management. Lowery, Morse, & Steury (2012) found that professionals (local and regional wildlife managers, biologists, and zoologists) and non-professionals (citizens, landowners, and local stakeholders) have different opinions on the outcome hunting will have on black bear nuisance problems. They found that professionals did not believe hunting to be a viable option for reducing nuisance bears and was more useful as a public relations tool; while non-professionals believe hunting would reduce the number of bears thereby reducing the number of nuisance incidents (Lowery, Morse, & Steury 2012). In that determining the level of knowledge of black bears held by the public is crucial for managers to make informed decisions, it is also helpful to determine the socioeconomic status of the population. As Kellert (1994) found, "socioeconomic status, as measured by education and income, represents a second demographic distinction relevant to an understanding of the relationship between basic wildlife values and attitudes toward bears" (p. 45).

Possible Effects of Gender

Considerable research has been undertaken to determine what effect, if any, gender has on attitudes about wildlife management. The results have been mixed and it is hard to draw a clear line concerning any different attitudes between men and women in regards to wildlife management attitudes. Some studies have found definitive differences between men and women concerning wildlife management options. Lauber et al. (2001) found when asked about deer management practices women favored contraception while men preferred lethal methods of management of the deer population (Dougherty et al. 2003).

While some research suggests a strong correlation between gender and acceptance of lethal wildlife management options, other research is less conclusive. Some research even questions the use of gender as a predictive variable for attitudes towards lethal management options (Beutel and Marini 1995; Dougherty et al. 2003; Dio et al. 1996; Kalof et al. 2002; Prince-Gibson and Schwartz 1998; Zinn and Pierce 2002). Gender differences in lethal versus non –lethal management options can be useful but care must be taken not to assume certain beliefs based solely on gender. Other factors need to be considered in determining what a groups beliefs might be.

Urban vs. Rural Place of Residence

People from urban backgrounds tend to have a more favorable view of wildlife and people who sought to encourage wildlife on their property, as well as those who tolerated wildlife, generally had better interactions with wildlife (Kellert et al. 1996; Kretser et. al. 2009). Human/bear interactions will continue to increase as bear populations increase in areas of growing human population, and this may have long-term

consequences for park managers (Kretser, Curtis & Knuth 2009). Urban visitors may be more educated and have higher incomes. Urban visitors may not have as much interaction with wildlife as rural visitors helping to increase the desire to have wildlife in parks by urban visitors. Just because human/bear interactions are increasing does not mean that negative perceptions must come from those interactions. The increase in human/bear interactions is on the rise but it is important to note a difference between simple human/bear interactions and human/bear conflict and that conflict can be further broken down into actual and perceived conflicts (Kellert 1994). Kellert, (1994) defined conflicts as, "Direct conflicts involve threats to human safety and property, while indirect conflicts focus on competition for land and resources" (p. 47). Siemer et al. (2009) found non-negative experiences with bears made respondents more likely to contact a wildlife agency for assistance if the bear encounters occurred near a respondent's home. Non-negative experiences may explain part of the willingness of respondents to involve wildlife agencies with bear interactions but there may be additional underlying factors. Teal et al. (2007) asserted people's behaviors toward wildlife are framed by attitudes and these attitudes are directed by wildlife value orientations. One of the goals of this paper is to add to the scholastic research dealing with people and their views upon black bear management in BISO. This information can be used by BISO park managers to direct future research concerning public opinion of black bear management options.

CHAPTER 3

Purpose Statement

The purpose of this research is to add to the scholarly research of the differing visitor perceptions concerning black bear management in general and specifically at BISO while also providing the demographic information of visitors to the park. This researcher elicited information to evaluate park visitors' interactions with bears at BISO. Such information may provide details necessary to evaluate and alleviate any public unease concerning management options, and provide a habitat suitable for a managed black bear population.

Objectives and Hypothesis

Objective 1: To identify differing visitor perceptions on black bear management options.

H_1: Visitors who have previous knowledge on black bears will be more in favor of non-lethal black bear management options.

Objective 2: To identify visitor demographic information and information related to visitor-bear interactions of BISO visitors.

H_{2a}: Visitors residing in urban areas will be less likely to favor hunting.

H_{2b}: Visitors residing in urban areas are more likely to favor non-lethal management options.

H_{2c}: Female park visitors will be less in favor of lethal black bear management options.

H_{2d}: The more nature interactive activities such as, hiking, nature viewing, backcountry camping, will have visitors who are more in favor of black bear management options designed to change human and bear behaviors rather than lethal options; versus those that

do not take part in wilderness activities, such as train riders, visitors stopping for lunch, visitors who hike only around the visitor center; whom will be more in favor of hunting as a management option.

Site Description

The Big South Fork National River and Recreation Area (BISO) (Figure 2), is 125,000 acres of plateaus and gorges, and the South Fork of the Cumberland River located in northern Tennessee and southern Kentucky. BISO is bordered on the east by Daniel Boone National Forest and on the south by Tennessee's Pickett State Park.

