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An Exploration of the Relationships Among Moral Foundations, Communications, and Behavioral Intent Regarding Global Tiger Conservation

Louise Flynn Orr
Clemson University, louiseflynnorr@gmail.com

AN EXPLORATION OF THE RELATIONSHIPS AMONG MORAL FOUNDATIONS, COMMUNICATIONS, AND BEHAVIORAL INTENT REGARDING GLOBAL TIGER CONSERVATION

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Louise F. Orr
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Accepted by:
Dr. Brett Wright, Committee Chair
Dr. Elizabeth Perry*
Dr. Robert Powell
Dr. Joe Mazer

*Non-voting post-doctorate mentor

Abstract

Human activity has dramatically increased the rate of biodiversity loss around the world (Diaz, Fargione, Chapin, Tilman, 2006). Tigers (*Panthera tigris*) are one of many species that have been significantly affected by human interference via habitat destruction, illegal wildlife trade, and human-wildlife conflicts. As a result, encouraging local community support for tiger conservation and the support of decision makers (governments, NGOs) is necessary, as is building international support through fund- and awareness-raising, even though many in the developed world have no firsthand relationship with tigers and would not be directly affected by its demise. Therefore, how should conservation organizations interested in tigers communicate with these "geographically disassociated" audiences to increase support for conservation efforts? The purpose of this research was to explore how best to communicate with these "geographically disassociated" audiences about tiger conservation using Moral Foundations Theory as a framework to discover whether moral-based rhetoric is useful in creating effective, strategic messaging that is believable and compelling (2011). The study population was segmented and compared based on respondents': (1)Graham, Nosek, Haidt, Iyer, Koleva, & Ditto, affiliation/non-affiliation with a tiger-mascot school, (2) importance assigned to tiger conservation, (3) knowledge of tigers and tiger conservation issues, and (4) self-reported political ideology. This study can inform conservation communication practices and provide insights into how to recruit and sustain international support for conservation efforts among geographically disassociated audiences.

Findings suggest that those who are affiliated with a tiger mascot school (TMS) are significantly more likely to know more about tigers, to engage in tiger-conservation related behaviors, and to consider tiger conservation highly important to them, than their unaffiliated counterparts. Further, examination of the salience of five moral foundations among respondents in this study confirmed findings reported by previous researchers related to the differences in moral salience between liberals and conservatives, but discovered that, within the context of tiger conservation-related issues, both groups relied most heavily upon the two individualizing foundations of care/harm, fairness/ inequality, but only one binding foundation, sanctity/degradation. Messages written using rhetoric that reflects the individualizing moral foundations were perceived to have a significantly stronger argument than messages utilizing binding rhetoric.

Dedication

To Mom and Dad.

This would not have been possible without your support, and I will forever be grateful for your unwavering love.

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Table of Contents

List of Tables Page

Introduction

Human activity has dramatically increased the rate of biodiversity loss around the world due to deforestation and overexploitation of natural resources (Diaz, Fargione, Chapin, Tilman, 2006; Baillie, Hilton-Taylor, & Stuart, 2004). In addition, higher rates of human population growth and its associated effects are expected to accompany higher rates of species extinction (Cardillo, Purvis, Sechrest, Gittleman, Bielby, & Mace, 2004). Thus, causes of biodiversity loss are ultimately socially-, economically-, and politically-driven by humans (Forester & Machlis, 1996). While some species are slowly recovering due to a variety of conservation efforts, more still needs to be done to ensure that human causes of habitat loss and overexploitation are reduced (Butchart et al., 2010).

One species that has been significantly affected by human interference is the tiger (*panthera tigris*). Habitat destruction, human-wildlife conflict, and poaching are three of the main contributors to tiger population declines (Goodrich et al., 2015). The World Wildlife Fund ranks tigers as one of the most threatened species in the world and classifies them as either endangered or critically endangered (World Wildlife Fund, 2018).

Causes of Tiger Population Decline

Habitat degradation and fragmentation is cited as the leading cause of biodiversity loss around the world. Logging, infrastructure development, livestock ranching, and other large agricultural activities are among some of the biggest threats to natural habitats, including those occupied by tigers (Pimm & Raven, 2000; Baillie et al., 2004). Habitat loss and fragmentation is directly linked to increases in human-tiger conflict and is widely accepted as one of the leading contributors to the decline in tiger populations due to retaliatory killings from perceived or real

threats or attacks on livestock and people (Nyhus & Tilson, 2004). Additionally, tigers are poached from the wild for their skins and other body parts used as fashion statements and in traditional Asian medicinal practices (Karanth & Gopal, 2005). It is necessary for tiger conservation efforts to focus on mitigating these issues in order for populations to rise. For additional information about the myriad issues surrounding biodiversity loss and the plight of tigers in the wild, see the Appendix B.

Conservation Efforts

Community-Based Natural Resource Management (CBNRM) has emerged as a popular method for combining rural development and conservation efforts (Fabricius, Koch, Turner, & Magome, 2013). Specialists in both economic development and conservation agree that community involvement is imperative to the success of conservation and argue that traditional methods of wildlife management prevent locals from utilizing wildlife as a resource (Gibson & Marks, 1995).

On an international level, organizations like the World Wildlife Fund, Wildlife Conservation Society, and Panthera have begun campaigns in the United States and the rest of the developed world to raise awareness and funding for tiger conservation efforts. The Wildlife Conservation Society serves as a good example of a collection-based organization that provides direct financial assistance to conservation efforts around the world (Miller et al., 2004). But, raising awareness of the plight of an endangered species, and motivating a person to contribute financially are not simple tasks, particularly when the person lives thousands of miles away and has no direct experience with the animal. Therefore, it is necessary to draw upon the best

available science and practice of persuasive communication to encourage people living far away to support and contribute to conservation efforts.

Conservation Communication

A key component of any successful strategic conservation campaign is identifying and targeting audiences that are open to receiving information on a specific topic, as campaigns are more likely to be successful and waste fewer resources. With respect to tiger conservation, three audiences are important to consider: villagers and other stakeholders who could have direct contact with tigers, decision-makers (e.g. government organizations, NGOs), and "geographically disassociated" audiences, or people who do not live near tigers and are not affected by them. Conservationists hope to discourage villagers' behaviors that might be harmful to tigers, as well as incentivize them to protect tigers through ecotourism enterprises or other ventures. Decision-makers must be included in campaign efforts as their decisions have the potential to negatively impact tigers and they influence a number of variables on a regional, national, and international scale. Lastly, residents of developed and non-tiger range countries must be considered a viable source of support through fund-raising efforts or other behaviors conducive to helping support tiger conservation.

While much of conservation research is focused on the first two audiences, little is known about "geographically disassociated" people, despite how vital they are to the support and implementation of conservation strategy on a global scale. The geographically disassociated nature of these audiences makes it difficult for organizations to both reach and incentivize them to become involved in conservation efforts. Therefore, this study focused on geographically disassociated people, specifically those residing in the United States.

More specifically, this research sought to gain a deeper understanding of morals and other potential determinants of tiger conservation-related behaviors among this audience. Moreover, it explored how moral rhetoric (based on Moral Foundations Theory) influenced the perceived argument strength of a given message based on differences in political ideology. Further, this research examined differences among respondents who may have a predisposed connection or affinity for tigers by virtue of their affiliation with a tiger mascot school. For example, thousands of schools across the country have adopted the tiger as the school mascot. Students, alumni, and followers of the schools' academic and athletic programs have a "built-in" relationship with the animal, despite most never having seen it in the wild. But, this relationship may be highly superficial in that they also may be highly uninformed regarding its history and the challenges the species faces to survive.[1] Therefore, this has the potential to improve communications, increase funding, spread awareness, and influence behaviors that may have significant impacts on conservation efforts worldwide.

[1] There are approximately 56 U.S. colleges and universities that claim the tiger as their school symbol; four of them -- Auburn University, Clemson University, Louisiana State University, and the University of Missouri -- formed *Tigers United* in 2017. The consortium was created to facilitate research, capacity building, technology transfer, and outreach in order to foster increased success in protecting tigers and their remaining habitat in the 13 tiger range countries. This study is complementary to Consortium efforts.

Review of Related Literature

Human Behavior Research

Agencies charged with protecting and promoting biodiversity are interested in countering behaviors related to biodiversity loss as well as encouraging people to behave in ways more conducive to the long-term survival of species. Explaining human behavior is a difficult task, as is influencing it, and numerous concepts and theoretical frameworks have been explored in order to do so (Ajzen, 1991).

Much research has focused on exploring how general *attitudes* about an object (e.g., an organization, ideology, public policy) can predict behavior. The Theory of Reasoned Action was among some of the first theories that attempted to explain how attitudes influence a person's behavior, but the theory was limited in its assessment of behaviors in which people have incomplete control (Fishbein & Ajzen, 1975). Ajzen (1991) extended this theory in response to these limitations by combining three variables (attitudes toward a behavior, subjective norms with respect to a behavior, and perceived control over the behavior) which, when examined together, can predict behavioral intentions with a higher degree of accuracy than those previously outlined in the Theory of Planned Behavior. This has been applied to a variety of research areas, including the exploration of environmental behaviors. Similarly, the influence of subjective norms on behavior has been examined, but both attitudes and subjective norms show an empirically low relationship with behavior, which has led many researchers to adjust these theories and examine other possible variables (Mischel, 2013).

In addition to attitudes, *values* also have been an area of examination regarding hypothetical determinants of overt behavior (Bardi & Schwartz, 2003). The relationship between values and behavior has been explored in mostly hypothetical situations but demonstrated that

people are inclined to act according to their values (Feather, 1995; Bardi & Schwartz, 2003). Early studies (e.g. Rokeach, 1973; Schwartz, 1996) connected values to behaviors by focusing on single behaviors or groups of behaviors that relate to one specific value (e.g., religiosity) (Bardi & Schwartz, 2003). Despite this relationship, there is little agreement among researchers as to the significance of values as a part of the decision-making process, and empirical research has yet to discover if values relate to behavior generally, or only relate to a handful of behaviors (Bardi & Schwartz, 2003). Some studies show a relationship between personal values and cognitive decisions (e.g. political ideology and candidate selection in an election) but this does not account for the many decisions a person makes spontaneously and subconsciously on a daily basis (Schwartz, 1996). Additionally, as Bardi and Schwartz (2003) noted, there are numerous variables that potentially influence real-life behaviors.

In addition, several researchers have argued that *morals* contribute to the spontaneous and subconscious "gut reactions" in situations that require some sort of moral consideration (Koleva, Graham, Iyer, Ditto, & Haidt, 2012). If this is the case, moral intuition should be considered another variable that has the ability to influence human behavior. Haidt (2001) stated that a person's moral intuition is an automatic production due to a mostly subconscious process. In their study on the influence of moral rhetoric on the debate over stem cell research, Clifford and Jerit (2013) noted that to influence public opinion "politicians have an incentive to invoke the relevant *moral* considerations in their public arguments" (p. 660). Extending that argument, employing moral considerations through rhetoric and strategic communications could have an impact on human behaviors within other sectors, like conservation.

Moral Foundations Theory

In 1969, Kolhberg founded the modern field of moral psychology by positing that there is only one moral foundation, and that moral psychology research is dedicated to the development of the understanding of justice in children (Graham et al., 2013). Moral Foundations Theory (MFT) contradicts this by adopting a more pluralist perspective of the moral domain, meaning there is more than one moral foundation upon which we build our concept of morality (Graham et al., 2013). MFT marries the following concepts: (1) Fiske's theory (1991) which consists of four relational models of morality including communal sharing, authority ranking, equality matching, and market pricing; and, (2) Shweder's (1990) theory of three moral languages - autonomy, community, and the ethic of divinity (Graham et al., 2013). Moral Foundations Theory was conceptualized as a way to bridge anthropological and evolutionary theories on human moral reasoning and judgement (Graham et al., 2013). The initial purpose of the theory was to better explain differences in moral judgement between cultures, but has since begun to be applied to a variety of areas.

The underpinnings of MFT include four distinct themes: *nativism, cultural learning, intuitionism,* and *pluralism* (Graham et al., 2013). *Nativism* is the concept that our genes as humans provide a "first draft" of our sense of morality (Graham et al., 2013). According to evolutionary psychologists, innate moral knowledge can be "made possible because of recurrent problems and opportunities faced by a species over long periods of time often produce domain specific cognitive adaptations for responding rapidly and effectively" (Graham et al., 2013, p. 8). MFT takes this idea and further postulates that our minds are organized in utero with the expectation that experience will teach us cultural and personal values and behaviors as they relate to various social issues.

Cultural learning is the second theme and states that as humans develop, the mind is edited according to these cultural and personal values and behaviors learned during the process of growing up (Graham et al., 2013). This is also the reason for using the word "foundation" because foundations are meant to be built upon. Graham cites cognitive anthropologist, Dan Sperber, and his version of modularity theory that suggests modules in our brains that become present after birth are specifically for the function of learning (Sperber, 2005). Therefore, humans have "learning instincts" that assist in the creation of these moral foundations.

Intuitionism is the third building block of MFT and suggests that while humans do a significant amount of cognitive thinking and deliberating, much of our decision-making and judgements are made due to our intuitions (Graham et al., 2013). Jonathan Haidt, one of the major contributors to MFT, used previous social psychology research to formulate the Social Intuitionist Model (SIM) and defined moral intuition as "the sudden appearance in consciousness, or at the fringe of consciousness, of an evaluative feeling (like-dislike, good-bad) about the character or actions of a person, without any conscious awareness of having gone through steps of a search, weighing evidence, or inferring a conclusion," (Haidt, 2001, p. 818). Humans make judgements rapidly and automatically and follow up their automatic judgements with cognitive thinking and rationalization (Haidt, 2001).

The final underpinning of MFT is *pluralism*. This is the idea that there are multiple moral foundations, and the authors behind the creation of this theory believe that there are five that withstand cultural differences and form the basis of global human moral reasoning (Graham et al., 2013). The five moral foundations of MFT are:

(1) *care/harm* -- the evolutionary attachment system and the human ability to feel the pain of others;

(2) *fairness/inequality* -- related to "reciprocal altruism" and justice and rights;

(3) *loyalty/betrayal* -- patriotism and self-sacrifice for the betterment of the group;

(4), *authority/subversion* -- related to evolutionary hierarchical social interactions and respect for leadership and followership; and,

(5) *sanctity/degradation* -- the psychology of disgust and contamination.

(Graham et al., 2009).

Applications of Moral Research

While MFT was created for research in cultural psychology, it was quickly adopted and applied to political psychology. Graham et al. (2009) examined the differences between liberal and conservative moral values and found that those with liberal political ideologies are primarily concerned with the care/harm and fairness/inequality foundations while those with conservative ideologies have more equally distributed concerns across all five foundations. The first two foundations are referred to as the *individualizing* foundations, as they pertain to the person, while the latter three are referred to as *binding* foundations, as they pertain to the group (Graham, Nosek, Haidt, Iyer, Koleva, & Ditto, 2012). This helped identify broader moral concerns and explain support for many political debates that occur within western culture (Koleva, Graham, Iyer, Ditto, & Haidt, 2012).

Furthermore, moral foundations rhetoric has been shown to have an impact on public attitudes (Clifford & Jerit, 2013). For example, in the debate over stem cell research, content from the *New York Times* and seven national surveys were analyzed and found that "moral rhetoric has had a substantial effect on public attitudes regarding the fundamental considerations underpinning the debate" (Clifford & Jerit, 2013). The authors posited that because of the effect of moral foundations reasoning on the public using strategic media, politicians and other leaders have an incentive to consider them in their various appeals (Clifford & Jerit, 2013). Through text

analysis utilizing the Moral Foundations Dictionary (a list of words associated with each of the five moral foundations), studies have measured the utility of moral foundations word use in a number of different areas including computer science blog analyses (Dehghani, Sagae, Sachdeva, & Gratch, 2014) and digital humanities analyses of 18th-century texts (Pasanek, 2009).

Wolsko, Ariceaga, and Seiden (2016) expanded MFT research into the environmental sphere and explored how utilizing specific moral rhetoric influences the perceived argument strength of a pro-environmental message. Pro-environmental messaging is often written narrowly and using language that is highly appealing to liberals, which is why the authors explored what would happen if a pro-environmental message was written using binding foundation language (Clayton, Cohen, & Grover, 2013). Results indicated that when a message is written utilizing rhetoric reflective of the three binding foundations, it is perceived by conservatives as stronger and more compelling than when it is written utilizing the two individualizing foundations (Wolsko et al., 2016).

The creators of MFT suggested the current and future development of the theory rests on the creation of new ways to employ these moral constructs, and that data collected from these studies will continue to guide the development of the theory (Graham et al., 2013).

Persuasive Communication & Conservation

Changing public opinion and influencing behavior through various forms of media today is a multi-billion-dollar industry. Beginning in the 1920s and 1930s with the dissemination of wartime propaganda, mass media and its associated effects were assumed to be potent, and the behaviors and attitudes of the public easily manipulated (Bryant & Oliver, 2009). Examples of this include the panic during the stock market crash, during Orson Wells' *War of the Worlds* radio broadcast in 1938, and the rise of Adolf Hitler in Germany (Bryant & Oliver, 2009). As

research into media effects phenomena became more prevalent, it was discovered that mass media attempts at persuasion were not nearly as effective as previously thought (Bryant & Oliver, 2009). Much of communications research since has explored better ways to target audiences and improve persuasive messaging.

Importance of New Media

The usage of advertising and persuasive messaging techniques has evolved significantly since the turn of the 21st century and has moved beyond traditional forms of media into the world of the internet. Now, it is imperative that conservation strategy include online marketing and communication techniques that reflect the ever-changing online landscape. Within the conservation sector, Büscher (2014) notes that "Web 2.0 and social media applications that allow people to share, co-create and rate online content are crucial new ways for conservation organizations to reach audiences and for concerned individuals and organizations to be (seen as) 'green'," (p. 726). It is also an area in which people are more likely to engage in political consumerism (Zúñiga, Copeland, & Bimber, 2013). Many conservation organizations have begun to adapt to this new age of online media, and members of the public are encouraged to stay connected and engaged through websites and social media (Büscher, 2014).

Research on the social, political, and economic impacts of new media on society has largely ignored impacts related to the environment, conservation, and human connection to nature (Büscher, 2014). This is a significant gap in the literature, as the vast majority of conservation organizations have websites or other forms of new media that they utilize to connect with and influence the public. These websites invariably link to social media platforms like Facebook, Twitter, Pinterest, YouTube, and others via 'social plugins,' which are

opportunities to form online connections between web content and social platforms (Büscher, 2014; Gerlitz & Helmond, 2013). Connections between social media and web content, and engagement with this content is important, as it is considered a type of consumer behavior that may lead to an increase in views and brand awareness (Ashley & Tuten, 2015).