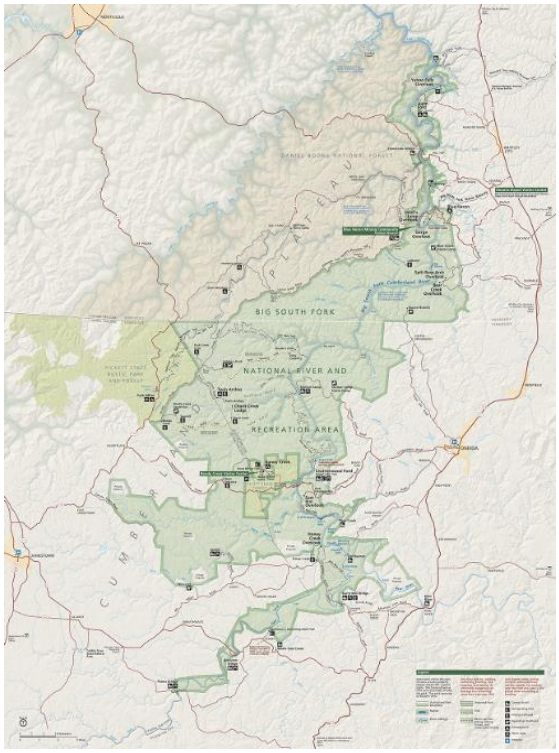

Figure 2. Detailed Map of Big South Fork National River and Recreation Area. Source: National Park Service, U.S. Department of the Interior. Nature and science. Retrieved

BISO became a National Recreation Area on March 7th, 1974 when Richard Nixon signed it into law. The cultural history of the area is rich and old. The first people in the Big South Fork area were Paleo-Indians who inhabited the area from about 13,000 B.C.E. to 7,900 B.C.E. Beginning about 12,000 B.C.E. the Paleo-Indians began living in rock shelters (openings in the canyon walls) and survived by hunting and gathering in the valleys. BISO also contains considerable cultural history that is preserved and interpreted by the park for park visitors. The area has considerable history tied to the Civil War and also has excellent representations of the subsistence farming that took place in the area for generations, and still exists in some parts of the region (NPS website 2013). BISO

also provides ideal habitat for many species of wildlife, including black bears. BISO had 600,161 visitors in 2012 with the main activities being hiking, backcountry and site camping, horseback riding, wildlife viewing, kayaking, canoeing and train riding.

Constructing the Survey Instrument and Pilot Study

The survey was constructed based upon current literature and feedback from researchers and park staff. Survey questions were also guided by the researcher's objectives and hypotheses. Previous surveys used to measure attitudes and knowledge (Bremmer & Park, 2007; Brooks et al, 1999; Cornell, 2008; Strack & Miller, 2008,) was also used as guides to construct survey questions. The construction of questions was further guided by the tailored design method for survey construction (Dillman 2007). The questions were posed as categorical, multiple choice, open-ended, or Likert scale in design. A preliminary survey was given to a group of 30 graduate and undergraduate students at Eastern Kentucky University to check for content and clarity of wording. Adjustments were made using the feedback from the preliminary survey and then a pilot study of 71 people, which is an acceptable pre-test population (Dillman, 2007), was conducted at the park to test for response rate, non-response rate of certain questions and to test the validity and reliability of the instrument. The pilot test was given to every third visitor to randomize the sample collected.

The pilot test data were analyzed using Cronbach's alpha to assess the survey's validity and reliability before the final survey was administered to BISO visitors. Several of the questions on the survey instrument did not meet the minimum alpha score of 0.60. While there is some debate as to what is a "minimum" acceptable size for Cronbach's alpha, 0.60 to 0.70 has been deemed acceptable in parks, recreation, and human

dimensions research (Vaske, 2008). Questions that did not meet the minimum requirements were removed or adjusted to form the final survey instrument.

Final Survey Instrument

The final instrument (Appendix C) was a four-page questionnaire with an introductory page, three pages of questions (four sections) and a section for comments. The first section contained questions about visitation patterns and if visitors had seen bears at any time and while visiting BISO. The second section included 9 questions about their views on bears and their views of different management options. The third section included a five part question inquiring about people's views on wildlife. The fourth section included 7 questions regarding visitors' demographics and purpose for visiting BISO. The Institutional Review Board at Eastern Kentucky University approved this survey on January 21, 2013. This study also received a permit (Appendix A) to collect data from BISO on February 19, 2013.

Participants

Data for this study were obtained via intercept survey of each visitor present. The population for this study was individuals over 18 years of age who visited BISO. Data were collected via a stratified random sample, stratified by days of the week and hours of the day, as well as by sites within the park. All potential survey participants were informed of the intent of the survey, that participation was completely voluntary, and their answers would remain confidential. The sites chosen by the researcher for survey administration were Bandy Creek Visitor Center, Blue Heron Mining Camp, and Leatherwood Ford. These sites were chosen with the help of park managers to ensure a representative group of park visitors were surveyed. Attempts for data collection were

made at Twin Arches and Yahoo Falls four times per site, but no visitors were available for surveying during research visits. Each data collection attempt was documented on a site log (Appendix C) to record site information such as time of day and weather conditions. Visitors agreeing to participate in the survey were handed a clipboard that included a letter from Eastern Kentucky University explaining the purpose of the study. The visitors were then handed a survey and asked to complete it and return it to the researcher. The survey typically took 10-15 minutes for visitors to complete. Survey assistants, students from Eastern Kentucky University, were briefed and given training before delivering any surveys. A script was provided to ensure that the research assistant facilitating the survey did not bias the results. The administration script was as follows:

> Hello, my name is _____ and I am with Eastern Kentucky University.
>
> We are conducting surveys to find out what visitors like you know about Black Bear in Big South Fork Recreation area. Do you have 10-15 minutes to fill out a survey? Thank you for your time and have a wonderful visit to Big South Fork!