Communication Theory

A number of theories have been developed throughout the past century that have contributed to a more targeted and effective form of persuasive communication. These theories are utilized by many organizations and marketing agencies to affect some sort of change in behavior. Throughout the past several decades, behavioral theory has emerged as a promising tool used to measure behavior-change interventions. As Fishbein and Cappella (2006) argue, "the more one knows about the determinants of a given behavior, the more likely it is that one can develop an effective communication or other type of intervention to reinforce or change that behavior," (p. S1). Properly applying certain theories of behavioral prediction and change allows one to identify and examine the beliefs that underpin a person's intent to behave, which can then inform persuasive communication messaging (Fishbein & Capella, 2006).

It has been suggested that communicating strong arguments is more effective than communicating weak arguments as strong arguments do not inspire as much counterarguing (Greenwald, 1968). Literature explaining what makes an argument "strong" versus "weak" is scarce, but a recent study has shown that certain predispositions, or cognitive biases, can increase the likelihood that a person finds a message persuasive (Arceneaux, 2012). Arceneaux (2012) explained that decision-making processes are often reflective of "contextually contingent predispositions for particular solutions," (p. 272). Clifford and Jerit (2013) argued that

invocation of moral considerations is similar to that of cognitive biases, and that the moral foundations as described by Haidt (2001) are, in essence, predispositions. Other studies have shown the potential persuasiveness of moral appeals, and some of the most effective arguments petition cultural values and symbols (McGraw, Schwartz, Tetlock, 2013; Chong, 1996). Therefore, it stands to reason that with respect to any contentious and morally challenging debate – e.g., the need for conservation of habitat as opposed to conversion of land for other economic uses -- understanding predispositions like one's moral foundations could be effective in influencing one's behavior.

In summary, there is a clear need for new and innovative strategies to combat biodiversity loss on every scale, from local to global; current efforts have been unable to significantly slow the rate of biodiversity loss worldwide (Butchart et al., 2010). As a result, efforts to curtail biodiversity loss have been undertaken, not only in countries where species live, but also in countries far removed. Ironically, much of the work of conservation organizations, such as the World Wildlife Fund, Conservation International, the Nature Conservancy and others, is focused on garnering financial and political support in the developed world where people have no direct association with the animal or ecosystem in question. Communicating with these geographically disassociated audiences is quite a challenge and requires communicating differently than one would with people who have a close association with the animal.

This research focused on geographically disassociated audiences in the United States, as they are an understudied yet increasingly important population with respect to international conservation efforts. Understanding the moral foundations relied upon by this audience may offer insights into potential determinates of tiger-conservation related behaviors, and how moral

rhetoric may be used for more targeted conservation-communication campaigns. In addition to moral rhetoric, this research examined the differences found among respondents based on TMS affiliation, political ideology, levels of tiger-related knowledge, and self-reported importance of tiger conservation. Exploring the differences between population segments is imperative in order to take the next steps toward developing a more comprehensive, cohesive, and successful tiger conservation strategy in the United States.

Methods

Overview

This study explored potential antecedents of engaging in conservation-related behaviors by exploring the role of *human morals* as determinants of conservation-related behaviors. Specifically, this study utilized the framework of Moral Foundations Theory (Graham et al., 2013) to explore the role of five moral domains in influencing conservation-related behaviors related to saving wild tigers. Those five moral domains are: (1) care/harm; (2) fairness/inequality; (3) loyalty/betrayal; (4) authority/subversion; and (5) sanctity/degradation. Moreover, this study was conducted among people living in the United States who are geographically removed from contact with wild tigers and possess no obvious commitment to help save this endangered species. Specifically, this research sought to gain a deeper understanding of morals and other potential determinants of tiger conservation-related behaviors among this audience and examined how moral rhetoric influences their perception of a given argument in favor of tiger conservation. Additionally, this research examined differences among respondents who have a potential predisposed affinity for tigers by virtue of their affiliation with a tiger mascot school. For example, hundreds of schools across the country have adopted the

tiger as the school mascot. Students, alumni, and followers of the schools' academic and athletic programs have a "built-in" relationship with the animal, despite most never having seen it in the wild. But, this relationship may be superficial in that they also may be highly uninformed regarding its history and the challenges the species faces to survive. Lastly, differences between additional segments of the study population (based upon knowledge, political ideology, and self-reported importance of tiger conservation) were examined.

Research Questions

The following research questions informed the study design and guided the questionnaire development and data collected.

RQ1: What level of knowledge do people living in the United States possess regarding wild tiger populations?

RQ2: How does the level of knowledge differ among different segments of the study populations?

a) affiliated/not affiliated with a Tiger Mascot School (TMS)?
b) with differing political ideologies? and,
c) with differing levels of importance assigned to tiger conservation?

RQ3: How does the likelihood of engaging in tiger conservation-related behaviors vary among different segments of the study population?

a) affiliated/not affiliated with a Tiger Mascot School (TMS)?
b) with differing levels of knowledge regarding tiger conservation?
c) with differing political ideologies? and,
d) with differing levels of importance assigned to tiger conservation?

RQ4: How do respondents' placement on the moral foundations scales differ among different segments of the study population?

a) affiliated/not affiliated with a Tiger Mascot School (TMS)?
b) with differing levels of knowledge regarding tiger conservation?
c) with differing political ideologies? and,
d) with differing levels of importance assigned to tiger conservation?

RQ5: What are the differences in perceived argument strength between liberals and conservatives when given messages written using purposive moral rhetoric?

a) Political ideology – liberals and conservatives
b) Message type – individualizing and binding
c) Message match – matched and unmatched

Selection of the Study Population

The study population for this research consisted of geographically disassociated adults (people living in the United States) who have no known direct association with wild tigers. For comparison purposes, the study population was segmented into four separate sub-populations based on: (1) TMS affiliation, (2) political ideology, (3) self-reported importance of conservation, and (4) knowledge of tigers and tiger conservation-related issues. The study population was recruited from: (1) social media message boards associated with a TMS athletic or school-related website (Reddit and TigerNet.com) and (2) MTurk, a crowdsourcing marketplace through Amazon that is visited by citizens from around the U.S. Message boards on Reddit targeted both Auburn and Clemson University communities, while TigerNet.com is associated specifically with Clemson University. Screening questions were utilized to ensure the differentiation between subpopulations.

Development of the Survey Instrument

The online survey questionnaire was divided into seven sections pertaining to: (a) moral relevance, (b) moral judgement, (c) knowledge of global tiger conservation, (d) a prescribed message (e) perceived argument strength (f) behavioral intentions related to tiger conservation, and (g) demographics. The first and second sections of the survey were adapted from the Moral Foundations Questionnaire (MFQ) developed by Graham et al. in 2009. The MFQ was developed to examine the valence of the five moral domains. Items were refined and contextualized slightly to reflect scenarios relating to both people and animals, and conservation-

related situations (see Appendix for complete list items). The items describing moral relevance (Section 1) utilized a six-point Likert-type scale ranging from "Never Relevant" to "Extremely Relevant." The items describing moral judgements (Section 2) utilized a six-point Likert-type scale ranging from "Strongly Disagree" to "Strongly Agree."

The third section of the questionnaire included a set of eight questions aimed at assessing respondents' knowledge of global tiger conservation. These items examined respondents' knowledge of tigers, as a means of testing the long-held assumption that knowledge is a prerequisite to, but not sufficient to explain behavior. Items consisted of multiple choice and fill-in-the-blank questions and were weighted according to level of difficulty – one point for basic tiger knowledge, and two points for more in-depth knowledge of tiger conservation-related issues. The total number of points a respondent was able to earn was 13.

The knowledge questions asked were:

1. On what continent(s) are tigers found in the wild?
2. In how many countries around the world are tigers found?
3. Name one country in which tigers are found.
4. What is the latest estimate of the number of tigers living in the wild, worldwide?
5. List one cause of tiger population decline.
6. Tigers have lost ____ percent of their habitat over the past century.
7. List one reason tigers are poached from the wild.
8. Tigers thrive in small territories because…

In the fourth section, respondents were asked to read one of two persuasive messages written purposefully to utilize the care/harm and fairness/inequality foundations only (*individualizing message* theorized to match the moral concerns of liberals) or written to utilize rhetoric relating to the loyalty/betrayal, authority/subversion, and sanctity/degradation foundations (*binding message* theorized to match the moral concerns of conservatives) (Graham et al., 2009). The distinction between these two messages was based on prior moral foundations

research that examined the differences between liberals and conservatives with respect to their reliance on the five moral foundations. Language and format were borrowed from Wolsko et al. (2009) to ensure that real differences between the two treatments were discernable.. The Moral Foundations Dictionary was used as a reference to guarantee the rhetoric utilized was reflective of each moral foundation (Graham et al., 2009).

The fifth section measured respondents' perceptions of various aspects of the message's argument strength. The 10-item scale was based on the work of Zhao, Strasser, Cappella, Lerman, and Fishbein (2011) and Wolsko et al., (2016). Items were contextualized to comport with the tiger conservation-related messages employed. It utilized a 7-point Likert scale with the anchors "strongly disagree" and "strongly agree." Items were recoded to convert the scale from 1 to 7 to -3 to 3 in accordance with procedures used by Zhao et al. (2011).

Items in this scale were:

1. The previous message feels like it came from "my people."
2. The previous message reflects my group's values.
3. The message gives a reason for being concerned about endangered tigers that is believable.
4. The message gives a reason for being concerned about endangered tigers that is convincing.
5. The message gives a reason for being concerned about endangered tigers that is important to me.
6. The message helped me feel confident about how to best help endangered tigers.
7. The message would encourage my friends to help endangered tigers.
8. The message put thoughts in my mind about wanting to help endangered tigers.
9. The message put thoughts in my mind about *not* wanting to help endangered tigers (reversed coded).
10. Overall, to what extent do you agree or disagree with the message?

The sixth section included items designed to measure a person's likelihood to engage in seven (7) tiger conservation-related behaviors. These conservation-related behaviors were specifically selected due to the feasibility of being accomplished by a geographically

disassociated audience. A 7-point Likert-type scale was utilized in this section using the anchors "extremely unlikely" and "extremely likely."

The seven behaviors in this scale were:

1. Search online for more information about tiger conservation.
2. Engage with a related article on social media (like/share/comment/retweet/favorite).
3. Sign a petition calling for tiger conservation.
4. Write a letter to a government entity or NGO encouraging it to take action.
5. Donate money to tiger conservation efforts.
6. Travel to a zoo to learn more about tigers.
7. Travel overseas to see tigers in the wild.

Finally, the seventh section requested demographic and sociographic information. Included in this section were single items asking respondents to self-report their political ideology on a 7-point scale ranging from strongly liberal (1) to strongly conservative (7), as well as how important tiger conservation was to them on a 10-point scale ranging from not important (1) to extremely important (10). These were used to further examine how political ideology and conservation importance may relate to behavioral likelihood.

Data Collection Procedures

The questionnaire was administered online through Qualtrics. Respondents for the survey administered through Qualtrics were recruited by posting on TMS athletic or school-related social media sites. Specifically, sites used were the Clemson and Auburn University subreddits (Reddit.com), and message boards on TigerNet.com, a Clemson affiliate. This purposive sampling method was used to ensure that a significant portion of the study population was affiliated with a tiger mascot school. The post seeking respondents included an explanation of the research and information that ensures that answers would be held in strict confidence. Respondents also were recruited on MTurk by offering a small financial stipend of $2.00 as a

reward for participating (a requirement for recruiting respondents on MTurk). The reason for utilizing MTurk as a sampling frame was to recruit a population of respondents who were unaffiliated with a tiger mascot school. No specific demographic information was set as a parameter for MTurk recruits other than their residence (United States).

Treatment of the Data

Analyses of the data were reflective of the research questions that guided the study. Frequencies of responses for every variable were calculated and examined to ensure there were no outliers or missing data. Frequencies and statistics of central tendency (means, modes, medians) were used to describe the study population and compare and contrast different population segments. Independent sample t-tests were used to determine if the differences in means between dichotomous, independent variables and continuous variables were significant. Quick cluster analyses were utilized to accurately divide our population into segments according to several variables, using a predetermined number of clusters. Chi-square tests determined if differences in the percentage of correct respondents to knowledge items were significant, and Cramer's V tests determined applicable effect sizes. T-tests were used to test for significance of differences reported between groups, on both individual items and composite scales, and Cohen's d was used to determine the effect sizes. Analyses of Variance (ANOVAs) were utilized to determine differences between more than two groups, and Tukey's post hoc tests were utilized to determine which groups were significantly different from one another. Lastly, items depicting the five moral domains were tested for internal validity using Cronbach's alpha.

Results

Description of the Study Population

At the end of the data collection period, a total of 403 responses were collected. After eliminating respondents that did not complete the majority of the survey, as well as respondents that were not from the United States, the final number of respondents was 344. In order to provide more robust descriptions of the different segments of the study population that were explored, means and ranges for demographic variables (age, gender, and education) were tallied according to four subpopulation segments (based on TMS affiliation, political ideology, level of knowledge, and importance assigned to tiger conservation).

The mean age of the total study population was approximately 40 years old ($\bar{x} = 39.6$) (Table 1). Overall, respondents were close to evenly divided between genders, with slightly more female respondents than males (54:46). A majority of respondents reported completing a bachelor's degree or higher (59.2%).

Respondents who were affiliated with a tiger mascot school (TMS) were slightly more than four years younger than their unaffiliated counterparts, with the difference between the two groups significant ($p \leq .008$). Affiliated respondents also were more likely to be male; slightly more than six in ten affiliated respondents were male. Further, approximately two thirds of affiliated respondents also obtained a bachelor's degree or higher (69.4%), with almost a quarter of this group reporting they had completed a graduate degree. This differs substantially from the unaffiliated group, with only half of respondents reporting a bachelor's degree or higher. Therefore, in sum, the affiliated segment of the study population was significantly younger, more often female, and had obtained higher levels of education, than the unaffiliated segment.

Table 1. *Description of the Study Population, by TMS Affiliation and Political Ideology*

Variables	**TMS Affiliation**			**Political Ideology**				
	Affiliated	Unaffiliated		Liberal	Conservative		Total	
	n = 147	*n* = 171	*p*	*n* = 174	*n* = 106	*p*	*N* = 344	
							#	%
Age**								
Mean	37.3	41.4	.008*	38.0	42.1	.015*	39.6	
Range	17 - 71	20 - 73		19 - 69	17 - 73		17 - 73	
Gender***								
Male (%)	60.5	48.8	.037*	46.2	70.5	.001*	173	45.9
Female (%)	39.5	51.2		53.8	29.5		145	54.1
Education****								
Less than high school (%)	0.7	0.0	.001*	0.0	1.0	.135	1	0.3
High school (%)	3.4	11.0		8.0	3.8		24	7.5
Some college (%)	18.4	22.7		23.0	17.1		66	20.7
Associate's Degree (%)	8.2	15.7		13.8	8.6		39	12.2
Bachelor's Degree (%)	46.3	43.6		41.4	50.5		143	44.8
Graduate Degree (%)	23.1	7.0		13.8	19.0		46	14.4

*Signifies a statistically significant p-value ($p \leq .05$)
**TMS Affiliation: t = -2.754, Political Ideology: t = 2.450
***TMS Affiliation: t = 4.364, Political Ideology: t = 15.530
****TMS Affiliation: t = 26.231, Political Ideology: t = 8.421

The study population was also segmented based on respondents' self-reported political ideology. Conservatives in the study population tended to be older than liberals by approximately four years ($p \leq .015$) and were significantly more likely to be male; only 30 percent of conservative respondents were female. Additionally, 70 percent of the conservative population had obtained a bachelor's degree or higher. In contrast, liberals reported more parity between genders (54:46) with marginally more reporting as female. Slightly more than half of the liberal group had completed a bachelor's degree or higher. Gender was found to be a significant predictor of political ideology ($p \leq .001$) while education was not (Table 1).

In order to more easily examine differences in levels of knowledge, a quick cluster analysis was conducted in order to sort respondents into a three predetermined groups, consisting of low, medium, and high knowledge levels. The cluster centers of each group, out of a possible 13, are as follows: low = 4.96, medium = 8.04, high = 11.45. As can be seen in Table 2,

respondents exhibiting low-, medium-, and high-levels of knowledge were approximately the same age and were more evenly represented by male and female respondents. Differences were seen in levels of education, with the percentage of respondents reporting completing higher education degrees increasing as knowledge increased.

Similar to knowledge, respondents who reported the level of importance assigned to tiger conservation were sorted into a three predetermined groups using a quick cluster analysis. The cluster centers for these three levels, out of a possible 10, are: low = 3, medium = 7, and high = 10. Mean ages of respondents assigning low, medium, and high levels of importance to conservation were found to be approximately the same age (37 to 40 years old) with the medium group reporting a slightly lower mean age than those in the low and high groups. Interestingly, while the high group was more evenly distributed between genders, the low and medium groups were over 60 percent female. Lastly, the levels of education reported among the three levels of importance were similar.

Table 2. *Description of the Study Population, by Levels of Knowledge and Levels of Importance Assigned to Tiger Conservation*

Variables	**Knowledge**			**Conservation Importance**				
	Low *n* = 52	Medium *n* = 134	High *n* = 140	Low *n* = 50	Medium *n* = 105	High *n* = 164	Total N = 344 #	%
Age								
Mean	38.9	39.1	40.0	39.6	37.6	40.9	39.6	
Range	19 – 67	19 – 71	17 – 73	20 – 67	19 – 71	17 – 73	17 - 73	
Gender								
Male (%)	46.9	43.8	48.1	36.7	38.5	53.0	145	45.9
Female (%)	53.1	56.2	58.9	63.3	62.5	47.0	173	54.1
Education								
Less than high school (%)	0.0	0.0	0.8	0.0	0.0	0.6	1	0.3
High school (%)	20.0	7.7	3.0	14.3	4.8	6.7	24	7.5
Some college (%)	12.0	23.8	21.1	22.4	21.9	19.5	66	20.7
Associate's Degree (%)	20.0	14.6	7.5	4.1	12.4	14.6	39	12.2
Bachelor's Degree(%)	42.0	36.9	52.6	51.0	45.7	42.1	143	44.8
Graduate Degree (%)	6.0	16.9	15.0	8.2	15.2	16.5	46	14.4

Knowledge of Tiger Conservation

An analysis of the frequency of correct responses to each of the eight knowledge questions revealed that U.S. citizens scored in the 69th percentile (8.98/13.0) regarding overall knowledge of tigers and tiger conservation (Table 3). Further, the relatively low numbers of respondents answering three questions correctly, indicated gaps in knowledge. In general, respondents were uncertain about the continent where tigers roam (39.3% correct), the number of tigers remaining in the wild (51.1% correct), and the percentage of tiger habitat lost over the past century (44.4% correct).

Table 3. *Percentage of Respondents Answering Knowledge Questions' Correctly, by Tiger Mascot School Affiliation*

Variables (Knowledge Items)	TMS Affiliated $n = 147$ (% correct)	TMS Unaffiliated $n = 171$ (% correct)	Total $N = 317$ (% correct)	Chi Square	p-value
What continent?	43.5	35.7	39.3	2.050	.152
# of countries?	70.1	66.1	67.9	0 .576	.448
Name a country	86.1	78.4	81.9	3.167	.075
# of tigers left in wild	61.2	42.4	51.1	11.236	.001*[1]
Cause of tiger decline	95.9	92.9	94.3	1.305	.253
% of lost habitat?	46.6	41.8	44.0	0.738	.390
Why tigers are poached	95.9	97.7	96.9	0.788	.375
Small territories?	71.4	61.4	66.0	3.542	.060
Composite Mean Score (1-13)**	9.50 (2.29)	8.54 (2.68)	8.98 (2.55)	n/a	.001*

Note: For full questions asked, see Appendix for complete survey instrument (pg. 87)
*Signifies a statistically significant p-value ($p < .05$).
**Total number of points a respondent was able to earn is 13, knowledge questions 1, 2, and 3 were weighted 1 point and knowledge questions 4, 5, 6, 7, and 8 were weighted 2 points. (t-value = 3.368)
[1]Cramer's V = .18

TMS Affiliation

To examine the relationship between TMS-affiliation and knowledge of tigers and tiger conservation, Chi-square tests were used to compare the affiliated and unaffiliated groups. The composite knowledge scores reported by TMS-affiliated respondents were significantly higher than respondents who had no affiliation with a tiger mascot school ($t = 3.368, p \leq .001$)(Table 3*)*. The composite mean score for the TMS-affiliated group was 9.50, while the composite mean score for the TMS-unaffiliated group was 8.54. In general, TMS affiliated respondents scored slightly above the population mean for each question, save one (#7), even though no statistically significant difference can be reported. However, a significant difference was reported regarding knowledge of the number of tigers remaining in the wild ($p \leq .001$). TMS affiliated respondents were significantly more likely to answer that question correctly.

Political Ideology

Similar analyses were conducted to compare the level of knowledge between respondents based on self-reported political ideology (liberal versus conservative). No significant differences were found between liberals and conservatives regarding their knowledge of tigers and tiger conservation. The composite knowledge scores reported by the two groups were almost identical (Table 4). Once again, regardless of position on the political continuum, respondents reported gaps in their knowledge regarding (a) where tigers live, (b) the approximate number of tigers remaining in the wild, and (c) the significant losses of tiger habitat over the last few decades.

Table 4. *Percentage of Respondents Answering Knowledge Questions Correctly, by Political Ideology*

Variables (Knowledge Items)	Liberals $n = 174$ (% correct)	Conservatives $n = 104$ (% correct)	Total $N = 316$ (% correct)	Chi Square	p-value
What continent?	41.4	38.1	40.1	0.294	.588
# of countries?	66.7	68.6	67.4	0.108	.742
Name a country	82.7	83.5	83.0	0.032	.858
# of tigers left in wild	48.6	57.1	51.8	1.930	.165
Cause of tiger decline	96.0	91.4	94.2	2.467	.116
% of lost habitat?	45.9	39.0	43.3	1.258	.262
Why tigers are poached	97.7	94.3	96.4	2.210	.137
Small territories?	63.2	69.5	65.6	1.154	.283
Composite Mean Score (1-13)**	8.98 (2.47)	8.99 (2.61)	8.98 (2.55)	n/a	.980

Note: For full questions asked, see Appendix for complete survey instrument (pg. 87)
*Signifies a statistically significant p-value ($p < .05$).
**Total number of points a respondent was able to earn is 13, knowledge questions 1, 2, and 3 were weighted 1 point and knowledge questions 4, 5, 6, 7, and 8 were weighted 2 points. (t-value = -0.025)

Importance Assigned to Tiger Conservation

Unlike political ideology, differences in knowledge were found among respondents expressing differing levels of importance assigned to tiger conservation (Table 5). Again, the frequency of correct responses for question #4 (number of tigers left in the wild) was significantly different when compared between the low/medium and high groups, suggesting that people who believe tiger conservation is highly important to them are more likely to know how many tigers remain in the wild. Additionally, the composite score between the low/medium groups and the high group was significantly different ($f = 7.07, p \leq .001$).

Table 5. *Percentage of Respondents Answering Knowledge Questions Correctly, by Level of Importance Assigned to Tiger Conservation*

Variables (Knowledge Items)	Low *n* = 49 (% correct)	Medium *n* = 104 (% correct)	High *n* = 163 (% correct)	Total N = 312	Chi Square	p-value
What continent?	44.9	31.4	42.7	39.3	4.157	.125
# of countries?	69.4	64.8	68.9	67.6	0.585	.746
Name a country	81.3	78.8	84.0	81.9	1.176	.555
# of tigers left in wild	44.9$_a$	38.5$_a$	60.4$_b$	50.8	13.022	.001*$_1$
Cause of tiger decline	87.8	94.2	96.3	94.3	5.196	.074
% of lost habitat?	32.7	42.3	49.1	44.3	4.370	.112
Why tigers are poached	95.9	97.1	97.0	96.9	0.175	.916
Small territories?	57.1	64.8	69.5	66.0	2.688	0.261
Composite Mean Score (1-13)**	8.27$_a$ (2.71)	8.51$_a$ (2.55)	9.49$_b$ (2.40)	8.98 (2.55)	n/a	0.001*

Note: For full questions asked, see Appendix for complete survey instrument (pg. 87)
*Signifies a statistically significant p-value ($p < .05$).
**Total number of points a respondent was able to earn is 13, knowledge questions 1, 2, and 3 were weighted 1 point and knowledge questions 4, 5, 6, 7, and 8 were weighted 2 points. (f-score = 7.07)
$_1$Cramer's V = .20

In addition to examining knowledge among those who assigned low, medium, and high levels of importance to tiger conservation, a t-test was conducted to determine whether TMS affiliation and political ideology were in any way related to tiger conservation importance. Results indicate that those affiliated with a TMS ($\bar{x} = 7.73$) were significantly more likely to place higher importance on tiger conservation than those who were unaffiliated ($\bar{x} = 6.73$, $p \leq .001$) (Table 6). No significant differences were found between liberals and conservatives.

Table 6. *Levels of Self-Reported Importance of Conservation, by TMS Affiliation and Political Ideology*

Variable	TMS Affiliation					Political Ideology				
	Affiliated n = 147	Unaffiliated n = 171	Total N = 317	t	p-value	Liberal	Conservative	Total	t	p-value
Conservation Importance (1-10)**	7.73 (2.10)	6.73 (2.49)	7.19 (2.37)	3.910	.001*[1]	7.38 (2.36)	6.89 (2.47)	7.19 (2.41)	1.663	.097

*Signifies a statistically significant p-value ($p < .05$)
**Items measured on a 10-point scale, ranging from not important (1) to extremely important (10)
[1]Cohen's D = .43

Results from these analyses indicate that with respect to knowledge, TMS affiliated respondents generally knew more about tigers and tiger conservation related issues, as did those who consider tiger conservation highly important to them. The primary gap in knowledge that distinguished differences between groups within the TMS affiliated and tiger conservation importance variables was knowledge about the number of tigers remaining in the wild.

Likelihood of Behavioral Engagement

After examining the levels of knowledge among different segments of the population, analyses were conducted to determine differences in likelihood to engage in tiger conservation-related behaviors among the same study population segments. In addition to TMS affiliation, political ideology, and self-reported importance of tiger conservation, levels of knowledge were analyzed. In total, respondents appeared most likely to search online for more information about tigers, while writing a letter in support of tiger conservation and traveling overseas to see them in the wild were behaviors respondents would be least likely to engaged in. Additionally, those affiliated with a TMS and those who list tiger conservation as highly important to them are significantly more likely than unaffiliated people and those within low and medium importance groups to engage in tiger conservation-related behaviors overall.

TMS Affiliation

Significant differences in the likelihood to engage in tiger conservation behaviors were found when comparing TMS affiliated and TMS unaffiliated groups. As can be seen in Table 7, four of the seven behavioral measures reported significant differences between the two groups. In each case, TMS affiliated respondents were significantly more likely to engage in each behavior. T-tests showed that TMS affiliated respondents were significantly more likely to: 1) sign a petition in support of tiger conservation ($p \leq .003$); 2) write a letter in support of tiger conservation efforts ($p \leq .050$); 3) visit a zoo to see tigers in person ($p \leq .001$); and 4) travel overseas to see tigers in the wild ($p \leq .001$). In addition to the differences in specific behaviors, a composite behavioral likelihood score was calculated by assessing the mean score of all seven behaviors (one being the lowest possible score, and seven being the highest). The composite behavioral likelihood score of the TMS affiliated group ($\bar{x} = 4.16$) was significantly higher than the behavioral likelihood score of the TMS unaffiliated group ($\bar{x} = 3.68$), $p \leq .003$.

Table 7. *Likelihood of Engaging in Tiger Conservation-Related Behaviors, by TMS Affiliation*

Variables (Behavioral Intent)**	Affiliated (n = 145)	Unaffiliated (n = 171)	Total (N = 317)	T-test t	p-value	Cohen's d
Search online for info	4.79 (1.83)	4.67 (1.80)	4.72 (1.81)	0.584	.560	
Social media engagement	4.17 (2.13)	4.09 (2.15)	4.13 (2.14)	0.348	.728	
Sign a petition	5.16 (2.05)	4.44 (2.18)	4.77 (2.14)	3.010	.003*	.34
Write a letter	3.47 (1.99)	3.02 (1.98)	3.23 (1.99)	1.965	.050*	.23
Donate money	3.97 (1.98)	3.74 (2.07)	3.84 (2.03)	0.978	.329	
Visit a zoo	4.55 (2.08)	3.63 (1.94)	4.04 (2.05)	4.095	.001*	.46
Travel overseas	3.04 (2.10)	2.13 (1.62)	2.55 (1.91)	4.262	.001*	.49
Composite Score (1-7)	4.16 (1.43)	3.68 (1.42)	3.90 (1.44)	3.017	0.003*	.34

*Signifies a statistically significant p-value ($p < .05$)
**Items measured on a 7-point scale, ranging from a low likelihood of engagement (1) to a high likelihood of engagement (7)

Levels of Knowledge

Quick cluster analyses were used to divide knowledge scores into distinct groups, revealed cluster centers to be 4.96 (low), 8.04 (medium), and 11.45 (high). As a result, a total of 52 respondents were placed in the low knowledge group, 134 in the medium knowledge group, and 140 in the high knowledge group.

Analyses of Variance (ANOVAs) conducted to determine differences between the three groups revealed that people with lower levels of knowledge ($\bar{x}$ = 3.98) were significantly less likely to sign a petition in favor of tiger conservation than those with medium ($\bar{x}$ = 4.92) and high ($\bar{x}$ = 4.95) levels of knowledge, ($p \leq .015$) (Table 8). A post hoc Tukey test showed that the medium and high knowledge clusters varied significantly with respect to their likelihood to sign a petition in favor of tiger conservation; the medium and high knowledge clusters were not significantly different from one another.

Table 8. *Likelihood of Engaging in Tiger Conservation-Related Behaviors, by Levels of Knowledge*

Variables (Behavioral Intent)**	Low (n = 50)	Medium (n = 129)	High (n = 132)	Total (N = 311)	ANOVA F	ANOVA p-value
Search online for info	4.64 (1.66)	4.70 (1.74)	4.79 (1.91)	4.73 (1.80)	0.151	.860
Social media engagement	4.04 (2.24)	4.12 (2.09)	4.17 (2.18)	4.13 (2.14)	0.074	.929
Sign a petition	3.98_a (2.23)	4.92_b (2.06)	4.95_b (2.16)	4.78 (2.15)	4.234	.015*
Write a letter	2.78 (1.88)	3.14 (1.82)	3.49 (2.17)	3.23 (1.99)	2.536	.081
Donate money	3.58 (1.98)	3.78 (2.05)	4.04 (2.02)	3.85 (2.03)	1.095	.336
Visit a zoo	3.58 (1.95)	4.12 (1.05)	4.14 (2.09)	4.05 (2.06)	1.531	.218
Travel overseas	2.28 (1.86)	2.49 (1.83)	2.67 (1.94)	2.53 (1.90)	0.803	.449
Composite Score (1-7)	3.55 (1.40)	3.90 (1.38)	4.04 (1.50)	3.90 (1.44)	2.045	.131

*Signifies a statistically significant p-value ($p < .05$)
**Items measured on a 7-point scale, ranging from a low likelihood of engagement (1) to a high likelihood of engagement (7)

Political Ideology

Similarly, only two significant differences were found between liberals and conservatives with respect to their likelihood of engaging in tiger conservation-related behaviors (Table 9). Liberals were significantly more likely than conservatives to both 1) engage on social media with posts related to tigers and tiger conservation issues, ($p \leq .007$); and 2) sign a petition in favor of tiger conservation efforts, ($p \leq .042$). Other than these behaviors, there do not appear to be any discernable differences in likelihood to engage in tiger conservation-related behaviors between liberals and conservatives, as evidenced by the lack of significance between the two composite behavioral likelihood scores.

Table 9. *Likelihood of Engaging in Tiger-Conservation Related Behaviors, by Political Ideology*

Variables (Behavioral Intent)**	Liberal (n = 174)	Conservative (n = 104)	Total*** (N = 316)	T-test t	T-test p-value	Cohen's d
Search online for info	4.82 (1.77)	4.63 (1.82)	4.72 (1.81)	0.889	.375	
Social media engagement	4.41 (2.16)	3.69 (2.08)	4.12 (2.14)	2.719	.007*	.34
Sign a petition	5.04 (2.04)	4.48 (2.30)	4.77 (2.14)	2.048	.042*	.26
Write a letter	3.43 (2.08)	2.96 (1.82)	3.23 (1.99)	1.951	.052	
Donate money	3.89 (2.04)	3.84 (2.04)	3.85 (2.03)	0.212	.832	
Visit a zoo	3.92 (2.00)	4.28 (2.09)	4.03 (2.05)	1.423	.156	
Travel overseas	2.64 (1.95)	2.38 (1.85)	2.55 (1.91)	1.068	.286	
Composite Score (1-7)	4.02 (1.43)	3.75 (1.42)	3.90 (1.45)	1.512	.132	

*Signifies a statistically significant p-value ($p < .05$)
**Items measured on a 7-point scale, ranging from a low likelihood of engagement (1) to a high likelihood of engagement (7)
*** Moderates are included in total (n = 39)

Importance Assigned to Tiger Conservation

Analyses comparing behavioral likelihoods among low-, medium-, and high-level groups, based on self-reported importance of tiger conservation, revealed significant differences with respect to all seven behaviors (Table 10). Those who identified tiger conservation as highly important were significantly more likely to engage in all seven behaviors than the groups assigning medium and low levels of importance. Additionally, the group expressing medium levels of importance was found to be significantly more likely to engage in these behaviors than those who assigned low levels of importance. The one exception was found between medium and high groups with respect to visiting a zoo; there was no significant difference in likelihood between them. Additionally, the composite behavioral likelihood score confirms these findings, with the low group ($\bar{x} = 2.13$), medium group ($\bar{x} = 3.62$), and high group ($\bar{x} = 4.61$) being significantly different from each other ($p \leq .001$).

Table 10. *Likelihood of Engaging in Tiger Conservation-Related Behaviors, by Level of Importance Assigned to Tiger Conservation*

Variables (Behavioral Intent)**	Low (n = 50)	Medium (n = 129)	High (n = 132)	Total (N = 311)	ANOVA F	ANOVA p-value
Search online for info	2.67$_a$ (1.78)	4.44$_b$ (1.47)	5.52$_c$ (1.45)	4.72 (1.81)	69.037	.001*
Social media engagement	2.37$_a$ (1.78)	3.89$_b$ (1.97)	4.79$_c$ (2.03)	4.12 (2.14)	29.570	.001*
Sign a petition	2.43$_a$ (1.81)	4.38$_b$ (1.83)	5.72$_c$ (1.78)	4.77 (2.14)	66.472	.001*
Write a letter	1.65$_a$ (1.27)	2.72$_b$ (1.60)	4.02$_c$ (2.02)	3.23 (1.99)	39.289	.001*
Donate money	1.73$_a$ (1.40)	3.52$_b$ (1.58)	4.70$_c$ (1.77)	3.85 (2.03)	57.420	.001*
Visit a zoo	2.57$_a$ (1.65)	4.03$_b$ (1.81)	4.50$_b$ (2.09)	4.03 (2.05)	19.825	.001*
Travel overseas	1.53$_a$ (1.29)	2.33$_b$ (1.63)	3.00$_c$ (2.09)	2.55 (1.91)	13.142	.001*
Composite Score (1-7)	2.13 (1.08)	3.62 (1.17)	4.61 (1.16)	3.90 (1.45)	92.092	.001*

*Signifies a statistically significant p-value ($p < .05$)
**Items measured on a 7-point scale, ranging from a low likelihood of engagement (1) to a high likelihood of engagement (7)

Moral Foundations

Scales used to determine respondents' emphasis on the five moral foundations were adopted and modified from the Moral Foundations Questionnaire (Graham et al., 2009). After modification, the internal consistency of the scales were calculated, resulting in the alphas shown in Table 11, displaying the strength of each foundation scale and subscale. While alphas were slightly lower than what is normally considered acceptable, Graham et al. (2009) notes that, given the vast and complicated nature of scaling morality, the alphas shown should be considered acceptable.

Analyses were then conducted to determine differences between subpopulations in reliance upon the five moral foundations. In general, analyses revealed a distinct pattern of higher reliance among members of the study population regarding the care/harm, fairness/inequality, and sanctity/degradation foundations, with less emphasis placed on the loyalty/betrayal and authority/subversion foundations.