Data Collected

A total of 386 visitors to BISO completed the survey. A total of 27 surveys needed to be excluded because they were under the age of 18. Respondents were asked their age but may have either not heard the question or did not understand the reason for the age requirement. Vaske (2008) suggested that a sample size of 400 is considered a suitable number for generalizing to a population at the 95% confidence level with a ±5% margin of error for most parks, recreation, and human dimension studies. The response

rate for this survey was 72%, with a total of 144 people declining to take the survey. The common reasons for refusal were survey length or time restraints.

Survey data were entered and analyzed using SPSS version 21.0 (SPSS, 2012). All surveys and data for this study were kept in a secure office by the researcher at all times to ensure respondent confidentiality. Not all participants answered all questions or, in some cases, duplicate answers were given to the same questions. In these instances, the answers were treated as unusable or missing data.

The researcher used standard calculations for leverage, kurtosis, and skewness to identify statistical outliers and to verify univariate and multivariate normality of the data (Tabachnick & Fidell, 2001). Basic frequencies and descriptive statistics were analyzed. An analysis of variance (ANOVA) and Tukey's post hoc tests were conducted to determine if there was a statistical difference between the groups being tested (i.e. urban/rural, activity types). Overall, these results were used to assess visitor's perceptions towards black bear management at BISO, and to hopefully inform other parks and protected areas facing similar issues.

Limitations

Some inferential limitations exist that may influence the results of this study. Applicability of this data to the general population is acceptable but should be done with caution. Though the number of people surveyed is within acceptable ranges for inferring to larger populations, BISO visitors may be different from the general public. The uniqueness of the park and the complex wildlife issues may not be transferable to the general population. This survey only targeted visitors from May through September and thus cannot accurately assume that visitors to BISO in other months would provide

similar answers. Due to visitors of NPS sites typically being more education than the general population (Roggenbuck & Lucus, 1987; Stankey, 1971), the level of education among visitors to BISO may not be representative of the general population (Table 2).

Table 2
Demographic distribution of visitors to BISO

First Time Visitor	49.4%
Frequent Visitor	50.6%
Average Age	51 years
Male	44.0%
Female	50.9%
Urban	45.2%
Rural	54.8%
Survey Site Location	
Bandy Creek	45.9%
Blue Heron	46.9%
Leatherwood Ford	7.2%

There also may have been self-reporting errors, a common limitation for social science surveys (Vaske 2008). Participants were encouraged to answer as truthfully as possible, but this may not have occurred. Some participants may have provided an answer based on what they thought the administrator wanted or participants might not have been willing to admit that they lacked knowledge in a particular area. Regardless of the trained survey facilitators efforts to adhere to the research script, another possible contribution to reporting errors could have resulted from an administrator having an effect on how participants responded.

CHAPTER 4

Results

Frequency tests were conducted for gender, city size, urban or rural residence, and survey site. Surveyed respondents were 46.3% male and 53.7% female. Respondents from cities larger than 50,000 residents constituted 29.7% of those surveyed, 15.5% of respondents came from cities with less than 50,000 residents, 16.7% of respondents came from town with less than 20,000 residents, 15.0% came from towns with less than 10,000 residents and 23.2% came from unincorporated/rural areas. The city residence question was reformatted to a dichotomous scale of rural and urban. Rural was defined as any community of less than 20,000 people. A frequency test was conducted on urban versus rural locations of residents and 45.2% came from urban areas and 54.8% came from rural areas. Surveying was conducted at three locations and 45.9% of surveys came from the Bandy Creek location, 46.9% came from the Blue Heron location and 7.2% came from the Leatherwood Ford location. Survey respondents represented 27 states, with 55% from Tennessee and Kentucky. First time (49.4%) and repeat (50.6%) visitors were represented equally. The average age of visitors to BISO was 51. Most visitors participated in hiking (48%), wildlife viewing (41%), and camping (33%) while at the park.

Four groups of likert-type scale questions were asked: importance of black bears, support for varying management actions, preferred actions, and overall wildlife attitudes. Cronbach's alpha was used to measure the reliability of these sets of questions. A Cronbach's alpha of .60 to .70 has been deemed acceptable in parks, recreation, and

human dimensions research (Vaske, 2008), but, many researchers consider .70 or higher to be ideal (Pallant, 2007). The importance of black bears questions had an initial alpha of .498, support for park manager actions initial alpha was .486, preferred actions alpha was .744 and overall wildlife attitudes initial alpha was .303.

The researcher conducted a reliability analysis to determine if each question in the scales were measuring the same subject matter. Three of the four scales had at least one question that received negative values. For the "importance of black bears" scale there were two questions with negative values: *"The risk of being injured by a bear in the park is high"* and *"Black bears are a nuisance."* Removing "Black bears are a nuisance" raised the alpha to .665 and removing "*the risk of being injured by a bear in the park is high"* raised the Alpha to .667. For the support of varying park manager's actions there was one question with a negative value: *"Leave bears alone."* Removing *"Leave bears alone"* from the question bank raised the alpha to .610. For the "preferred actions" section there were no questions with a negative value. For the "overall wildlife opinions" attitudes there was one question with a negative value: *"It is not important for people to manage wildlife."* Removing this question raised the alpha to .508. To increase the alpha these we removed these questions and they were not used in analysis.