Table 11. *Internal Consistency of the Modified Moral Foundations Questionnaire*

Foundation	Subscale	Measures	Item Total Correlation	α if deleted	Chronbach's alpha (α)
Care/Harm					.75
	Relevance				.77
		Whether or not someone or something suffered	.62	.69	
		Whether or not someone cared for someone or something weak or vulnerable	.65	.65	
		Whether or not someone was cruel	.57	.74	
	Judgement				.64
		Compassion for living things that are suffering is a crucial virtue.	.46	.60	
		One of the worst things a person could do is hurt a defenseless animal.	.53	.43	
		It can never be right to kill an endangered animal.	.46	.58	
Fairness/Inequality					.62
	Relevance				.72
		Whether or not *someone* was denied his or her rights	.60	.58	
		Whether or not *something* was denied its rights	.48	.74	
		Whether or not someone or something was treated unfairly	.57	.59	
	Judgement				.51
		When the government makes laws, the number one principle should be ensuring that everyone is treated fairly.	.31	.43	
		When the government makes environmental laws, the number one principle should be ensuring that no one is hurt economically.	.28	.52	
		Justice is the most important requirement for a society.	.41	.30	
Loyalty/Betrayal					.81
	Relevance				.86
		Whether or not someone's action showed love for his or her country	.66	.87	
		Whether or not someone did something to betray his or her group	.76	.76	
		Whether or not someone showed a lack of loyalty	.77	.76	
	Judgement				.65
		I am proud of my country's relationship with the natural environment.	.39	.65	
		People should be loyal to their family members even when they have done something wrong.	.54	.44	
		It is more important to be a team player than to express oneself.	.46	.56	

Foundation	Subscale	Measures	Item Total Correlation	α if deleted	Chronbach's alpha (α)
Authority/Subversion					.73
	Relevance				.70
		Whether or not someone showed a lack of respect for authority	.61	.48	
		Whether or not someone confirmed to the traditions of society	.56	.57	
		Whether or not an action caused chaos or disorder	.40	.75	
	Judgement				.56
		Respect for authority and the laws governing a country is something all children need to learn.	.36	.47	
		Men and women each have different roles to play in society.	.41	.38	
		If I were an employee and my employer asked me to do something that would harm the environment, I would do it anyway because that is my duty.	.34	.50	
Sanctity/Degradation					.68
	Relevance				.60
		Whether or not someone violated a pristine and pure environment	.50	.38	
		Whether or not someone violated a social norm, such as littering	.50	.41	
		Whether or not someone acted in a way in which God would disapprove	.29	.74	
	Judgement				.58
		People should not do things that are degrading to the environment.	.46	.38	
		I would call some acts wrong on the grounds that they are unnatural and interfere with nature's processes.	.32	.63	
		Conserving some tracts of land that remain natural and pristine is an important and valuable virtue for society.	.42	.45	

TMS Affiliation

Comparisons between TMS affiliated and unaffiliated subpopulations on the moral foundation scales revealed several significant differences, yet no discernable pattern was found in order to explain them (Table 12). While the unaffiliated population tended to place significantly more emphasis on the fairness/inequality foundation ($\bar{x} = 4.68$) than the affiliated population ($\bar{x} = 4.50, p \leq .029$), affiliated populations tended to value the loyalty/betrayal, authority/subversion, and the sanctity/degradation foundations significantly more than those unaffiliated. There was no significant difference found between the two groups with respect to the care/harm foundation.

Table 12. *Means and Standard Deviations for the Moral Foundations Subscales, by TMS Affiliation*

Foundation	Subscale	Affiliated (n = 147)	Unaffiliated (n = 171)	Total (N = 318)	T-test t	T-test p-value
Care/Harm	Relevance	4.98 (0.75)	4.95 (0.99)	4.97 (0.89)	0.264	.792
	Judgement	5.08 (0.91)	5.07 (0.99)	5.07 (0.95)	0.091	.928
	Total	5.03 (0.67)	5.01 (0.86)	5.02 (0.77)	0.232	.816
Fairness/Inequality	Relevance	4.78 (0.88)	4.86 (0.94)	4.82 (0.91)	-0.786	.432
	Judgement	4.22 (0.90)	4.49 (0.97)	4.36 (0.94)	-2.542	.012* (.29)
	Total	4.50 (0.70)	4.68 (0.73)	4.59 (0.72)	-2.198	.029* (.25)
Loyalty/Betrayal	Relevance	3.57 (1.19)	2.94 (1.20)	3.23 (1.24)	4.689	.001* (.53)
	Judgement	3.16 (1.09)	3.00 (1.15)	3.07 (1.12)	1.276	.203
	Total	3.37 (0.99)	2.97 (1.02)	3.16 (1.02)	3.471	.001* (.40)
Authority/Subversion	Relevance	3.49 (1.01)	3.12 (1.14)	3.29 (1.10)	3.171	.002* (.34)
	Judgement	3.45 (1.00)	3.19 (1.20)	3.31 (1.12)	2.110	.036* (.24)
	Total	3.47 (0.83)	3.15 (1.03)	3.30 (0.95)	3.083	.002* (.34)
Sanctity/Degradation	Relevance	3.81 (1.05)	3.14 (1.22)	3.45 (1.19)	5.229	.001* (.59)
	Judgement	4.91 (0.80)	4.73 (0.93)	4.82 (0.88)	1.801	.073
	Total	4.36 (0.77)	3.94 (0.90)	4.13 (0.87)	4.484	.001* (.50)

Note: Range for all items and subscales is 1-6. Standard deviations are shown in parenthesis.
*Signifies a statistically significant p-value ($p < .05$), Cohen's d in parentheses

Levels of Knowledge

A few significant differences were found among groups exhibiting different levels of knowledge about tiger conservation. The group with medium levels of knowledge ($\bar{x} = 5.07$)

were significantly more likely to rely on the care/harm foundation than the low level of knowledge ($\bar{x} = 4.76, p \leq .046$) (Table 13). The medium knowledge group was also significantly more likely to rely upon the authority/subversion foundation in situations calling for moral judgement ($p \leq .029$). Interestingly, while the low-level group was significantly *more* likely than the high group to rely on the loyalty/betrayal foundation when making a moral judgement ($p \leq .006$), they were *less* likely than the high group to find the fairness/inequality foundation morally relevant. Despite these differences, no obvious pattern was observed.

Table 13. *Means and Standard Deviations for the Moral Foundations Subscales, by Level of Knowledge*

Foundation	Subscale	Low (n = 50)	Medium (n = 134)	High (n = 140)	Total (N = 329)	ANOVA F	ANOVA p-value
Care/Harm	Relevance	4.69 (0.97)	4.95 (0.96)	5.03 (0.86)	4.94 (0.93)	2.704	.068
	Judgement	4.83 (1.10)	5.18 (0.82)	5.05 (1.03)	5.07 (0.96)	2.574	.078
	Total	4.76 (0.86)$_a$	5.07 (0.76)$_b$	5.04 (0.80)	5.01 (0.80)	3.112	.046*
Fairness/ Inequality	Relevance	4.48 (1.19)$_a$	4.80 (0.90)	4.92 (0.84)$_b$	4.80 (0.93)	4.144	017*
	Judgement	4.52 (1.11)	4.40 (0.93)	4.23 (0.95)	4.34 (0.97)	2.048	.131
	Total	4.51 (0.97)	4.60 (0.68)	4.57 (0.72)	4.57 (0.75)	0.245	.783
Loyalty/Betrayal	Relevance	3.18 (1.21)	3.23 (1.21)	3.29 (1.09)	3.25 (1.24)	0.151	.860
	Judgement	3.39 (1.13)$_a$	3.16 (1.11)	3.12 (1.10)$_b$	3.07 (1.12)	5.191	.006*
	Total	3.29 (1.01)	3.20 (0.98)	3.08 (1.05)	3.16 (1.01)	0.968	.381
Authority/ Subversion	Relevance	3.42 (1.19)	3.29 (1.10)	3.26 (1.09)	3.30 (1.11)	0.398	.672
	Judgement	3.44 (1.08)	3.45 (1.09)$_a$	3.12 (1.10)$_b$	3.31 (1.10)	3.583	.029*
	Total	3.43 (0.96)	3.37 (0.94)	3.19 (0.95)	3.30 (0.95)	1.788	.169
Sanctity/ Degradation	Relevance	3.37 (1.23)	3.40 (1.21)	3.55 (1.17)	3.46 (1.19)	0.799	.451
	Judgement	4.60 (0.99)	4.88 (0.80)	4.84 (0.91)	4.82 (0.88)	1.986	.139
	Total	3.98 (0.94)	4.14 (0.84)	4.20 (0.88)	4.14 (0.87)	1.137	.322

Note: Range for all items and subscales is 1-6. Standard deviations are shown in parenthesis.
*Signifies a statistically significant p-value ($p < .05$)

Political Ideology

Numerous differences were found between liberals and conservatives, many of which support prior research on the subject (Table 14). Liberals ($\bar{x} = 5.14$) valued the care/harm foundation significantly more than conservatives ($\bar{x} = 4.83, p \leq .001$), and were more likely to find the care/harm foundation relevant and important when making moral judgments than their

conservative counterparts. In general, liberals also depended on the fairness/inequality foundation significantly more than conservatives, (liberals: $\bar{x} = 4.68$; conservatives: $\bar{x} = 4.46$, $p \leq .013$), but both groups relied on it almost equally when making judgements about moral situations.

Conservatives were significantly more likely to place a stronger emphasis on the loyalty/betrayal, authority/subversion, and sanctity/degradation foundations than their liberal counterparts. The only exception found that both liberals and conservatives depended upon the sanctity/degradation foundation in similar amounts when making moral judgements. These findings support prior research stating that liberals tend to place a stronger emphasis on the individualizing foundations (care/harm and fairness/inequality) while conservatives' emphases were more evenly distributed across all binding foundations (loyalty/betrayal, authority/subversion, and sanctity/degradation). However, conservatives placed a significant amount of emphasis on the fairness/inequality (individualizing) foundation, as well.

Table 14. *Means and Standard Deviations for the Moral Foundations Subscales, by Political Ideology*

Foundation	Subscale	Liberals (n = 174)	Conservatives (n = 106)	Total[1] (N = 329)	T-test t	T-test p-Value
Care/Harm	Relevance	5.14 (0.73)	4.82 (0.88)	4.95 (0.91)	3.303	.001* (.40)
	Judgement	5.23 (0.83)	4.84 (1.09)	5.06 (0.96)	3.374	.001* (.40)
	Total	5.18 (0.63)	4.83 (0.84)	5.00 (0.79)	4.000	.001* (.47)
Fairness/Inequality	Relevance	4.99 (0.82)	4.59 (0.96)	4.79 (0.94)	3.698	.001* (.45)
	Judgement	4.36 (0.89)	4.32 (1.03)	4.34 (0.96)	0.313	.755
	Total	4.68 (0.64)	4.46 (0.81)	4.57 (0.75)	2.508	.013* (.30)
Loyalty/Betrayal	Relevance	2.88 (1.08)	3.80 (1.23)	3.27 (1.24)	-6.538	.001* (.79)
	Judgement	2.62 (0.93)	3.76 (1.00)	3.09 (1.14)	-9.707	.001* (1.02)
	Total	2.75 (0.87)	3.78 (0.90)	3.18 (1.03)	-9.448	.001* (1.16)
Authority/Subversion	Relevance	2.96 (1.04)	3.74 (0.96)	3.30 (1.11)	-6.253	.001* (.78)
	Judgement	2.83 (0.98)	3.99 (0.91)	3.33 (1.11)	-9.853	.001* (1.23)
	Total	2.89 (0.85)	3.86 (0.76)	3.32 (0.95)	-9.693	.001* (1.20)
Sanctity/Degradation	Relevance	3.19 (1.09)	3.96 (1.19)	4.48 (1.19)	-5.529	.001* (.67)
	Judgement	4.88 (0.81)	4.35 (0.89)	4.82 (0.88)	1.439	.151
	Total	4.04 (0.87)	4.35 (0.89)	4.14 (0.87)	-3.069	.002* (.35)

Note: Range for all items and subscales is 1-6. Standard deviations are shown in parenthesis.
[1]Includes moderates (n = 39)
*Signifies a statistically significant p-value ($p < .05$), Cohen's d in parentheses

Importance Assigned to Tiger Conservation

Results also indicated numerous differences among groups assigning low, medium, and high levels of importance to tiger conservation. Significant differences were found between each of the three groups with respect to the care/harm and sanctity/degradation foundations in total, and on both the relevance and judgement scales (Table 15). The high importance group was significantly more likely to rely on the fairness/inequality and loyalty/betrayal foundations than both the medium and low groups. Few differences were found between groups for the authority/subversion foundation. Results show that groups who report higher levels of importance about tiger conservation will generally place greater emphasis on both of the individualizing foundations (care/harm and fairness/inequality) as well as the sanctity/degradation foundation.

Table 15. *Means and Standard Deviations for the Moral Foundations Subscales, by Level of Importance Assigned to Tiger Conservation*

Foundation	Subscale	Low (n = 50)	Medium (n = 134)	High (n = 140)	Total (N = 329)	ANOVA F	ANOVA p-value
Care/Harm	Relevance	4.39 (1.10)$_a$	4.83 (0.91)$_b$	5.23 (0.68)$_c$	4.96 (0.89)	21.383	.001*
	Judgement	4.25 (1.08)$_a$	4.93 (0.90)$_b$	5.42 (0.75)$_c$	5.07 (0.95)	37.403	.001*
	Total	4.32 (0.94)$_a$	4.88 (0.72)$_b$	5.32 (0.56)$_c$	5.02 (0.77)	44.234	.001*
Fairness/ Inequality	Relevance	4.35 (0.87)$_a$	4.71 (0.96)$_b$	5.03 (0.84)$_c$	4.82 (0.92)	12.318	.001*
	Judgement	4.14 (1.04)	4.32 (0.93)	4.44 (0.92)	4.35 (0.95)	2.125	.121
	Total	4.24 (0.78)$_a$	4.51 (0.73)$_a$	4.73 (0.66)$_b$	4.59 (0.72)	10.080	.001*
Loyalty/Betrayal	Relevance	2.60 (0.98)$_a$	3.07 (1.14)$_a$	3.51 (1.28)$_b$	3.22 (1.23)	12.649	.001*
	Judgement	2.94 (1.09)	3.13 (1.14)	3.07 (1.10)	3.07 (1.11)	0.494	.610
	Total	2.77 (0.91)$_a$	3.10 (0.96)	3.30 (1.05)$_b$	3.15 (1.01)	5.486	.005*
Authority/ Subversion	Relevance	3.00 (0.99)$_a$	3.20 (1.14)	3.42 (1.07)$_b$	3.28 (1.09)	3.304	.038*
	Judgement	3.36 (1.18)	3.36 (1.07)	3.26 (1.14)	3.31 (1.12)	0.287	.751
	Total	3.18 (0.93)	3.28 (0.95)	3.18 (0.93)	3.29 (0.95)	0.546	.580
Sanctity/ Degradation	Relevance	2.79 (1.07)$_a$	3.28 (1.18)$_b$	3.76 (1.13)$_c$	3.45 (1.19)	15.423	.001*
	Judgement	4.02 (0.95)$_a$	4.78 (0.73)$_b$	5.07 (0.79)$_c$	4.81 (0.88)	32.701	.001*
	Total	3.40 (0.88)$_a$	4.03 (0.79)$_b$	4.41 (0.77)$_c$	4.13 (0.87)	31.902	.001*

Note: Range for all items and subscales is 1-6. Standard deviations are shown in parenthesis.
*Signifies a statistically significant p-value ($p < .05$)

Perceived Message Strength

After examining differences with respect to moral foundations, analyses were conducted to determine differences in perceived message strength among groups of respondents receiving one of two different message treatments – one message based its argument on the two individualizing moral foundations and the other was based on three binding foundations. The respondents receiving each message were segmented further based on their self-reported political ideology (liberal vs conservative), resulting in four groups. Groups are referred to as matched and unmatched based on the previous research of Wolsko et al. (2016) and Graham et al. (2009), indicating that liberals were more apt to emphasize individualizing moral foundations where conservatives were more aligned with emphasizing binding foundations; hence the message emphasizing individualizing morals presented to liberals was matched, where the message emphasizing binding morals would be unmatched and vice versa.

1. Liberals + matched individualizing message *(n = 95)*
2. Liberals + unmatched binding message *(n = 77)*
3. Conservatives + unmatched individualizing message *(n = 39)*
4. Conservatives + matched binding message *(n = 65)*

In order to examine the perceived strength of each message, respondents were asked to answer ten questions, adapted from Wolsko, Ariceaga, and Seiden (2016), that formed a perceived message strength scale. Individual item scores were coded (and reverse coded if necessary) and a total strength of message score was calculated, with higher scores indicating higher strength of argument.

T-tests were employed to explore differences in perceived message strength between the four groups of respondents regarding how each message was received in order to determine how messages did or did not resonate with respondents.

Political Ideology

The modified perceived message strength scale showed three significant differences between liberals who received the individualizing message (matched group) and those who received the binding message (unmatched group) (Table 16). Liberals who received the matched message were more likely to believe that the message came from "their people" ($\bar{x} = 0.76$) than liberals who received the binding message ($\bar{x} = 0.05$, $p \leq .008$). Additionally, liberals who received the matched message agreed with the message significantly more than their unmatched counterparts. Lastly, the composite perceived strength of argument score was significantly greater for liberals who received the individualizing message than those who received the binding message.

In contrast, significant differences were found among conservatives with seven of the 10 items comprising the message strength scale (Table 16). Unmatched conservatives were more likely to find the individualizing message believable ($p \leq .001$) and convincing ($p \leq .001$). They also felt like the message presented a reason that was important ($p \leq .001$) and that would encourage their friends to help with tiger conservation ($p \leq .042$). It also made them want to personally help tiger conservation efforts ($p \leq .007$), and lastly, unmatched conservatives were more likely to agree with the individualizing message than the matched group ($p < .001$).

After examining differences between individual items, further testing of total perceived argument strength indicated that the unmatched conservative group was significantly more likely overall to find their message stronger than the matched group found of theirs, ($p \leq .002$).