Results for objective 1: To identify differing visitor knowledge on black bear management options. **H_1:** Visitors who have previous knowledge on black bears will be more in favor of non-lethal black bear management options.

An ANOVA revealed a statistically significant difference between visitors who had received information versus visitors who had not received information in opinions concerning non-lethal black bear management options (Table 3) in regard to, "Educate

the public about human-bear conflicts" F(1, 308)=7.710, p=.006, "Euthanize bears that repeatedly cause problems for people" F(1, 311)=5.687, p=.018, "Condition bears to stay away from popular areas" F(1, 310)=8.870, p=.003, "You repeatedly see a bear near your home", F(1, 323)=16.547, p=.000, "You see a bear near your home one time", F(1, 320)=4.029, p=.046 (Table 2).

Table 3
Informed versus uninformed visitors concerning non-lethal black bear management options in BISO.

Support for Control Item	**Information Mean**	**S.D.**	**No Information Mean**	**S.D.**	***F****
Educate the public about human-bear conflicts.	4.77	.585	4.54	.868	7.710
Euthanize bears that repeatedly cause problems for people.	3.43	1.220	3.10	1.277	5.687
Condition bears to stay away from popular areas.	4.27	.825	3.94	1.118	8.870

Based on a five point scale-1=unacceptable in all cases to 5=acceptable in all cases. *p=0.05

Results for objective 2: To identify visitor demographic information and information related to visitor-bear interactions of BISO visitors. **H_{2a}:** Visitors residing in urban areas will be less likely to favor hunting.

An ANOVA revealed a statistically significant difference in opinions between urban and rural respondents (Table 4) when asked, "Which of the following best describes your overall opinion about regulated hunting of black bears?", F(1,

347)=16.855, p=.000, "Which of the following best describes your overall opinion about regulated black bear hunting?", F(1, 333)=6.476, p=.011, "Would you consider hunting black bears in the park in the future?", F(1, 335)=4.131, p=.043, and "People appreciate wildlife through hunting", F(1, 347)=6.905, p=.009.

Table 4
Urban versus rural opinion concerning acceptability of hunting by visitors to BISO.

Support for Control Item	**Urban**	**S.D.**	**Rural**	**S.D.**	***F****
**Which of the following best describes your overall opinion about regulated hunting of black bears?	1.85	.807	1.51	.739	16.855
**Which of the following best describes your overall opinion about regulated black bear hunting?	1.93	.776	1.71	.808	6.476
***Would you consider hunting black bears in the park in the future?	1.85	.357	1.76	.426	4.131
****People appreciate wildlife through hunting.	4.48	1.907	4.99	1.720	6.905

Based on a five point scale-1=unacceptable in all cases to 5=acceptable in all cases. - *p=0.05** 1=support hunting 2=unsure 3=opposed to hunting,*** 1=yes 2=no,****based on a 7 point scale ranging from 1= strongly disagree to 7=strongly agree

H_{2b}: Visitors residing in urban areas are more likely to favor non-lethal management options.

An ANOVA revealed no statistically significant difference in opinions between urban and rural respondents. This could be to low survey numbers poor question design or other unknown variables. Additional research in the area with more funding and a

broader scope may yield statistically significant data which can be used to guide park managers in their decisions on black bear management options.

H_{2c}: Female park visitors will be less in favor of lethal black bear management options.

An ANOVA revealed a statistically significant difference in opinions between males and females concerning the use of hunting as a black bear management option (Table 5), "Use regulated hunting to manage bear numbers" F(1, 322)=13.780, p=.000; Which one of the following best describes your overall opinion about regulated hunting of black bears? F(1, 348)=17.749, p=.000; and Which one of the following best describes your overall opinion about regulated black bear hunting? F(1, 335)=8.270, p=.004.

Table 5
Gender differences concerning hunting as a management option for black bears at BISO.

Support for Control Item	**Male**	**S.D.**	**Female**	**S.D.**	***F****
Use regulated hunting to manage bear numbers.	3.76	1.078	3.28	1.245	13.780
**Which one of the following best describes your overall opinion about regulated hunting of black bears?	1.48	.717	1.83	.810	17.749
**Which one of the following best describes your overall opinion about regulated black bear hunting?	1.68	.802	1.92	.773	8.270

Based on a five point scale-1=unacceptable in all cases 5=acceptable in all cases. - *p=0.05, **1=support hunting, 2=I am unsure about hunting, 3=I oppose hunting.

An ANOVA revealed no statistical difference between genders (Table 6) concerning euthanasia as a black bear management option. This is meaningful if euthanasia is a black bear management option that will be used to a greater extent in the future by park managers.

Table 6
Gender differences among visitors to BISO concerning the use of euthanasia as a black bear management option.

Support for Control Item	Male	S.D.	Female	S.D.	F^*
Euthanize black bear captured in popular visitor sites.	2.29	1.228	2.36	1.230	.322
Euthanize bears the repeatedly cause problems for people.	3.36	1.128	3.16	1.328	2.013

Based on a five point scale-1=unacceptable in all cases to 5=acceptable in all cases. - *p=0.05

H_{2d}: The more nature interactive activities such as, hiking, nature viewing, backcountry camping, will have visitors who are more in favor of black bear management options designed to change human and bear behaviors rather than lethal options; versus those that do not take part in wilderness activities, such as train riders, visitors stopping for lunch, visitors who hike only around the visitor center; whom will be more in favor of hunting as a management option.