Table 16. *Comparisons of Message Treatment and Message Acceptance Within Political Ideology Groups*

Variables (Message Strength)** The message…	**Liberal** Liberal Individualizing *n* = 95	Liberal Binding *n* = 77	Total *n* = 172	T-test t	T-test p-value	**Conservative** Conservative Individualizing *n* = 39	Conservative Binding *n* = 65	Total *n* = 104	T-test t	T-test p-value	Total *N* = 280
…came from "my people."	0.76 (1.46)	0.05 (1.91)	0.44 (1.71)	2.672	.008* (.42)	0.67 (1.60)	0.00 (1.84)	0.25 (1.77)	1.880	.063	0.37 (1.73)
…reflects my group's values.	1.33 (1.40)	0.97 (1.60)	1.17 (1.50)	1.539	.126	1.08 (1.48)	0.45 (1.80)	0.68 (1.71)	1.844	.068	0.99 (1.60)
…is believable.	1.77 (1.14)	1.53 (1.51)	1.66 (1.32)	1.133	.259	2.33 (0.93)	1.26 (1.55)	1.66 (1.45)	4.405	.001* (.84)	1.66 (1.37)
…is convincing.	1.54 (1.30)	1.14 (1.75)	1.36 (1.52)	1.669	.097	2.13 (0.95)	1.05 (1.58)	1.45 (1.47)	4.368	.001* (.83)	1.40 (1.50)
…gives reason that is important.	1.33 (1.49)	1.10 (1.79)	1.23 (1.63)	0.902	.369	1.90 (1.07)	0.92 (1.62)	1.29 (1.51)	3.684	.001* (.71)	1.25 (1.58)
…made me feel confident.	0.13 (1.86)	-0.03 (1.90)	0.06 (1.87)	0.527	.599	0.69 (1.75)	0.23 (1.91)	0.40 (1.86)	1.230	.221	0.19 (1.87)
…encourages my friends to help.	0.66 (1.58)	0.23 (1.81)	0.47 (1.69)	1.639	.103	1.08 (1.38)	0.43 (1.64)	0.67 (1.57)	2.060	.042* (.43)	0.55 (1.65)
…made me want to help.	1.31 (1.50)	1.12 (1.50)	1.23 (1.51)	0.846	.399	1.77 (1.20)	0.85 (1.88)	1.19 (1.71)	3.052	.007* (.58)	1.21 (1.59)
…made me NOT want to help.***	2.54 (0.77)	2.26 (1.31)	2.42 (1.05)	1.671	.097	2.33 (1.46)	1.89 (1.37)	2.05 (1.41)	1.551	.124	2.28 (1.21)
Do you agree or disagree with the message?	2.03 (1.09)	1.53 (1.27)	1.81 (1.20)	2.775	.006* (.42)	2.05 (0.86)	1.00 (1.55)	1.39 (1.42)	4.449	.001* (.84)	1.65 (1.30)
Composite Perceived Message Strength	1.34 (1.01)	0.99 (1.29)	1.18 (1.15)	1.973	.050* (.30)	1.60 (0.89)	0.81 (1.41)	1.11 (1.29)	3.170	.002* (.67)	1.15 (1.21)

Note: Matched groups of message treatment and political ideology are Liberal + Individualizing and Conservative + Binding. Unmatched Groups are Liberal + Binding and Conservative + Individualizing.

* Signifies a statistically significant p-value ($p < .05$), Cohen's d in parentheses.

**Item scale is -3 (Strongly Disagree) to 3 (Strongly Agree).

***Item was reverse coded

Message Type: Individualizing vs. Binding

When examining differences between the *type* of message (individualizing or binding) and associated groups, few differences were found (Table 17). Conservatives who received the individualizing message (unmatched) were significantly more likely to find the message believable ($p \leq .007$) and convincing ($p \leq .005$) than the liberals who received the individualizing message (matched). Surprisingly, unmatched liberals who received the binding message were more likely perceive it as strong than matched conservatives ($p \leq .026$). Differences between the total perceived argument strength score of both the individualizing groups and binding groups were not significant.

Table 17. Comparisons *of Message Treatment and Message Acceptance Within Message Treatment Groups*

Variables (Message Strength)** The message…	**Individualizing** Liberal Individualizing *n* = 95	Conservative Individualizing *n* = 39	Total *n* = 134	T-test t	p-value	**Binding** Liberal Binding *n* = 77	Conservative Binding *n* = 65	Total *n* = 142	T-test t	p-value	Total *N* = 280
…came from "my people."	0.76 (1.46)	0.67 (1.60)	0.73 (1.49)	0.320	.749	0.05 (1.91)	0.00 (1.84)	0.02 (1.87)	0.164	.870	0.37 (1.73)
…reflects my group's values.	1.33 (1.40)	1.08 (1.48)	1.25 (1.42)	0.921	.359	0.97 (1.60)	0.45 (1.80)	0.73 (1.71)	1.849	.067	0.99 (1.60)
…is believable.	1.77 (1.14)	2.33 (0.93)	1.93 (1.11)	-2.736	.007* (.54)	1.53 (1.51)	1.26 (1.55)	1.41 (1.53)	1.051	.295	1.66 (1.37)
…is convincing.	1.54 (1.30)	2.13 (0.95)	1.71 (1.23)	-2.907	.005* (.52)	1.14 (1.75)	1.05 (1.58)	1.10 (1.66)	0.344	.731	1.40 (1.50)
…gives reason that is important.	1.33 (1.49)	1.90 (1.07)	1.50 (1.40)	-2.460	.016	1.10 (1.79)	0.92 (1.62)	1.02 (1.71)	0.626	.532	1.25 (1.58)
…made me feel confident.	0.13 (1.86)	0.69 (1.75)	0.28 (1.87)	-1.637	.104	-0.03 (1.90)	0.23 (1.91)	0.00 (1.90)	-0.801	.425	0.19 (1.87)
…encourages my friends to help.	0.66 (1.58)	1.08 (1.38)	0.77 (1.53)	-1.455	.148	0.23 (1.81)	0.43 (1.64)	0.32 (1.73)	-0.674	.502	0.55 (1.65)
…made me want to help.	1.31 (1.50)	1.77 (1.20)	1.44 (1.43)	-1.696	.092	1.12 (1.53)	0.85 (1.88)	1.99 (1.70)	0.929	.354	1.21 (1.59)
…made me NOT want to help.***	2.54 (0.77)	2.33 (1.46)	2.48 (1.01)	0.847	.402	2.26 (1.31)	1.89 (1.37)	2.09 (1.35)	1.629	.106	2.28 (1.21)
Do you agree or disagree with the message?	2.03 (1.09)	2.05 (0.86)	2.03 (1.02)	-0.103	.918	1.53 (1.27)	1.00 (1.55)	1.29 (1.43)	2.247	.026* (.37)	1.65 (1.30)
Composite Perceived Message Strength	1.34 (1.01)	1.60 (0.89)	1.42 (0.98)	-1.420	.158	0.99 (1.29)	0.81 (1.41)	0.91 (1.34)	0.81	.417	1.15 (1.21)

Note: Matched groups of message treatment and political ideology are Liberal + Individualizing and Conservative + Binding. Unmatched Groups are Liberal + Binding and Conservative + Individualizing.

* Signifies a statistically significant p-value ($p < .05$), Cohen's d in parentheses.

**Item scale is -3 (Strongly Disagree) to 3 (Strongly Agree).

***Item was reverse coded

Matched & Unmatched

Lastly, comparisons between matched groups showed a number of significant differences between liberals and conservatives (Table 18). Matched liberals who received the individualizing message were significantly more likely to feel like the message came from their people ($p \leq .006$), reflected their group's values ($p \leq .001$), was believable ($p \leq .027$), and was convincing ($p \leq .031$). Additionally, matched liberals were significantly more likely to feel that the message did not dissuade them from wanting to help tiger conservation efforts ($p \leq .001$), and agreed more readily with their message than the matched conservative group ($p \leq .001$).

Unmatched conservatives who received the individualizing message were found to be significantly more likely to find their message believable ($p \leq .001$) and convincing ($p \leq .001$) than unmatched liberals who received the binding message. They also felt that the individualizing message they received gave reasons that were important ($p \leq .046$), encouraged their friends to help ($p \leq .006$), and made them want to personally help ($p \leq .014$) significantly more than unmatched liberals (Table 19). Unmatched conservatives were also significantly more likely to agree with the overall message they received than unmatched liberals ($p \leq .011$). Lastly, the composite perceived message strength score between both the matched groups and the unmatched groups were significant, showing that matched liberals ($\bar{x} = 1.34$) found their message to be stronger than matched conservatives ($\bar{x} = 0.81$, $p \leq .010$), and unmatched conservatives ($\bar{x} = 1.60$) found their message to be stronger than unmatched liberals ($\bar{x} = 0.99$, $p \leq .004$

Table 18. *Comparisons of Message Treatment and Message Acceptance Within Matched and Unmatched Groups*

Variables (Message Strength)** The message…	Matched: Liberal Individualizing *n* = 95	Matched: Conservative Binding *n* = 65	Matched: Total *n* = 160	T-test: t	T-test: p-value	Unmatched: Liberal Binding *n* = 77	Unmatched: Conservative Individualizing *n* = 39	Unmatched: Total *n* = 116	t	p-value	Total *N* = 280
…came from "my people."	0.76 (1.46)	0.00 (1.84)	0.45 (1.66)	2.781	.006* (.46)	0.05 (1.91)	0.67 (1.59)	0.26 (1.83)	-1.726	.087	0.37 (1.73)
…reflects my group's values.	1.33 (1.40)	0.45 (1.80)	0.97 (1.63)	3.310	.001* (.55)	0.97 (1.60)	1.08 (1.48)	1.01 (1.55)	-0.336	.737	0.99 (1.60)
…is believable.	1.77 (1.14)	1.26 (1.55)	1.56 (1.34)	2.246	.027* (.37)	1.53 (1.51)	2.33 (0.93)	1.80 (1.39)	-3.524	.001* (.64)	1.66 (1.37)
…is convincing.	1.54 (1.30)	1.05 (1.58)	1.34 (1.43)	2.179	.031* (.34)	1.14 (1.75)	2.13 (0.95)	1.47 (1.59)	-3.934	.001* (.70)	1.40 (1.50)
…gives reason that is important.	1.33 (1.49)	0.92 (1.62)	1.17 (1.55)	1.652	.100	1.10 (1.79)	1.90 (1.07)	1.37 (1.62)	-2.979	.046* (.54)	1.25 (1.58)
…made me feel confident.	0.13 (1.86)	0.23 (1.91)	0.17 (1.87)	-0.351	.726	-0.03 (1.90)	0.69 (1.75)	0.22 (1.87)	-1.975	.051	0.19 (1.87)
…encourages my friends to help.	0.66 (1.58)	0.43 (1.64)	0.57 (1.60)	0.877	.382	0.23 (1.81)	1.08 (1.38)	0.52 (1.72)	-2.783	.006* (.53)	0.55 (1.65)
…made me want to help.	1.31 (1.50)	0.85 (1.88)	1.12 (1.67)	1.672	.097	1.12 (1.53)	1.77 (1.20)	1.99 (1.70)	-2.322	014* (.47)	1.21 (1.59)
…made me NOT want to help.***	2.54 (0.77)	1.89 (1.37)	2.28 (1.10)	3.470	.001* (.58)	2.26 (1.31)	2.33 (1.46)	2.28 (1.36)	-0.275	.784	2.28 (1.21)
Do you agree or disagree with the message?	2.03 (1.09)	1.00 (1.55)	1.61 (1.39)	4.640	.001* (.77)	1.53 (1.27)	2.05 (0.86)	1.71 (1.17)	-2.598	.011* (.48)	1.65 (1.30)
Composite Perceived Message Strength	1.34 (1.01)	0.81 (1.41)	1.12 (1.21)	2.621	.010* (.43)	0.99 (1.29)	1.60 (0.89)	1.20 (1.20)	-2.981	.004* (.55)	1.15 (1.21)

Note: Matched groups of message treatment and political ideology are Liberal + Individualizing and Conservative + Binding. Unmatched Groups are Liberal + Binding and Conservative + Individualizing.

* Signifies a statistically significant p-value ($p < .05$), Cohen's d in parentheses

**Item scale is -3 (Strongly Disagree) to 3 (Strongly Agree).

Discussion and Conclusions

In this exploratory study of knowledge, likelihood of engagement in tiger conservation-related behaviors, moral foundations, and perceived message strength, several interesting conclusions were drawn. Understanding the potential antecedents of conservation behaviors and how to communicate with geographically disassociated audiences is critical to international efforts to curb the tide of biodiversity loss and to solicit assistance and support of more economically-developed countries, such as the United States, whose residents have no direct contact with, or vested interest in, tigers.

Knowledge of Tiger Conversation

Determining whether or not TMS affiliated and unaffiliated populations were different with respect to knowledge was important in order to understand whether some sort of predisposed affinity for tigers suggested increased knowledge of tigers and tiger-conservation related issues. While only one of the knowledge items (how many tigers are left in the wild) showed a statistically significant difference between the two groups, it is important to note that the composite knowledge scores of the TMS affiliated and unaffiliated groups were significantly different, suggesting that TMS affiliates do know more about tigers than their unaffiliated counterparts. This suggests that being a part of an organization affiliated with tigers has an influence on general interest in the species.

Analyses also shed light on gaps in knowledge. The two questions with the fewest correct answers were 1) On what continent(s) are tigers found in the wild? And 2) What percent of tigers' habitat has been lost over the past century?. Clearly there is confusion among all groups about the answers to these two questions, which helps to provide a more detailed idea of what

exactly people do and do not know about tiger conservation. Knowing this information can better inform future campaigns and may allow for more targeting of specific audiences.

Those who assigned low, medium, and high levels of importance to conservation showed a similar pattern. The significant difference between the three groups with respect to individual knowledge items was, again, the question about how many tigers were left in the wild. In this instance, people who rate tiger conservation as highly important are significantly more likely to know the answer than the medium- and low-level groups. Additionally, the composite score showed significant differences in knowledge between all three groups. More research needs to be conducted to determine the relationships between knowledge and personal importance of tiger conservation, but both variables were reported to be positively associated with knowledge

Likelihood of Behavioral Engagement

Like knowledge, determining differences in behavioral intent between subpopulations was necessary in order to better understand a number of issues related to future tiger conservation campaigns. These analyses offered new insights into what behaviors people might be more likely to undertake.

Between TMS affiliated and unaffiliated groups, four out of seven individual behaviors were significantly more likely to be performed by affiliated respondents than unaffiliated ones. Additionally, the composite behavioral likelihood score between groups was significant at the .05 level, with affiliated persons showing greater overall likelihood of engaging in tiger conservation-related behaviors. Those who are affiliated with a TMS were significantly more likely to sign a petition in favor of tiger conservation, write a letter in support of it, visit a zoo to see tigers, and travel overseas to see them in the wild.

That being said, of the four behaviors, signing a petition and traveling to a zoo are far more likely to occur than writing a letter or traveling overseas. The difference seems to lie in commitment – writing a letter takes more time and effort than simply signing your name on a petition, while visiting a zoo is a common and celebrated experience that millions of people partake in every year. It is likely that seeing a tiger is not the sole reason someone might visit a zoo, which is why, with respect to these behaviors, it is imperative that conservation communication professionals take advantage of opportunities with zoo visitors and continue to inform and engage the public by encouraging positive tiger conservation-related behaviors. The potential for zoos with tiger exhibits to expand the dissemination of tiger conservation knowledge is great, and conservation education programs are already utilized by accredited zoos around the country. Moreover, providing opportunities to engage in these behaviors may prove to be even more effective if targeted populations consist of those who already have an affiliation with tigers *via* a mascot school, as they are more likely to engage in tiger conservation-related behaviors.

Examining differences in behavioral intent between knowledge clusters was important in understanding the role knowledge may play a role in the likelihood that someone engages in a tiger-conservation related behavior. While research showed only one significant difference between the low and medium/high knowledge groups (those with medium/high levels of knowledge are significantly more likely to sign a petition in favor of tiger conservation), it is important to remember that TMS affiliated individuals in particular are more likely to (1) know more about tigers and (2) have higher levels of self-reported importance of tiger conservation, and (3) Engage in tiger conservation-related behaviors.

Respondents assigning low, medium, and high levels of importance to tiger conservation were almost entirely distinct. Across all individual behaviors, the likelihood that someone engages in them increases as their level of importance increases. Confirming these findings, the composite likelihood score was also significant. Outwardly, this may seem obvious given the nature of these particular subpopulations, but it provides important insight into how influential importance can be on the likelihood a person engages in tiger-conservation related behaviors.

While TMS affiliation and tiger conservation importance were found to be potential antecedents of a person's likelihood to engage in conservation-related behaviors, few differences can be reported with respect to behavioral intent, based on political ideology. While this research indicates that liberals were significantly more likely to both engage in social media posts about tigers and sign a petition in favor of tiger conservation, no other significant differences were found between the two groups, including no differences in composite behavioral intent scores. Conservation values can differ due to political ideology and political agendas, but the results of this particular study suggested that, with respect to tiger conservation, political ideology does not play a role in determining how likely someone is to engage in any of these particular behaviors. The geographically disassociated nature of this audience may be a reason for the lack of difference between the two, as neither liberals or conservatives would be directly affected by conservation efforts or have any vested interest.

Conclusion #1

Respondents with a TMS affiliation had (1) increased levels of knowledge of tigers and tiger conservation-related issues, (2) higher levels of self-reported importance of tiger conservation, and (3) higher likelihood of engaging in tiger-conservation-related behaviors.

Therefore, these findings suggest that in order to encourage increased engagement in tiger conservation-related behaviors, conservation communication strategists should start by targeting those who are affiliated with a TMS.

Moral Foundations

After assessing the reliability of the moral foundation scales adapted and modified from the Moral Foundations Questionnaire, it became apparent that the alphas of a few of the subscales were lower than what is typically desired in order to claim scale reliability. As Graham et al. (2009) noted, given the vast and complicated nature of moral concerns, the alphas indicate reasonable levels of reliability. Significant differences and patterns with respect to moral foundations were found regarding ideology and the level of importance assigned to tiger conservation.

The results from this portion of the study indicated that the differences between liberals and conservatives with respect to their placement on the moral foundations scales largely support prior research suggesting liberals rely on individualizing foundations (care/harm and fairness/inequality) while conservatives place a more even reliance upon all five (Koleva, Graham, Iyer, Ditto, & Haidt, 2012). These outcomes showed that conservatives place significantly more reliance upon on the three binding foundations (loyalty/betrayal, authority/subversion, sanctity/degradation) than liberals did, while liberals were significantly more likely to place more emphasis on the individualizing foundations. That being said, however, it is important to note that conservatives placed their highest emphasis on the two individualizing foundations (care/harm and fairness/inequality) rather than the binding ones.

This not only confirms the notion that conservatives place emphases on all five moral foundations, but also that the two individualizing foundations had primacy in both groups.

Furthermore, another difference with findings from previous research was uncovered, specifically related to the increased reliance on the sanctity/degradation foundation by both liberals and conservatives. Interestingly, both liberals and conservatives in this study also reported higher emphases on the sanctity foundation, in addition to high levels of emphasis on the care/harm and fairness/inequality foundations. It could be suggested that liberals value the idea of a pure and pristine environment, thus expanding their moral emphases beyond the two individualizing foundations. Data also suggested that the reliance upon the two individualizing foundations (care/harm, fairness/inequality) and the sanctity/degradation foundations among respondents increases as levels of importance increases.

Conclusion #2

This study both confirms and contradicts findings from prior research (Graham et al,, (2009) and Wolsko et al., (2016) on moral foundations, specifically related to the emphases liberals and conservatives placed on each of the five moral foundations. Liberals *do* place more emphasis on the two individualizing foundations than the three binding, and conservatives *do* place a more even emphasis across all five. *However*, two findings set this study apart: (1) liberals and conservatives both rely upon the sanctity/degradation foundation more so than the other two binding foundations (loyalty/betrayal and authority/subversion), and (2) the two foundations that conservatives placed the most emphasis upon were the individualizing foundations. For both liberals and conservatives, the two individualizing foundations and the

sanctity/degradation foundation were relied upon the most, compared to the loyalty/betrayal and authority/subversion foundations.

Perceived Message Strength

After gaining a better understanding of the emphases subpopulations placed on the five moral foundations scales, messages containing arguments utilizing either individualizing or binding moral rhetoric were presented to respondents; they were then asked to rate the strength of the argument presented..