An ANOVA was conducted on nine different activities in the park to determine the difference in views upon hunting as a management option. The nine groups analyzed were: camping, wildlife viewing, wildlife photography, hiking, boating, fishing, horseback riding, canoeing/kayaking, and hunting.

An ANOVA revealed a statistically significant difference in campers views on (Table 7), “Euthanize bears that repeatedly cause problems for people” $F(1, 338)=4.927$, $p=.027$, “Use regulated hunting to manage bear numbers” $F(1, 333)=5.169$, $p=.024$,

"Which one of the following best describes your overall opinion about regulated hunting of black bears?" F(1, 359)=4.181, p=.042, "Which one of the following best describes your overall opinion about regulated black bear hunting?" F(1, 344)=7.555, p=.006, and "People appreciate wildlife through hunting" F(1,354)=7.714, p=.006.

Table 7
Campers versus non-campers views on management options by visitors to BISO.

Support for Control Item	**No**	**S.D.**	**Yes**	**S.D.**	***F****
Euthanize bears that repeatedly cause problems for people.	3.16	1.271	3.48	1.150	4.927
Use regulated hunting to manage bear numbers.	3.39	1.248	3.70	1.067	5.169
Which one of the following best describes your overall opinion about regulated hunting of black bears?	1.73	.806	1.55	.736	4.181
Which one of the following best describes your overall opinion about regulated black bear hunting?	1.89	.814	1.64	.730	7.555
People appreciate wildlife through hunting.	4.55	1.876	5.11	1.697	7.714

Based on a five point scale-1=unacceptable in all case to 5=acceptable in all cases. - *p=0.05

An ANOVA (Table 8) revealed a statistically significant difference in visitors participating in wildlife viewing on, "*Black bears are being properly managed in the park*" F(1, 360)=9.397, p=.002.

Table 8
Wildlife viewers versus non-wildlife viewers on management options in BISO.

Support for Control Item	No	S.D.	Yes	S.D.	*F**
Black bears are being properly managed in the park	4.83	1.365	5.27	1.328	9.397

Based on a seven point scale-1=Strongly disagree to 7=Strongly agree. - *p=0.05

While there were enough respondents participating in wildlife photography there were no statistically significant data revealed by running an ANOVA on people participating in wildlife photography.

An ANOVA (Table 9) revealed a statistically significant difference in hikers views on, "Black bears are being properly managed in the park" F(1, 360)=3.904, p=.049.

Table 9
Hikers versus non-hikers opinions on management of black bears in BISO

Support for Control Item	No	S.D.	Yes	S.D.	*F**
Black bears are being properly managed in the park	4.88	1.344	5.16	1.377	3.904

Based on a seven point scale-1=Strongly disagree to 7=Strongly agree. - *p=0.05

CHAPTER 5

Conclusion

Parks across the country; local, regional, state and federal alike are under constant threat of budget cuts. These cuts can hurt the parks abilities to increase educational and informative programs and to guide visitors and stakeholders in their beliefs concerning wildlife management options. An increase in the amount of collaborative research will give park managers needed scientific data to present as evidence to legislators of the importance in funding for the parks. The findings from this research can allow park managers to design effective educational programs. Programs designed to target specific audiences, with different belief systems and value orientations, will provide the greatest impact for the money spent. Having the ability to scientifically show legislators why money is needed for educational programs is instrumental for park managers during budget negotiations. Strong scientific data allows park managers to have valuable information when dealing with the public concerning management options. Listed here are the conclusions drawn from this research and ideas about future research.

The study results confirmed two of the hypotheses and partly confirmed a fourth. Visitors who had previous knowledge about black bears were more in favor of non-lethal management options. Visitors residing in urban areas were less likely to favor hunting. The type of recreational activity visitors participated in influenced their perception on black bear management. The study partly confirmed the hypothesis that "Female park visitors would be less in favor of lethal black bear management options." Females were less likely to favor hunting as a management option but there was no statistical

significance between females and males concerning opinions about euthanasia as a management option.

Visitors with prior information about black bears had statistically significant differences concerning management options than did visitors with no prior information about black bears. A surprising finding was that visitors with prior knowledge about black bears were more likely to believe that euthanasia of repeatedly problematic black bears was acceptable in some cases, while people with no prior information about black bears were more "unsure" if euthanasia was a proper management option. With euthanasia being a necessary management option for park managers, and an option that causes public outcry, it is important to note that a properly arranged informative program may help people understand the need for euthanasia, in some cases, for managing a black bear population. Visitors who had previous information were also more likely to favor reconditioning bears that have become a nuisance or for removing the attractant that originally caused the bear to become a nuisance.

Lafon et al. (2004) found that active participants in education and decision-making gained greater appreciation for other interests and for wildlife professionals than did passive participants. Lafon et al. (2004) also found after people received education and information that "…stakeholder support for controversial management strategies (e.g. use of lethal methods to address bear problems, control of bear populations) but little change in their opinions about bear hunting" (227). Lafon et al. (2004) was looking at active versus inactive participation, stakeholders who helped design (active participation) educational programs versus stakeholders who simply received (inactive participation) educational materials, in the educational decision-making process but

participants were still found to having similar differences in opinion on lethal management options, as opposed to hunting based on informational and educational levels concerning black bear management options. Blekesaune & Ronningen (2010) found that, even with educational and informational programs, there has been a slight increase in resistance to the existence of bears in Norway and it is based largely on a rural-urban divide and among young individuals who have grown up in rural areas. Designing the most effective informational and educational programs for park visitors and stakeholders will require more research. The Lafon et al. (2004) study suggests that programs which are built with active participation by participants may be the best approach. This approach could prove to be less than ideal in terms of time needed to build the program because of participation and increased cost in building a program that involves active participation of stakeholders. However, the additional time spent in the initial design of the program may be offset by greater stakeholder understanding of the policies being put forth. The program may have a more far reaching impact with the high levels of "ownership" the stakeholders feel by being directly involved with the implementation and design of the programs.

As hypothesized, visitors from urban areas were less in favor of hunting as a black bear management option than were visitors from rural areas. Some studies have shown rural residents have more negative feelings towards, and less tolerance for, large carnivores, including bears, than urban residents (Bjerke et al. 2003; Blekesaune & Ronningen 2010; Erickson & Heberlein 2003). What these studies do not examine, and what we must study, is if other rural dweller factors such as, education, income, sex, race and age, are not the driving force behind the less-positive attitudes about carnivores than

urban residents. The information to determine if education, income, sex, race and age are the underlying factors to the difference in opinions concerning management options between urban and rural residents is available but the data needs to be analyzed to determine if there is indeed a connection. Increased interaction with black bears may also be a reason rural residents are less accepting of black bears, and more accepting of hunting as a black bear management option than urban residents. These additional factors need additional research. If park managers decide to use hunting as a management option it may be helpful to create an educational program to explain the benefits of hunting for the park and for the public as a management option. An informative program specifically designed for urban and non-hunting visitors could be an ideal to specifically address the concerns and fears of urban visitors to the park.

The research did not show a statistically significant difference in how urban versus rural residents decide to manage a situation in which they see a bear on their property one time and see a bear on their property repeatedly. Considerable research has been conducted on urban versus rural perceptions of wildlife. With no statistically significant data being found with this research it suggests more research needs to be completed. The research can look at a broader area, local residents as well as park visitors to determine the beliefs of urban versus rural residents have on managing black bears in BISO. The research did not produce any statistically significant data on urban versus rural beliefs concerning non-lethal management options. More research is necessary to determine urban versus rural beliefs on lethal versus non-lethal management options. It is possible different questions need to be asked to determine opinion differences between urban and rural visitors and their beliefs on non-lethal management

options. It is also possible that there is little difference in opinion concerning the use of non-lethal management options and the differences arise with the introduction of lethal management options. Non-lethal management options may be somewhat acceptable and preferred as lethal management options are more likely to be the alternative to dealing with problem bears. The issue for visitors may arise with the different types of lethal management options being offered and the perception of how humane each option is compared to other options. A larger sample size may also provide information in determining if the only difference in respondent opinion is related to lethal management options. This additional information may also help determine the level of opinion change when non-lethal management options are being discussed. When studying urban versus rural beliefs related to carnivores, Blekesaune and Ronningen (2010) found that gender, age, education, income, social class, and social background may play as important a role in belief systems concerning carnivores, as does urban or rural residency.

There were statistically significant data between the type of recreational activity and the visitor's views on black bear management options. Visitor survey numbers were low for each activity measured; camping, wildlife viewing, wildlife photography, hiking, boating, fishing, horseback riding, canoeing/kayaking, and hunting and higher numbers of survey respondents would allow a finding to be made as to whether the activity, or other variables, cause the change in opinion. For example, the amount of expendable income needed to participate in activities such as horseback riding and kayaking/canoeing may be the reason for a change in opinion and not the activity itself. These activities may require a larger disposable income which could mean the people participating in these activities have higher educational attainment, higher social status

and higher income than people who do not participate in these activities and these external variables may be the reason for the differing opinions concerning black bear management options instead of the activity itself (Blekesaune & Ronningen 2010). Total respondents for several activities were too low for analysis and thus additional research is necessary to determine any differences in black bear management perceptions among respondents involved in those activities. It may be that there are unknown variables as to why people involved in these activities have different opinions on wildlife management when compared to visitors not participating in those activities.

The researcher also found statistically significant gender differences in opinions concerning the use of hunting as a black bear management option, but data did not show any significant gender differences concerning the use of euthanasia as a management option. This suggests that unknown variables other than gender may be influencing the opinions on lethal versus non-lethal management options. Additional research needs completed to determine the possible unknown variables. As was found by Duda and Jones (2008), hunting was perceived by females as a less humane way of managing black bears; however the researcher found no significant gender differences related to other lethal management options. More research is necessary to determine why females perceive hunting is a less favorable black bear management option than euthanasia. Additional variables warrant investigation and could be used to allow respondents to rate the humaneness of different types of management options, or choose among a given selection of answers to identify why hunting is undesirable.

Next Steps

Now is the time to complete more research and be proactive regarding the management of black bear/human interactions, which will undoubtedly be on the rise, in and around BISO. Completing the research now will help management take action which may reduce stakeholder concerns about management options and allow for a stable healthy bear population to exist in the BISO area with ample learning opportunities for park visitors and locals alike.