Interestingly, as alluded to above, this research contradicts prior research and finds that conservatives related more to the individualizing message (unmatched) than they did the binding message (matched). One explanation for this finding may be that this shows the emphases of conservatives is indeed on all five of the moral foundations as Graham et al. (2009) originally postulated. Another possibility is that, given the "geographically disassociated" nature of respondents, it is possible that binding rhetoric did not resonate as strongly with respondents, as binding foundations relate to group identity and community and tigers are not a part of that in the United States. However, these findings clearly indicate that, within this context, conservatives placed the most emphasis on the two individualizing foundations. Given this, leaving out rhetoric relating to care/harm and fairness/inequality in pro-tiger conservation messaging could explain why messages containing only binding rhetoric did not resonate nearly as much with conservatives as the individualizing message did.

Additional analyses confirmed these findings. When comparing liberals to conservatives who received the individualizing message, few differences were found; the same was reported for liberals and conservatives who received the binding message. This lack of significance shows how similar the conservative and liberal respondents were, with respect to their perceived

message strength, rejecting prior research that suggests liberals and conservatives react to individualizing messages differently.

Conclusion #3

While prior research has suggested utilizing binding rhetoric to better target those identifying as conservatives, the findings of this study suggest that (1) conservatives rely on the two individualizing foundations (care/harm and fairness/inequality) more heavily than the three binding foundations, and (2) conservatives find an individualizing message to be more persuasive than a binding one. It is evident that these results rest, at least in part, on the reliance of both ends of the political spectrum on the individualizing foundations. A message without rhetoric reflecting those key foundations may not resonate with one or both groups. This also should be considered by smaller agencies or non-profits without the budget to be able to allocate more targeted messages. These results, and the results from Conclusion #2 regarding the sanctity/degradation foundation, indicate that a message using the care/harm-, fairness/inequality-, and sanctity/degradation-associated rhetoric would be most useful in successfully reaching a broader audience.

Future Research

This study has shed light on potential antecedents of tiger conservation-related behaviors. It has provided new information on the knowledge U.S. populations possess about tigers and tiger conservation-related issues, how likely members of this audience are to engage in a number of behaviors, the salience assigned to five moral foundations relative to tigers, and how moral rhetoric influences the perceived argument strength regarding tiger conservation messages. That

being said, more research should be conducted to explore the effectiveness of targeting certain subpopulations, utilizing strategic messaging written with specific moral rhetoric in mind, and the relationships between these variables and engagement in tiger conservation-related behaviors.

Specifically, a number of questions remain unanswered and refinements to the survey instrument are needed. First, it is important to refine and strengthen the scales utilized by this study to measure the amount of tiger conservation knowledge among U.S. populations and the likelihood that they would engage in tiger conservation-related behaviors. What pieces of information are the most effective in garnering increased interest in tigers and tiger conservation-related issues? Additionally, what other groups may feel similarly to those who are affiliated with tiger mascot schools? Surely there are more ways in which people gain a predisposed affinity for tigers (e.g. through sports teams).

With respect to moral foundations, additional research is necessary to better understand why the sanctity/degradation foundation was more important to both liberals and conservatives in this study than in prior research. Does the environmental contextualization have something to do with this? Would the results be the same if the study was replicated with a larger, broader audience?

It is also important to understand what other factors may have influenced the shift in moral rhetoric results, and why conservatives found the individualizing message so strong. Moreover, what would happen if a third message was included and analyzed that used rhetoric from all five foundations? For now, it is certain that, at least within the context of pro-tiger conservation messaging, including individualizing rhetoric in a strategic message is necessary for increased levels of perceived argument strength.

Lastly, in what ways can this research be applied to other conservation topics? Could the same be applied to other endangered species around the globe? What about species native to the United States? The possibilities for future research utilizing the Moral Foundations paradigm are vast.

Study Limitations

There are several limitations of the study. First, the findings of this study are not generalizable to the U.S. population as a whole, given the methods used to obtain respondents. The sampling frames that were selected were purposeful in targeting people who may be affiliated with a TMS, skewing the population significantly. Given that respondents were recruited specifically from Clemson University and Auburn University online forums, geographical bias is also possible, including the potential for political ideology bias.

References

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, *50*(2), 179-211.

Arceneaux, K. (2012). Cognitive biases and the strength of political arguments. *American Journal of Political Science*, *56*(2), 271-285.

Ashley, C., & Tuten, T. (2015). Creative strategies in social media marketing: An exploratory study of branded social content and consumer engagement. *Psychology & Marketing*, *32*(1), 15-27.

Baillie, J. M., Hilton-Taylor, C. and Stuart, S. N. (Editors) (2004). *2004 IUCN Red List of Threatened Species. A Global Species Assessment*. IUCN, Gland, Switzerland and Cambridge, UK. xxiv + 191 pp.

Bardi, A., & Schwartz, S. H. (2003). Values and behavior: Strength and structure of relations. *Personality and Social Psychology Bulletin*, *29*(10), 1207-1220.

Barker, J. R., & Tingey, D. T. (Eds.). (2012). *Air pollution effects on biodiversity*. Springer Science & Business Media.

Bellard, C., Bertelsmeier, C., Leadley, P., Thuiller, W., & Courchamp, F. (2012). Impacts of climate change on the future of biodiversity. *Ecology Letters*, *15*(4), 365-377.

Bennett, A. F. (1999). *Linkages in the landscape: the role of corridors and connectivity in wildlife conservation* (No. 1). IUCN.

Bhattarai, B. R., & Fischer, K. (2014). Human–tiger Panthera tigris conflict and its perception in Bardia National Park, Nepal. *Oryx*, *48*(4), 522-528.

Boumans, R., Costanza, R., Farley, J., Wilson, M. A., Portela, R., Rotmans, J., ... & Grasso, M. (2002). Modeling the dynamics of the integrated earth system and the value of global ecosystem services using the GUMBO model. *Ecological economics*, *41*(3), 529-560.

Brooks, T. M., Mittermeier, R. A., Mittermeier, C. G., Da Fonseca, G. A., Rylands, A. B., Konstant, W. R., ... & Hilton-Taylor, C. (2002). Habitat loss and extinction in the hotspots of biodiversity. *Conservation Biology*, *16*(4), 909-923.

Brown, G. M., & Shogren, J. F. (1998). Economics of the endangered species act. *Journal of Economic Perspectives*, *12*(3), 3-20.

Bryant, J., Oliver, M. B., (2009). Mass Media Attitude Change. In *Media effects: Advances in theory and research* (pp. 125-164). New York, NY: Routledge.

Bulte, E. H., & Rondeau, D. (2005). Why compensating wildlife damages may be bad for conservation. *The Journal of Wildlife Management*, *69*(1), 14-19.

Büscher, B. (2014). Nature 2.0: Exploring and theorizing the links between new media and nature conservation. *New Media & Society*, *18*(5), 726–743. https://doi.org/10.1177/1461444814545841

Butchart, S. H., Walpole, M., Collen, B., Van Strien, A., Scharlemann, J. P., Almond, R. E., ... & Carpenter, K. E. (2010). Global biodiversity: indicators of recent declines. *Science*, 1187512.

Cardillo, M., Purvis, A., Sechrest, W., Gittleman, J. L., Bielby, J., & Mace, G. M. (2004). Human population density and extinction risk in the world's carnivores. *PLOS Biology*, *2*(7), e197.

Cardinale, B. J., Duffy, J. E., Gonzalez, A., Hooper, D. U., Perrings, C., Venail, P., ... & Kinzig, A. P. (2012). Biodiversity loss and its impact on humanity. *Nature*, *486*(7401), 59

Caughley, G. (1994). Directions in conservation biology. *Journal of Animal Ecology*, 215-244.

Chong, D. (1996). Creating common frames of reference on political issues. *Political Persuasion and Attitude Change*, 195-224.

Clifford, S., & Jerit, J. (2013). How words do the work of politics: Moral foundations theory and the debate over stem cell research. *The Journal of Politics*, 75(3), 659-671.

Costanza, R., d'Arge, R., De Groot, R., Farber, S., Grasso, M., Hannon, B., ... & Raskin, R. G. (1997). The value of the world's ecosystem services and natural capital. *nature*, *387*(6630), 253.

Couvet, D. (2002). Deleterious effects of restricted gene flow in fragmented populations. *Conservation Biology*, *16*(2), 369-376.

Dally, G. C., & Power, M. (1997). Nature's services: Societal dependence on natural ecosystems. *Nature*, *388*(6642), 529.

Dehghani, M., Sagae, K., Sachdeva, S., & Gratch, J. (2014). Analyzing political rhetoric in conservative and liberal weblogs related to the construction of the "Ground Zero Mosque". *Journal of Information Technology & Politics*, 11(1), 1-14.

Díaz, S., Fargione, J., Chapin III, F. S., & Tilman, D. (2006). Biodiversity loss threatens human well-being. *PLOS Biology*, *4*(8), e277.

Dickman, A. J. (2010). Complexities of conflict: the importance of considering social factors for effectively resolving human–wildlife conflict. *Animal Conservation*, *13*(5), 458-466.

Dickman, A. J., Macdonald, E. A., & Macdonald, D. W. (2011). A review of financial instruments to pay for predator conservation and encourage human–carnivore coexistence. *Proceedings of the National Academy of Sciences*, 201012972.

Didham, R. K., Tylianakis, J. M., Hutchison, M. A., Ewers, R. M., & Gemmell, N. J. (2005). Are invasive species the drivers of ecological change?. *Trends in Ecology & Evolution*, *20*(9), 470-474.

Dinerstein, E., Loucks, C., Wikramanayake, E., Ginsberg, J., Sanderson, E., Seidensticker, J., ... & Leimgruber, P. (2007). The fate of wild tigers. *AIBS Bulletin*, *57*(6), 508-514.

Edinger, E. N., Jompa, J., Limmon, G. V., Widjatmoko, W., & Risk, M. J. (1998). Reef degradation and coral biodiversity in Indonesia: effects of land-based pollution, destructive fishing practices and changes over time. *Marine Pollution Bulletin*, *36*(8), 617-630.

Epstein, C. (2006). The making of global environmental norms: endangered species protection. *Global Environmental Politics*, *6*(2), 32-54.

Fabricius, C., Koch, E., Magome, H., & Turner, S. (2004). *Rights, resources and rural development: Community based natural resource management in Southern Africa*. London: Earthscan.

Fahrig, L. (1997). Relative effects of habitat loss and fragmentation on population extinction. *The Journal of Wildlife Management*, 603-610.

Feather, N. T. (1995). Values, valences, and choice: The influence of values on the perceived attractiveness and choice of alternatives. *Journal of Personality and Social Psychology*, 68, 1135-1151.

Fishbein, M., & Cappella, J. N. (2006). The role of theory in developing effective health communications. *Journal of Communication*, *56*(suppl_1), S1-S17.

Fishbein, M., & Ajzen, I., (1975). *Belief, Attitude, Intention and Behavior: An Introduction to Theory and Research*. London: Addison-Wesley Publishing Co. 578

Forester, D. J., & Machlis, G. E. (1996). Modeling human factors that affect the loss of biodiversity. *Conservation Biology*, *10*(4), 1253-1263.

Gerlitz, C., & Helmond, A. (2013). The like economy: Social buttons and the data-intensive web. *New Media & Society*, *15*(8), 1348-1365.

Gibbons, J. W., Scott, D. E., Ryan, T. J., Buhlmann, K. A., Tuberville, T. D., Metts, B. S., ... & Winne, C. T. (2000). The global decline of reptiles, Déjà Vu Amphibians: reptile species are declining on a global scale. *AIBS Bulletin*, *50*(8), 653-666.

Gibson, C. C., & Marks, S. A. (1995). Transforming rural hunters into conservationists: an assessment of community-based wildlife management programs in Africa. *World Development*, *23*(6), 941-957.

Gilman, S. E., Urban, M. C., Tewksbury, J., Gilchrist, G. W., & Holt, R. D. (2010). A framework for community interactions under climate change. *Trends in Ecology & Evolution*, *25*(6), 325-331.

Global Tiger Initiative Secretariat (2011). *Global Tiger Recovery Program 2010 – 2022* Washington, D.C.: The World Bank.

Goodrich, J. M. (2010). Human–tiger conflict: a review and call for comprehensive plans. *Integrative Zoology*, *5*(4), 300-312.

Goodrich, J. M., Kerley, L. L., Smirnov, E. N., Miquelle, D. G., McDonald, L., Quigley, H. B., ... & McDonald, T. (2008). Survival rates and causes of mortality of Amur tigers on and near the Sikhote-Alin Biosphere Zapovednik. *Journal of Zoology*, *276*(4), 323-329.

Graham, K., Beckerman, A. P., & Thirgood, S. (2005). Human–predator–prey conflicts: ecological correlates, prey losses and patterns of management. *Biological Conservation*, *122*(2), 159-171.

Graham, J., Haidt, J., Koleva, S., Motyl, M., Iyer, R., Wojcik, S. P., & Ditto, P. H. (2013). Moral foundations theory: The pragmatic validity of moral pluralism. In *Advances in Experimental Social Psychology* (Vol. 47, pp. 55-130). Academic Press.

Graham, J., Haidt, J., & Nosek, B. A. (2009). Liberals and conservatives rely on different sets of moral foundations. *Journal of Personality and Social Psychology*, 96(5), 1029.

Graham, J., Nosek, B. A., Haidt, J., Iyer, R., Koleva, S., & Ditto, P. H. (2011). Mapping the moral domain. *Journal of personality and social psychology*, *101*(2), 366.

Greenwald, A. G. (1968). Cognitive learning, cognitive response to persuasion, and attitude change. *Psychological foundations of attitudes*, 147-170

Gurevitch, J., & Padilla, D. K. (2004). Are invasive species a major cause of extinctions?. *Trends in Ecology & Evolution*, *19*(9), 470-474.

Gopal, R., Qureshi, Q., Bhardwaj, M., Singh, R. J., & Jhala, Y. V. (2010). Evaluating the status of the endangered tiger Panthera tigris and its prey in Panna Tiger Reserve, Madhya Pradesh, India. *Oryx*, *44*(3), 383-389.

Haddad, N. M., & Baum, K. A. (1999). An experimental test of corridor effects on butterfly densities. *Ecological Applications*, *9*(2), 623-633.

Haidt, J. (2001) The emotional dog and its rational tail: a social intuitionist approach to moral judgement. *Psychological Review,* 108(4), 814.

Harihar, A., Ghosh-Harihar, M., & MacMillan, D. C. (2014). Human resettlement and tiger conservation–socio-economic assessment of pastoralists reveals a rare conservation opportunity in a human-dominated landscape. *Biological Conservation*, *169*, 167-175.

Hernández, J.C. (2018, October 29). China reverses ban on rhino and tiger parts in medicine, worrying activists. *The New York Times*. Retrieved from

https://www.nytimes.com/2018/10/29/world/asia/china-rhino-tiger-poaching.html?module=inline

Hernández, J.C. (2018, November 12). China, after outcry, reinstates ban on rhino and tiger parts in medicine. *The New York Times.* Retrieved from https://www.nytimes.com/2018/11/12/world/asia/china-rhino-tiger-ban.html

Hoekstra, J. M., Boucher, T. M., Ricketts, T. H., & Roberts, C. (2005). Confronting a biome crisis: global disparities of habitat loss and protection. *Ecology Letters*, *8*(1), 23-29.

Hölker, F., Wolter, C., Perkin, E. K., & Tockner, K. (2010). Light pollution as a biodiversity threat. *Trends in Ecology & Evolution*, *25*(12), 681-682.

Hulme, P. E. (2009). Trade, transport and trouble: managing invasive species pathways in an era of globalization. *Journal of Applied Ecology*, *46*(1), 10-18.

Hutton J.M., Leader-Williams, N. 2003. Sustainable use and incentive-driven conservation: realigning human and conservation interests. *Oryx*. 37:215–226.

IMF (International Monitoring Fund). 2006. World economic outlook database. Washington, DC.

Infield, M. (2001). Cultural values: a forgotten strategy for building community support for protected areas in Africa. *Conservation Biology*, *15*(3), 800-802.

Inskip, C., & Zimmermann, A. (2009). Human-felid conflict: a review of patterns and priorities worldwide. *Oryx*, *43*(1), 18-34.

IUCN (2000) Guidelines for the Prevention of Biodiversity Loss Caused by Alien Invasive Species. International Union for the Conservation of Nature, Gland, Switzerland.

IUCN (World Conservation Union). 2008. Redlist of threatened species; Available from: http:// www.iucnredlist.org.

Karanth, K. U., Bhargav, P., & Kumar, S. (2001). Karnataka Tiger Conservation Project. Final Report to Save The Tiger Fund-National Fish and Wildlife Foundation, ExxonMobil Corporation and other donors. *Wildlife Conservation Society, International Programs, Bronx, NY-10460-1099. Copyright© Wildlife Conservation Society*, 2.

Karanth, K. U., & Gopal, R. (2005). An ecology-based policy framework for human-tiger coexistence in India. *Conservation Biology*, *9*, 373.

Kartika, E. C., & Koopmans, F. (2013). Human-tiger conflict. Retrieved from: https://www.researchgate.net/profile/Erlinda_Kartika/publication/301285543_Human-tiger_conflict_An_overview_of_incidents_causes_and_resolution/links/570f592d08aecd31ec9a9a89.pdf

Kideghesho, J. R. (2009). The potentials of traditional African cultural practices in mitigating overexploitation of wildlife species and habitat loss: experience of Tanzania. *International Journal of Biodiversity Science & Management*, *5*(2), 83-94.

Kideghesho, J. R., Røskaft, E., Kaltenborn, B. P., & Tarimo, T. M. (2005). 'Serengeti shall not die': Can the ambition be sustained?. *The International Journal of Biodiversity Science and Management*, *1*(3), 150-166.

Kinnaird, M. F., Sanderson, E. W., O'brien, T. G., Wibisono, H. T., & Woolmer, G. (2003). Deforestation trends in a tropical landscape and implications for endangered large mammals. *Conservation Biology*, *17*(1), 245-257.

Koleva, S. P., Graham, J., Iyer, R., Ditto, P. H., & Haidt, J. (2012). Tracing the threads: How five moral concerns (especially Purity) help explain culture war attitudes. *Journal of Research in Personality*, 46(2), 184-194.

Kollmuss, A., & Agyeman, J. (2002). Mind the gap: why do people act environmentally and what are the barriers to pro-environmental behavior? *Environmental Education Research*, *8*(3), 239-260.

Lande, R. (1988). Genetics and demography in biological conservation. *Science*, *241*(4872), 1455-1460.

Lapola, D. M., Oyama, M. D., & Nobre, C. A. (2009). Exploring the range of climate biome projections for tropical South America: the role of CO2 fertilization and seasonality. *Global Biogeochemical Cycles*, *23*(3).