Research stretching into the area near BISO, especially local residents living on property bordering BISO, Pickett State Park, and Daniel Boone National Forest and residents of Oneida, TN., will be important in determining local stakeholder opinions on black bears and the potential management options associated with a growing bear population. It is likely local residents' opinions of the black bears, and of possible management options, will vary greatly from that of BISO visitors in general. Some studies (Gore 2004; Freedman et al. 2003; Williamson 2002) suggest stakeholder attitudes towards carnivores become less positive as interaction with the carnivores increase. With local residents coming into contact with bears on an increased frequency, it is important to compile data and implement programs in the near future to deal with any associated problems.

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Appendix A

Site permit from NPS

SCIENTIFIC RESEARCH AND COLLECTING PERMIT	Study#: BISO-00078
Grants permission in accordance with the attached general and special conditions	Permit#: BISO-2013-SCI-0002
United States Department of the Interior National Park Service	Start Date: Feb 19, 2013
Big South Fork National River and Recreational Area	Expiration Date: Dec 31, 2013
	Coop Agreement#: n/a
	Optional Park Code: n/a

Name of principal investigator:

Name: Ryan Sharp **Phone:** 716-289-6107 **Email:** ryan.sharp@eku.edu

Name of institution represented:

Eastern Kentucky University

Co-Investigators:

No co-investigators

Project title:

An Assessment of Attitudes Toward Kentucky Black Bear Populations and Management Among Key Stakeholders at Big South Fork National Recreation Area

Purpose of study:

The purpose of this project is to provide clear options for managing the human dimensions of black bears at Big South Fork National River and Recreation Area (BSF) in Kentucky. This project addresses four main objectives tailored to the unique setting and management situation at BSF: 1) To identify visitorsâ and stakeholdersâ knowledge of and attitudes towards black bears; 2) To identify attitudes towards current, proposed, or potential management actions aimed at black bears; 3) To identify and characterize specific subgroups of stakeholders (e.g. hunters) that hold different preferences for black bear management, and to quantify and evaluate the potential for conflict among these distinct groups; and 4) To inform current and potential interpretation and outreach methods regarding black bear management at BSF. When the time comes, the results of this study will aid the superintendent in creating policy related to black bears (i.e. hunting regulations), by using the best social science available to assist the decision. Management decisions based on solid social science will garner greater public support and provide critical data to successfully defend policy if challenged

Subject/Discipline:

Social Science

Locations authorized:

This research will take place across the park to capture different types of visitors. Park management will assist in identifying locations that will provide the researcher with a representative sample. Examples of locations include Bandy Creek Visitor Center and campground, Blue Heron, and selected trailheads throughout the park.

Transportation method to research site(s):

All portions of the park for this research will be accessed by either car or by foot.

Collection of the following specimens or materials, quantities, and any limitations on collecting:

n/a

Name of repository for specimens or sample materials if applicable:

n/a

Specific conditions or restrictions (also see attached conditions):

Sampling locations and timing must be coordinated with Tom Blount, Chief of Resource Managment. He can be contacted at (423)569-2404, ext. 252 or tom_blount@nps.gov.

Appendix B

Survey Participation Log

Survey Administrator(s) Name:

1.

2.

Date: _____

Time of Survey Administration (e.g. 1pm-3pm): _____

Administration Location (e.g. parking lot, nature center, etc.): _____

Weather:

1. Sunny? Yes No

2. Cloudy? Yes No

2. Windy? Yes No

3. Raining? Yes No

4. Temperature:_____

Any other environmental factors?

1. Number of surveys completed: _____

2. Number of surveys declined: _____

Total contacts (Q1 + Q2) _____

Script:

I am a student with The Department of Recreation and Park Administration at Eastern Kentucky University (EKU). We are conducting a study to help us understand your perceptions towards current and future management of black bears at the park. Completion of this survey is completely voluntary and anonymous. Do you have five to ten minutes to complete this survey? Thank you for your time.

Appendix C

Survey Instrument

Black Bears
At
Big South Fork National River
and Recreation Area

The National Park Service
and
Eastern Kentucky University

Disclosure of information is voluntary.

Eastern Kentucky University, in cooperation with the National Park Service, is conducting a study of visitors to Big South Fork National River and Recreation Area. Please take 10-15 minutes of your time to complete this questionnaire. Your responses will facilitate the management of black bears at the park.

Section I. Your opinion is important. Please tell us about your experiences with black bears. If you have not had any experiences, please complete the items as requested.

Note: Any reference to black bears in this survey means free-ranging, wild black bears and DOES NOT include captive black bears.

1. Before you received this questionnaire, were you aware that black bears live in some areas of the park?

   ____ Yes **(Please go to question 2.)** ____ No **(Please go to Section II.)**

2. Have you seen a black bear during the past 12 months?

   ____ Yes **(Please go to question 2a.)** ____ No **(Please go to question 3.)**

   2a. If "Yes" to question 2 above, which of the following did you see? **(Please check all that apply.)**

   _____individual bear _____bear with cub(s) _____multiple bears

   2b. How many times have you seen a black bear(s) during your stay at the park? Please check **ONE** response.

   _____ one time _____ 2-4 times _____ 5+ times

   2c. Do you think that you've seen the same bear(s) more than once? _____ Yes _____ No

3. Have you *seen or received* any information about black bears in the park?

   ____ Yes ____ No

Section II. Please give us your views about black bears. Your views will help us better understand how park visitors feel about black bears.