Leadley, P. (2010). *Biodiversity scenarios: projections of 21st century change in biodiversity, and associated ecosystem services: a technical report for the global biodiversity outlook 3*(No. 50). UNEP/Earthprint.

Linkie, M., Martyr, D. J., Holden, J., Yanuar, A., Hartana, A. T., Sugardjito, J., & Leader-Williams, N. (2003). Habitat destruction and poaching threaten the Sumatran tiger in Kerinci Seblat National Park, Sumatra. *Oryx*, *37*(1), 41-48.

Löe, J., & Röskaft, E. (2004). Large carnivores and human safety: a review. *AMBIO: A Journal of the Human Environment*, *33*(6), 283-288.

Loibooki, M., Hofer, H., Campbell, K. L., & East, M. L. (2002). Bushmeat hunting by communities adjacent to the Serengeti National Park, Tanzania: the importance of livestock ownership and alternative sources of protein and income. *Environmental Conservation*, *29*(3), 391-398.

Macdonald, D. W., Loveridge, A. J., & Rabinowitz, A. (2010). Felid futures: crossing disciplines, borders, and generations. *Biology and Conservation of Wild Felids*, *599*.

Manfredo, M. J., & Dayer, A. A. (2004). Concepts for exploring the social aspects of human–wildlife conflict in a global context. *Human Dimensions of Wildlife*, *9*(4), 1-20.

Marchini, S., & Macdonald, D. W. (2012). Predicting ranchers' intention to kill jaguars: case studies in Amazonia and Pantanal. *Biological Conservation*, *147*(1), 213-221.

Marko, P. B., & Hart, M. W. (2011). The complex analytical landscape of gene flow inference. *Trends in Ecology & Evolution*, *26*(9), 448-456.

McGraw, P.A., Schwartz, J. A., & Tetlock, P. E. (2011). From the commercial to the communal: Reframing taboo trade-offs in religious and pharmaceutical marketing. *Journal of Consumer Research*, *39*(1), 157-173.

Mech, S. G., & Hallett, J. G. (2001). Evaluating the effectiveness of corridors: a genetic approach. *Conservation Biology*, *15*(2), 467-474.

Messer, K. D. (2010). Protecting endangered species: When are shoot-on-sight policies the only viable option to stop poaching?. *Ecological Economics*, *69*(12), 2334-2340.

Millennium Ecosystem Assessment. 2005. Biodiversity. Washington, DC: Island Press; [accessed 2009 Mar 20]. Available from: http://www.millenniumassessment.org/documents/document.272.aspx.pdf

Miller, B., Conway, W., Reading, R. P., Wemmer, C., Wildt, D., Kleiman, D., ... & Hutchins, M. (2004). Evaluating the conservation mission of zoos, aquariums, botanical gardens, and natural history museums. *Conservation Biology*, *18*(1), 86-93.

Miquelle, D., Nikolaev, I., Goodrich, J., Litvinov, B., Smirnov, E., & Suvorov, E., (2005). Searching for the coexistence recipe: a case study of conflicts between people and tigers in the Russian Far East. *Conservation Biology Series-Cambridge*, *9*, 305.

Mischel, W. (1996). *Personality and Assessment*. New York: Psychology Press.

Mora, C., & Sale, P. F. (2011). Ongoing global biodiversity loss and the need to move beyond protected areas: a review of the technical and practical shortcomings of protected areas on land and sea. *Marine Ecology Progress Series*, *434*, 251-266.

Myers, N., Mittermeier, R. A., Mittermeier, C. G., Da Fonseca, G. A., & Kent, J. (2000). Biodiversity hotspots for conservation priorities. *Nature*, *403*(6772), 853.

Myers, R. A., & Worm, B. (2003). Rapid worldwide depletion of predatory fish communities. *Nature*, *423*(6937), 280.

Nyhus, P. J., & Tilson, R. (2004). Characterizing human-tiger conflict in Sumatra, Indonesia: implications for conservation. *Oryx*, *38*(1), 68-74.

Nyhus, P. J., Osofsky, S. A., Ferraro, P., Madden, F., & Fischer, H. (2005). Bearing the costs of human-wildlife conflict: the challenges of compensation schemes. *Conservation Biology Series-Cambridge*, *9*, 107.

Pasanek, B. (2009). Ideology and metaphor. Presented to Kellogg School of Management, September 2009.

Pimm, S. L., & Raven, P. (2000). Biodiversity: extinction by numbers. *Nature*, *403*(6772), 843.

Rokeach, M. (1973). The nature of human values. New York: Free Press.

Rosser, A. M., & Mainka, S. A. (2002). Overexploitation and species extinctions. *Conservation Biology*, *16*(3), 584-586.

Scheffer, M., & Carpenter, S. R. (2003). Catastrophic regime shifts in ecosystems: linking theory to observation. *Trends in Ecology & Evolution*, *18*(12), 648-656.

Schwartz, S. (1996). Value Priorities and Behavior: Applying a Theory of Integrated Value Systems. U C. Seligman, JM Olson & MP Zanna (Eds.) *The Ontario Symposium: The Psychology of Values* (Vol. 8).

Seidensticker, J. (2010). Saving wild tigers: a case study in biodiversity loss and challenges to be met for recovery beyond 2010. *Integrative Zoology*, *5*(4), 285-299.

Seidensticker, J. (2008). Wild cats and climate change.

Sharma, S., Dutta, T., Maldonado, J. E., Wood, T. C., Panwar, H. S., & Seidensticker, J. (2013). Forest corridors maintain historical gene flow in a tiger metapopulation in the highlands of central India. *Proceedings of the Royal Society of London B: Biological Sciences*, *280*(1767), 20131506.

Sharma, K., Wright, B., Joseph, T., & Desai, N. (2014). Tiger poaching and trafficking in India: Estimating rates of occurrence and detection over four decades. *Biological Conservation*, *179*, 33-39.

Soule, M. E. (1991). Conservation: tactics for a constant crisis. *Science* 253:744-750.

Species List. (n.d.).*World Wildlife Fund*. Retrieved October 12, 2018, from https://www.worldwildlife.org/species/directory?direction=desc&sort=extinction_status

Sperber, D. (2005). Modularity and relevance. *The Innate Mind: Structure and Contents*, 1, 53-68.

Thirgood, S., Woodroffe, R., & Rabinowitz, A. (2005). The impact of human-wildlife conflict on human lives and livelihoods. *Conservation Biology Series-Cambridge*, 9, 13.

Thorn, M., Green, M., Dalerum, F., Bateman, P. W., & Scott, D. M. (2012). What drives human–carnivore conflict in the North West Province of South Africa?. *Biological Conservation*, *150*(1), 23-32.

Tigers (sports teams). (2018, May 04). Retrieved from https://en.wikipedia.org/wiki/Tigers_(sports_teams)#United_States

Waylen, K. A., McGowan, P. J., Milner-Gulland, E. J., & Pawi Study Group. (2009). Ecotourism positively affects awareness and attitudes but not conservation behaviours: a case study at Grande Riviere, Trinidad. *Oryx*, *43*(3), 343-351.

Walther, G. R. (2010). Community and ecosystem responses to recent climate change. *Philosophical Transactions of the Royal Society of London B: Biological Sciences*, *365*(1549), 2019-2024.

Warchol, G. L. (2004). The transnational illegal wildlife trade. *Criminal Justice Studies*, *17*(1), 57-73.

Wikramanayake, E., Dinerstein, E., Forrest, J., Loucks, C., Seidensticker, J., Klenzendorf, S., ... & O'Brien, T. (2010). Roads to Recovery or Catastrophic Loss: How Will the Next Decade End for Wild Tigers?. In *Tigers of the World (Second Edition)* (pp. 493-506).

Wilcove, D. S., McLellan, C. H., & Dobson, A. P. (1986). Habitat fragmentation in the temperate zone. *Conservation Biology*, *6*, 237-256.

Wolsko, C., Ariceaga, H., & Seiden, J. (2016). Red, white, and blue enough to be green: Effects of moral framing on climate change attitudes and conservation behaviors. *Journal of Experimental Social Psychology*, *65*, 7-19.

Woodroffe, R., & Ginsberg, J. R. (1998). Edge effects and the extinction of populations inside protected areas. *Science*, *280*(5372), 2126-2128.

Wright, B. (2010). Will the tiger survive in India?. In *Tigers of the World (Second Edition)* (pp. 87-100).

Zabel, A., Pittel, K., Bostedt, G., & Engel, S. (2011). Comparing conventional and new policy approaches for carnivore conservation: theoretical results and application to tiger conservation. *Environmental and Resource Economics*, *48*(2), 287-301.

Zhao, X., Strasser, A., Cappella, J. N., Lerman, C., & Fishbein, M. (2011). A measure of perceived argument strength: Reliability and validity. *Communication methods and measures*, *5*(1), 48-75.

Zúñiga, H. G., Copeland, L., & Bimber, B. (2013). Political consumerism: Civic engagement and the social media connection [Abstract]. New Media & Society, 16(3), 488-506. doi:10.1177/1461444813487960

Appendices

Appendix A. Survey Instrument

A Study of Decision-Making and Global Tiger Conservation

Information about Being in a Research Study
Clemson University

An Exploration of the Relationships Between Moral Foundations, Communications, and Behavioral Intent Regarding Global Tiger Conservation

Dr. Brett Wright and Louise Orr are inviting you to take part in a research study. Dr. Wright is Dean Emeritus of the College of Behavioral, Social, and Health Sciences at Clemson University, and the director of the U.S. Tiger University Consortium. Louise Orr is a graduate student at Clemson University and is running this study with the help of Dr. Wright. They are interested in exploring how people make decisions and how that affects efforts with global tiger conservation.

Your part in the study will be to follow the link and complete the survey. It will take you about approximately 15 minutes to complete.

Risks and Discomforts
We do not know of any risks or discomforts to you in this research study.

Possible Benefits
This study could help conservation communicators better express the need to conserve biodiversity and tailor messages to a more targeted audience.

Protection of Privacy and Confidentiality
The results of this study may be published in scientific journals, professional publications, or educational presentations; however, no individual participant will be identified.

Choosing to Be in the Study
You may choose not to take part and you may choose to stop taking part at any time. You will not be punished in any way if you decide not to be in the study or to stop taking part in the study.

Contact Information
If you have any questions or concerns about your rights in this research study, please contact the Clemson University Office of Research Compliance (ORC) at 864-656-0636 or irb@clemson.edu. If you are outside of the Upstate South Carolina area, please use the ORC's toll-free number, 866-297-3071. The Clemson IRB will not be able to answer some study-specific questions. However, you may contact the Clemson IRB if the research staff cannot be reached or if you wish to speak with someone other than the research staff. If you have any

study related questions or if any problems arise, please contact Louise Orr at Clemson University at 919-219-2301.

Consent

By participating in the study, you indicate that you have read the information written above, are at least 18 years of age, been allowed to ask any questions, and are voluntarily choosing to take part in this research. You do not give up any legal rights by taking part in this research study.

Moral Relevance

"The following two sections of this questionnaire will be seeking to understand how you make decisions."

1. When you decide whether something is right or wrong, to what extent are the following considerations relevant to your thinking?

not at all relevant (1)	not very relevant (2)	slightly relevant (3)	somewhat relevant (4)	very relevant (5)	extremely relevant (6)

1) Whether or not someone or something suffered
2) Whether or not someone cared for someone or something weak or vulnerable
3) Whether or not someone was cruel
4) Whether or not *someone* was denied his or her rights
5) Whether or not *something* was denied its rights
6) Whether or not someone or something was treated unfairly
7) Whether or not someone's action showed love for his or her country
8) Whether or not someone did something to betray his or her group
9) Whether or not someone showed a lack of loyalty
10) Whether or not someone showed a lack of respect for authority
11) Whether or not someone confirmed to the traditions of society
12) Whether or not an action caused chaos or disorder
13) Whether or not someone violated a pristine and pure environment
14) Whether or not someone violated a social norm, such as littering
15) Whether or not someone acted in a way in which God would disapprove

Moral Judgement

2. Please read the following statements and indicate your agreement or disagreement.

strongly disagree (1)	moderately disagree (2)	slightly disagree (3)	slightly agree (4)	moderately agree (5)	strongly agree (6)

1. Compassion for living things that are suffering is a crucial virtue.
2. One of the worst things a person could do is hurt a defenseless animal.
3. It can never be right to kill an endangered animal.
4. When the government makes laws, the number one principle should be ensuring that everyone is treated fairly.
5. When the government makes environmental laws, the number one principle should be ensuring that no one is hurt economically.
6. Justice is the most important requirement for a society.
7. I am proud of my country's relationship with the natural environment.
8. People should be loyal to their family members even when they have done something wrong.
9. It is more important to be a team player than to express oneself.
10. Respect for authority and the laws governing a country is something all children need to learn.
11. Men and women each have different roles to play in society.
12. If I were an employee and my employer asked me to do something that would harm the environment, I would do it anyway because that is my duty.
13. People should not do things that are degrading to the environment.
14. I would call some acts wrong on the grounds that they are unnatural and interfere with nature's processes.
15. Conserving some tracts of land that remain natural and pristine is an important and valuable virtue for society.

Knowledge of Tigers and Tiger Conservation-Related Issues

Correct answers are highlighted.

"Next, we would like to explore what you know about tigers and their conservation around the world."

1. On what continent(s) are tigers found in the wild?
    a. South America
    b. Africa
    c. Asia
    d. Africa and Asia
2. In how many countries around the world are tigers found?
    a. 67
    b. 36
    c. 13
    d. 2
3. Name one country in which tigers are found: _____
4. What is the latest estimate of the number of tigers living in the wild, worldwide?
    a. Slightly less than 4,000
    b. Approximately 15,000
    c. Approximately 36,000

d. Slightly more than 50,000

5. List one cause of tiger population decline: _____
6. Tigers have lost _____ percent of their habitat over the past century:
    a. ~10%
    b. ~30%
    c. ~50%
    d. ~90%
7. List one reason tigers are poached from the wild: _____
8. Tigers thrive in small territories because:
    a. Less competition for prey with other predators
    b. Reduced instances of human-wildlife conflict
    c. Easier to find a mate since populations are so reduced
    d. None of the above: tigers do not thrive in small territories

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Message Treatment

Individualizing Treatment:

"Many people around the world are concerned about the health of tiger populations. We are interested in what you think and feel about this issue. First, please read through the following paragraph before answering a few additional questions.

Show your love for all of humanity and the world in which we live by helping to care for one of the most vulnerable and endangered species on the planet: tigers. Tigers are unjustly killed by poachers and populations are being destroyed. Help to reduce the harm done to them by taking action. By caring for tigers you are protecting and sustaining important, diverse ecosystems so that everyone around the world may enjoy a healthy planet. Do the right thing by preventing the suffering and exploitation of tigers . SHOW YOUR COMPASSION."

Binding Treatment:

"Many of your fellow citizens are concerned about the health of tiger populations around the world. We are interested in what you think and feel about this issue. First, please read through the following paragraph before answering a few additional questions.

Show your love and respect for Mother Nature by joining the fight to protect the purity of our Earth and one of its most revered species: the tiger. Poachers have defied law and exploited them for decades, and much of their habitat has been desecrated. By taking a tough stance on protecting them and subsequent biodiversity, you are honoring all of Creation. Demonstrate

your respect by following the examples of your religious and political leaders who defend the natural environment and species like tigers. JOIN THE FIGHT!"

Perceived Argument Strength

"Considering the previous message, please indicate the extent to which you agree or disagree with each of the following statements."

Strongly Disagree (1)	Moderately Disagree (2)	Somewhat Disagree (3)	Neutral/Mixed (4)	Somewhat Agree (5)	Moderately Agree. (6)	Strongly Agree (7)

11. The previous message feels like it came from "my people."
12. The previous message reflects my group's values.
13. The message gives a reason for being concerned about endangered tigers that is believable.
14. The message gives a reason for being concerned about endangered tigers that is convincing.
15. The message gives a reason for being concerned about endangered tigers that is important to me.
16. The message helped me feel confident about how to best help endangered tigers.
17. The message would encourage my friends to help endangered tigers.
18. The message put thoughts in my mind about wanting to help endangered tigers.
19. The message put thoughts in my mind about *not* wanting to help endangered tigers.
20. Overall, to what extent do you agree or disagree with the message?

Behavioral Likelihood

"Please indicate the likelihood of you engaging in the following behaviors by selecting the point on the scale that best describes your answer."

extremely unlikely (1) (2) (3) (4) (5) (6) (7) extremely likely

8. Search online for more information about tiger conservation.
9. Engage with a related article on social media (like/share/comment/retweet/favorite).
10. Sign a petition calling for tiger conservation.
11. Write a letter to a government entity or NGO encouraging it to take action.
12. Donate money to tiger conservation efforts.
13. Travel to a zoo to learn more about tigers.
14. Travel overseas to see tigers in the wild.

Demographics

1. What is your gender?
    a. Male
    b. Female
2. What is your country of residence?
    a. United States
    b. Other
3. What is your education level?
    a. Less than a high school degree
    b. High school equivalent (e.g. GED)
    c. Some college but no degree
    d. Associate degree
    e. Bachelor's degree
    f. Graduate degree
4. Have you ever attended and/or been a fan of a school with a tiger mascot?
    a. Yes
    b. No
5. If yes, what type of school was affiliated with a tiger mascot?
    a. Elementary school
    b. Middle school
    c. High school
    d. College/University
6. How important is tiger conservation to you?

not important (1) (2) (3) (4) (5) (6) (7) (8) (9) (10) extremely important

7. Please indicate the most accurate representation of your political ideology:
    a. Strongly liberal
    b. Moderately liberal
    c. Slightly liberal
    d. Neutral (Moderate)
    e. Slightly conservative
    f. Moderately conservative
    g. Strongly conservative

Appendix B. Additional Related Literature

Biodiversity Loss

Biodiversity has been dramatically altered and diminished by humans across the globe (Díaz et al., 2006). While immediate causes of biodiversity loss are mostly due to biological factors, ultimate causes can be attributed to the economic, political, and social activities of people (Forester & Machlis, 1996). As of 2002, approximately 83 percent of land worldwide has experienced some effect of human activity caused by the appropriation of natural resources, which directly and indirectly results in an increasing number of species becoming threatened (Mora & Sale, 2011). By 2010, despite strategies to combat it, biodiversity loss continued, often at accelerated rates (Butchart et al., 2010).

Biodiversity influences the provision of ecosystem services in a number of ways that contribute to societal wellbeing. Biodiversity responds to a variety of global phenomena (e.g. climate change and land use) in addition to being a factor that has the ability to influence human society (Díaz et al., 2006). For example, biologically diverse ecosystems provide services, such as pollination, seed dispersal, erosion control and water retention that are vital to humans and agricultural production (Díaz et al., 2006; Dally & Power, 1997). In 1997, the value of the services provided by ecosystems were estimated to be around $33 trillion in the United States alone and may be 4.5 times greater than the value of the Gross World Product (Costanza et al., 1997; Boumans et al., 2002).

Cardinale et al. (2012) describes six ways in which biodiversity loss has been shown to affect the processes of ecosystems: 1) biodiversity loss reduces the efficiency of ecosystems to collect nutrients and decompose waste; 2) evidence suggests more biologically diverse

ecosystems and their respective functions are more stable; 3) changes to ecosystems are accelerated as biodiversity decreases; 4) diverse ecological communities are more productive; 5) diversity loss that affects species throughout the food chain influences ecosystem functions more than loss at one trophic level; and 6) the traits of organisms can have a large influence on ecosystem functions, meaning there is a wide range of possible impacts if a species becomes extinct. Consequently, biodiversity loss both directly and indirectly affects the production of food, fiber, potable water, and medicines among other important products created by ecosystem processes and can potentially harm human societies (Díaz et al., 2006).

In 1973, the Convention on International Trade in Endangered Species (CITES) was signed, which "provided the first overarching framework for comprehensive protection [of wildlife] legislation that could extend globally" (Epstein, 2006, p. 45). The Endangered Species Act of 1973 (ESA) as we know it today was America's way of ensuring the responsibilities set forth by the CITES treaty were met and served as the U.S. response to environmental change and rapidly declining populations of species, both domestically and abroad (Brown & Shogren, 1998). It was around this time that endangered species protections became a unifying movement of global environmental protection that has continued to shape and influence conservation policy around the world (Epstein, 2006).

Human Intrusions

The effects of human population growth on biodiversity loss around the world include six classes of human interference: (1) habitat loss, (2) habitat fragmentation, (3) overexploitation, (4) invasive species and diseases, (5) pollution, and (6) climate change (Soulé, 1991). Soulé notes that it is difficult to generalize the six classes as each vary by location, time, and circumstance, but some broad principles apply: "habitat loss, fragmentation, and the direct and indirect effects

of exotic species are now problems everywhere…but overharvesting of economically important species is now of greater concern in poorer countries," (p. 745).

Habitat Loss

Biodiversity loss is indicative of a larger crisis occurring globally, and many conservationists argue that protection and conservation strategies should focus on entire at-risk ecosystems rather than a few specific species (Hoekstra, Boucher, Ricketts, & Roberts, 2005). Many of these ecosystems in need of increased protections are at risk due to habitat loss caused by humans (Hoekstra et al., 2005). According to Hoekstra et al., the minimum estimates of habitat loss reflect that approximately 21.8% of land area around the world has been altered for human-dominated uses (2005). Human-caused loss of habitat results in reduced population sizes for native species, which in turn increases the likelihood that affected species will become extinct (Fahrig, 1997).

Almost half of the world's vascular plant species and approximately one-third of terrestrial vertebrates are found within 25 hotspots around the globe, and according to Myers, Mittermeier, Mittermeier, Da Fonseca, and Kent (2000), none have more than one-third of their unspoiled habitat remaining. After cross-referencing the IUCN's list of threatened or endangered species with the aforementioned hotspots, Myers et al. (2000) concluded that over 50 percent of all threatened plants and 57 percent of all threatened terrestrial vertebrates are endemic to these areas. This research shows that habitat loss is so prevalent in these hotspots that it has left a significant amount of endemic species threatened and subject to possible extinction if no conservation action is taken (Myers et al., 2000).

Habitat loss has greatly contributed to the plight of tigers in the wild and is a significant reason why tigers now only occupy seven percent of their historical range (Dinerstein et al.,

2007). As of 2008, there were 3.4 billion people living in that historical range, which is double the number of people living there in 1969 --the year tigers were declared endangered (Seidensticker, 2010). Today, tigers are only found in 13 "tiger range countries": Bangladesh, Bhutan, Cambodia, China, India, Indonesia, Laos, Malaysia, Myanmar, Nepal, Russia, Thailand, and Vietnam, all of which are experiencing significant economic growth (Seidensticker, 2010). An example of this can be found in Sumatra, Indonesia, where habitat loss is due to both illegal and commercial logging, palm oil production activities, mining operations, and forest fires (Linkie et al., 2003). Tigers in this area found their habitats fragmented as a result of the massive amounts of deforestation taking place to support these activities as well as booming population growth (Linkie et al., 2003). Research shows that tigers are at a greater risk of extirpation (local extinction) and extinction due to their naturally low densities in the wild, so in order to maintain sustainable populations, large tracts of land are required (Lande, 1988; Caughley, 1994; Woodroffe & Ginsberg, 1998).

Habitat Fragmentation

Another source of biodiversity loss at the hands of humans is habitat fragmentation, often a side effect of mass deforestation practices (Kinnaird, Sanderson, O'Brien, Wibisono, & Woolmer, 2003). Fragmentation often worsens the effects of habitat destruction by isolating areas and impacting dispersal and migration rates (Wilcove et al., 1986). Habitat fragmentation has two components according to Wilcove et al. (1986): 1) a reduction in total habitat area and 2) the redistribution of remaining areas into disconnected patches. The reduction in total habitat area can significantly reduce population numbers and increase extirpation and extinction rates, as it is difficult for certain species to thrive in smaller, isolated environments (Wilcove et al., 1986; Kinnaird et al., 2003). One example of this is the creation of economic corridors that rely

heavily on deforestation and increases in infrastructure. This type of economic development can prevent the natural dispersal of wildlife, negatively impacting biodiversity levels (Dinerstein et al., 2007).

Corridors are a popular solution used to mitigate the effects of fragmentation and allow for more dispersion and migration. Corridors of similar suitable habitat that link patches to one another was one of the earliest practical recommendations to combat the effects of fragmentation (Wilcove et al., 1986). By connecting fragments of habitat allowing for easier dispersion and migration, corridors have the potential to assist in gene flow and contribute to population increases (Mech & Hallet, 2001; Haddad & Baum, 1999). The popularity of this concept has outpaced the empirical research needed to demonstrate its effectiveness, so more data is needed to help inform conservationists in the design and implementation of corridors (Bennett, 1999).

As apex predators that occur in naturally low densities in the wild, tigers need vast amounts of habitat with sufficient prey in order to survive (Sharma et al., 2013). Research shows that the ability of tigers to move freely among fragmented habitats or patches is imperative for species persistence and conservation via the maintenance of gene flow (Sharma et al., 2013). Corridors provide tigers the ability to recolonize patches where they were once extirpated and allows for successful breeding with members of different populations to improve the gene pool (Couvet, 2002; Marko & Hart, 2011; Sharma et al., 2013). A study by Wikramanayake et al. (2010) projected that if habitat loss, degradation, and fragmentation continued at the rate it was occurring in 2006, by 2020 tigers could only occupy three percent of their historical range (currently 7%). This could be prevented if connectivity within and between important tiger conservation landscapes was improved through the use of corridors (Wikramanayake et al., 2010).

Overexploitation

The third class of human interference in biodiversity loss is the overexploitation of wildlife and other natural resources. It has been a significant contributor, if not the major cause of biodiversity loss in most marine fisheries and is such a prevalent issue that 14 percent of threatened mammals on IUCN's Red List were placed there because of it (Myers & Worm, 2003; Rosser & Mainka, 2002). Coupled with habitat loss, overexploitation is one of the two universally acknowledged causes of biodiversity loss globally and can occur both legally and illegally (Brooks et al., 2002).

Both habitat loss and overexploitation occur more frequently in developing countries, as low GDP per capita, high population growth rates, extreme poverty, and malnutrition drive the need to utilize natural resources in order to survive (Millennium Ecosystem Assessment, 2005; IMF, 2006; IUCN, 2008). Research indicates that population growth is a driving force behind overconsumption on a global scale, especially in areas of high growth that are in close proximity to protected areas (Kideghesho, Røskaft, Kaltenborn, & Tarimo, 2005). Additionally, poverty often forces people to violate laws in order to obtain food or earn income, disregarding the ecological implications of their actions (Loibooki et al., 2002).

Illegal wildlife trade is a billion-dollar industry, which has ensnared local support among communities living adjacent to protected areas. Indigenous peoples are a cornerstone of local poaching as well as international syndicates responsible for much of the illegal wildlife trade, and are often found living near threatened species (Warchol, 2004). According to estimates, poaching was the third-largest source of criminal earnings in 2006 (Kideghesho, 2009). For example, Southern Africa has seen a rise in the number of rhino and elephants poached for their valuable ivory and rhino horn to then be sold on the black market (Kideghesho, 2009).

Tigers are another example of a species subject to illegal overexploitation. Throughout the 20th century, tiger numbers plummeted due to the demand for tiger pelts (used as fashion statements for Western elites) as well as the use of tiger parts for traditional Chinese medicinal practices (Karanth & Gopal, 2005). Recently, renewed interest in tiger skins has reinvigorated the black market, which is supported by inventions like high-powered rifles, four-wheel drive vehicles, and modern communication methods that make it easier for poachers to gain access to tigers in protected areas without getting caught (Sharma, Wright, Joseph, & Desai, 2014; Wright, 2010). Research shows that poaching can significantly increase the likelihood that a tiger population will go extinct, even when prey densities are high (Gopal, Qureshi, Bhardwaj, Singh, & Jhala, 2010).

Invasive Species and Disease

The IUCN (2000) defines invasive or alien species as species that are introduced outside of their natural range by humans, either deliberately or by accident. Globalization has been a leading cause of the increase in invasive species traveling to new locations in the past several decades, which many people believe is a significant contributor to biodiversity loss (Hulme, 2009). Most conservation biologists, ecologists, and protected areas managers agree that invasive species contribute to a loss of biodiversity, but much of the data is anecdotal and due to observations of native species dying while invasive species thrive (Gurevitch & Padilla, 2004; Didham, Tylianakis, Hutchison, Ewers, & Gemmell, 2005). Now, scientists have found that native biodiversity loss is allowing invasive species more space to thrive, and that the success of non-native species is more of an indirect consequence of other drivers (e.g. habit loss or fragmentation) (Didham et al., 2005). Either way, there is no doubt that invasive species are causing significant changes to ecosystems worldwide (Gurevitch & Padilla, 2004). The impact of

those changes varies depending on location, time, and circumstance, so it is important for managers to assess these factors and how they might be contributing to the success of invasive species and the failure of native ones (Soulé, 1991).

Pollution

Pollution comes in many forms, most of which contribute to some level of biodiversity loss. Land-based pollution (sewage, sedimentation, industrial) has been shown to negatively affect marine ecosystems like coral reefs (Edinger, Jompa, Limmon, Widjatmoko, & Risk, 1998). Light pollution can threaten biodiversity by changing the nocturnal habits of a variety of wildlife species (e.g. insects flying around a light until they exhaust themselves and die), and can affect the natural rhythms of plants (Hölker, Wolter, Perkin, & Tockner, 2010). Air pollution, or the presence of contaminates in the atmosphere, can also pose a threat to biodiversity, although its effects take much longer to observe, and require continuous or episodic exposure to pollutants (Barker & Tingey, 2012).

Quantifying the direct and indirect effects of pollution is a difficult challenge, but that does not mean it should not be considered when addressing conservation strategy (Gibbons et al., 2000). While there is no apparent literature addressing the direct effects of pollution on keystone species like wild tigers, research shows that pollution can have significant effects on their habitats and potentially threaten the viability of biodiversity as a whole.

Climate Change

Climate change is the sixth form of human interference that affects biodiversity. It can disturb biodiversity at the individual, population, species, community, ecosystem, and biome scales, and some researchers believe that within the next few decades, it will surpass habitat loss

and become the greatest threat to biodiversity (Leadley, 2010). Climate change's multifaceted nature has the ability to affect all levels of biodiversity in different ways, but most scientific research seeks to explore impacts at high organizational levels (Bellard, Bertelsmeier, Leadley, Thuiller, & Courchamp, 2012).

One such effect is the likelihood that climate change modifies "webs of interaction" meaning in response to a change in one species, associated species might also be modified (Gilman, Urban, Tewksbury, Gilchrist, & Holt, 2010; Walther, 2010). Climate change is also predicted to modify vegetation communities to the point of being replaced by completely new biomes (Lapola, Oyama, & Nobre, 2009). According to Lapola et al. (2009) portions of the rainforest in South America could eventually be replaced by tropical savannahs. These types of environmental shifts can cause some species to become unsuitable or maladapted to the new conditions of their habitat, forcing them to adjust in order to survive (Bellard et al., 2012). With respect to tigers and other big cat species, climate change-influenced events such as fires, droughts, sea level rise, and melting glaciers have already been shown to cause changes in habitats and ranges (Seidensticker, 2008). Research is still needed in order to better understand the on-going effects of climate change, but future expectations include, but are not limited to, radically changed species distributions across habitats, diminished ecosystem functions, and worst of all, the extinction of numerous species (Bellard et al., 2012).

Human-Wildlife Conflict

In addition to the six forms of human intrusion discussed above, human-wildlife conflict plays a significant role in the endangerment of a number of species, including tigers. The encroachment of humans into wildlife habitats is becoming more of an issue due to booming

human populations worldwide (Dickman, 2010). As human populations grow larger, people are forced into natural habitats to compete for limited resources (Graham, Beckerman, & Thirgood, 2005). The resulting conflicts lead to crop and livestock losses, and sometimes loss of human life (Nyhus, Osofsky, Ferraro, Madden, & Fischer, 2005). Many of those affected by these conflicts are rural residents who live closest to, or within wildlife habitats (Nyhus et al., 2005). One study found that farmers in Tanzania and Zimbabwe list pests, including wildlife, as the largest obstacle in the way of improving their quality of life (Bulte & Rondeau, 2005). Another found that in certain areas of Africa, the cost of damages from these conflicts is greater than the income generated through wildlife management compensation plans (Bulte et al., 2005).

Additionally, conflicts between wildlife and rural residents creates the potential for retaliatory killings which greatly harms conservation efforts (Nyhus et al., 2005). Conflict between tigers and people are arguably more pronounced because of fatal attacks on humans by tigers (Bhattarai & Fischer, 2014). As predators, big cats are prone to creating conflict due to their need for large ranges and carnivorous diet (Inskip & Zimmermann, 2009). Because of this, conservation of tigers can be controversial among local communities (Graham et al., 2005). Fear, perception, and personal, environmental, and social motivations also play a part in generating conflict between humans and tigers. As a result of these conflicts, tigers are often killed in retaliation (Dickman, 2010; Marchini & Macdonald, 2012; Thorn, Green, Dalerum, Bateman, & Scott, 2012; Kartika & Koopmans, 2013).

Goodrich (2010) categorized human-tiger conflicts into three types: 1) tiger attacks on humans, 2) tiger attacks on livestock or domestic animals, and 3) tigers that approach developed areas and cause trouble and anxiety due to their mere presence.

Tiger deaths due to retaliatory actions have been documented sporadically throughout tiger-range countries. From 1951 to the early 1990s, retaliatory killings accounted for approximately 20 to 30 percent of tiger mortalities in Russia. Over a 17-year period beginning in 1985, 55 tigers were legally killed due to livestock depredation or for the safety of communities in Russia (Miquelle et al, 2005). The consequences of these killings can be significant, potentially affecting reproductive rates and other factors that significantly hinder species survival (Goodrich et al., 2008). Kartika and Koopmans (2013) completed a meta-analysis of known human-tiger conflict studies in the tiger range countries over the past century (Table 19).

Table 19.

A History of Human-Tiger Conflict Studies (1820 – 2011)

Continent	Country	region	Victim			Year	References
			Human	Livestock	Tiger		
Asia	Indonesia	Sumatra	640		1100	1820 - 1900	Boomgaard, 2010
			146	870	250	1978 - 1997	Nyhus and Tilson, 2004; Nugraha and Sugardjito, 2009
			10	23	17	1997 - 2002	Nugraha and Sugardjito, 2009
			55		15	1997 - 2009	Eyes on the Forest, 2013 (Riau province)
			57	326	69	1998 - 2011	Sumatran Tiger Conservation Forum (unpublished) in Priatna et al., 2012
		Kerinci Seblat NP	7	97	16	2000 - 2004	Nugraha and Sugardjito, 2009
	Nepal	Chitwan			423	1933 - 1939	Smith *et al*.2010
			88		25	1979 - 2006	Gurung et al., 2008
		Bardia NP	7			1994 - 2007	Bhattarai, 2009
				204		2004 - 2006	Bhattarai, 2009
	Bangladesh &india	Sundarbans	9,550		1,259	1881 - 2006	Blanford, 1891
			397			1985 - 2009	Mukherjee, ..
			401		41	1984 - 2000	Reza et al., 2002
			294			1985 - 2001	Karanth and Gopal, 2005
	India	British India			1700		Boomgaard, 2010
		Kanha	22			1985 - 2001	Karanth and Gopal, 2005
		Kanha-Achanakmar corridor		21		2005 - 2011	Ahmed et al., 2012
		Sundarbans	318			1975 - 1981	Sanyal, 1987 in Karanth and Gopal, 2005
		Kaziranga		171		apr 2008 - mar2009	Bora et al., 2009
		Central india		1444		1977 - 2001	Karanth and Gopal, 2005
	Cambodia						
	Buthan						
	Myanmar		1,382			1928 - 1932	Prater, 1940, in Lynam and Khaing, 2005
	Lao						
	Thailand						
	China						
	Malaysia			503	108	1988 and 1997	Lynam et al., 2007
	Russia	Russian Far east		494		1920 - 1970	Yudakov & Nicolaev, 1973 in Miquelle and Smirnov,1999
			14			1970 - 2001	Miquelle *et al*., 2005
			2	254	32	Jan 2000 - Feb 2009	Goodrich *et al*., 2011
					55	1985 - 2002	Miquelle et al., 2005
					7	1999 - 2002	Miquelle et al., 2005

(Kartika & Koopmans, 2013)

There are a variety of diverse factors that contribute to human-wildlife conflict, and each situation is unique (Kartika & Koopmans, 2013). It makes sense that conflict resolution techniques should vary according to local circumstances. Some frequently used techniques and mitigation strategies include improved livestock management, habitat and wild prey management, zoning or 'preventative spatial separation', relocation of human settlements and compensation schemes, among others (Kartika & Koopmans, 2013). Education is another key component of mitigating human-tiger conflict. Education has been shown to improve mitigation strategies, inform at-risk community members of their rights as well as current laws, and to increase tolerance toward tigers (Goodrich, 2010). For example, an education program in Karnataka, India helped increase local support for conservation efforts in and around Karnataka Reserve (Karanth, Bhargav, & Kumar, 2001). Regardless of the method utilized to prevent conflict, it is evident that community involvement through strategy and education is imperative in order to increase acceptance of tiger conservation measures (Nyhus et al., 2005).