1. Please indicate how strongly you agree or disagree with the following statements. **(Please circle ONLY ONE response for each statement.)**

	Strongly Disagree	Disagree	Somewhat Disagree	Unsure	Somewhat Agree	Agree	Strongly Agree
I enjoy seeing black bears in the park.	1	2	3	4	5	6	7
Bears are an important part of our ecosystem.	1	2	3	4	5	6	7
Risk of being injured by a bear in the park is high.	1	2	3	4	5	6	7
Black bears in the park should be conserved for future generations.	1	2	3	4	5	6	7
Bears are not a threat to people.	1	2	3	4	5	6	7
Seeing a black bear increases my appreciation of nature.	1	2	3	4	5	6	7
It is important for me to know black bears exist, even if I never see one.	1	2	3	4	5	6	7
Black bears are a nuisance.	1	2	3	4	5	6	7
Black bears are being properly managed in the park	1	2	3	4	5	6	7

2. Which of the following describes how you think bear population numbers ***in the park*** have changed over the **past five years**? **(Please check ONLY ONE response.)**

_____ Decreased _____ Increased

_____ Remained the same _____ Unsure

3. How much do you support the following actions by **park managers**? **(Please circle ONE response for each action.)**

	Unacceptable in all cases	Unacceptable in some cases	Unsure	Acceptable in some cases	Acceptable in all cases
Capture and relocate bears	1	2	3	4	5
Euthanize black bears captured in popular visitor sites	1	2	3	4	5
Educate the public about human-bear conflicts	1	2	3	4	5
Use regulated hunting to manage bear numbers	1	2	3	4	5
Euthanize bears that repeatedly cause problems for people	1	2	3	4	5
Condition bears to stay away from popular areas	1	2	3	4	5
Leave bears alone	1	2	3	4	5

4. Which action would you prefer to take in the following situations if a bear was on your property? **(Please circle ONLY ONE response for each statement.)**

	I would not do anything in this situation	I would remove the attractant from my property (garbage, bird feeder, etc.)	I would actively try to scare the bear off my property	I would call animal control	Not sure
You repeatedly see a bear near your home.	1	2	3	4	5
A bear damages your property one time.	1	2	3	4	5
You see a bear near your home one time	1	2	3	4	5
A bear repeatedly damages your property.	1	2	3	4	5

5. Which one of the following **BEST** describes your overall opinion about regulated hunting of black bears? **(Please choose ONLY ONE.)**

_____ I approve of regulated hunting. _____ I do not approve of regulated hunting.

_____ I am unsure about my opinion toward regulated hunting.

6. Have you ever participated in black bear hunting?

_____ Yes **(Please go to question 6a.)** _____ No **(Please go to question 7.)**

6a. In what state(s) did you hunt black bears? _____

6b. In what year(s) did you hunt black bears? _____

6c. Were you successful in harvesting a black bear? _____Yes _____No

7. Which one of the following **BEST** describes your overall opinion about regulated **black bear** hunting? **(Please choose ONLY ONE.)**

_____ I support black bear hunting
_____ I am opposed to black bear hunting
_____ I am unsure about my opinion toward regulated black bear hunting.

8. If you OPPOSE regulated hunting of black bears, which one of the following BEST describes why you are opposed to regulated black bear hunting? (**Please choose ONLY ONE.)**
   I feel black bear hunting is…..
   _____ cruel and inhumane _____ unfair to animal being hunted _____ morally wrong
   _____ unsafe for the public _____ the reason black bears are rare
   _____ Other (Please describe:)_____

9. Would you consider hunting black bears in the park in the future?

   _____ Yes _____ No

Section III. Please provide us with your attitudes about wildlife by responding to the statements and questions below.

1. The following statements explore attitudes about wildlife in general. **(Please circle ONE number for each statement.)**

	Strongly Disagree	Disagree	Somewhat Disagree	Unsure	Somewhat Agree	Agree	Strongly Agree
Seeing wildlife during my daily routine gives me a positive feeling.	1	2	3	4	5	6	7
It is not important for people to manage wildlife.	1	2	3	4	5	6	7
Wildlife education is important	1	2	3	4	5	6	7
I enjoy learning about wildlife.	1	2	3	4	5	6	7
People appreciate wildlife through hunting.	1	2	3	4	5	6	7

Section IV. Please tell us something about yourself. All responses are kept confidential.

1. What state are you from? _____

2. How many years have you lived in your current state of residence? _____ years

3. Is this your first time to the park? Yes_____ No_____
   3a. If no, how many times have you been in the past year? 1-5_____ 5-10_____ 10 or more_____

4. Which of the following activities did you or members of your group participate in during your current visit to the park? **(Please check all that apply.)**

   _____ camping _____ wildlife viewing _____ boating _____ photographing wildlife
   _____ hiking _____ hunting _____ canoeing/kayaking _____ horseback riding
   _____ fishing _____ other (Please identify): _____

5. Please give your age: _____

6. Are you male or female? _____ Male _____ Female

7. Which of the following best describes the area where you live? **(Please circle one.)**
   _____City with more than 50,000 residents _____City with less than 50,000 residents
   _____Town of less than 20,000 residents _____Town of less than 10,000 residents
   _____Unincorporated area (rural)

Comments:

This project is funded by Eastern Kentucky University

THANK YOU FOR YOUR TIME AND ASSISTANCE!