

THESIS

FRAMING HUMAN-WILDLIFE CONFLICT IN THE INTERMOUNTAIN WEST:
CONTENT ANALYSIS OF DAILY NEWSPAPERS TO DIVERSE AUDIENCES

Submitted by

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In partial fulfillment of the requirements

For the Degree of Master of Science

Colorado State University

Fort Collins, Colorado

Fall 2017

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ABSTRACT

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Connection to and appreciation for the natural world are directly linked to positive experiences participating in outdoor nature-based activities. These direct experiences have been declining over the past decade, causing concerns about the perceptions of nature by populations that don't participate in nature-based activities. This study examines framing of media coverage about human-wildlife conflicts and its implications for perception building by those audiences with less experience in the natural world. Data were collected via daily newspapers across the Intermountain West from 2010 to 2015. Results demonstrated that there were significant differences between newspapers serving larger, more urban communities and smaller, more rural communities. Findings indicate that urban audiences are exposed to messages that discourage participation in the natural world. Messages regarding human-wildlife conflict in newspapers serving larger, more urban communities should be reframed to avoid negative perceptions of nature and to motivate connection to the natural world.

ACKNOWLEDGEMENTS

I have deep appreciation for everyone who helped me make this thesis possible. First I would like to thank my friends and family for their continued support, and willingness to be a sounding board for my own unorganized thoughts. I give special thanks to Billy Kinn, who assisted in organizing hundreds of articles from daily newspaper websites into individual documents. Thanks to Kyler for being able to make long days writing articles more bearable with company and laughs. I would also like to thank Dr. Kim Langmaid for her support, both during my time at Walking Mountains Science Center, as well as at Colorado State University. Thanks to Dr. Marilee Long for her continued guidance helping me design the methods of this study and exposing me to techniques in mass media research. Greatest thanks to Nicole Stafford for always being willing to serve as a mentor in many different capacities. Throughout my time at CSU she has inspired me to be a more productive, thoughtful, efficient researcher and person. Lastly I would like to thank Dr. Brett L. Bruyere for his support both in this project and clear back to my undergraduate studies within the Warner College. His mentorship and support have helped shape this project immensely and assisted my own reflection on not only producing quality research but, more important, how to apply its benefits. I will forever be appreciative for his perspectives.

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INTRODUCTION

Over the past decade there have been growing concerns regarding the amount of time populations of the U.S. spend experiencing the natural world. This concern started with a focus on children and for good reason. Participation in sustainable behaviors such as recycling and willingness to vote for protection of the environment are directly connected with time spent in the natural world as a child (Chawla, 2003; Clements, 2004; Wells & Lekies, 2006). Experiences with the natural world provide key links to awareness and appreciation for nature later in life (Chawla, 2015; Thompson, Aspinall, & Montarzino, 2008). Momentum in this movement to reconnect people to the natural world gained traction with Richard Louv's 2005 book *Last Child in the Woods*, in which Louv coined the term "Nature Deficit Disorder." Louv explained this term as a tendency among today's population, especially children, to spend less time outdoors. The National Kids Survey, conducted in 2011, found similar results six years after Louv, finding that children ages six to 15 spent less time in outdoor activities than in previous years (Larson, Green, & Cordell, 2011). Federal land agencies, including the USDA Forest Service (Kimbell et al., 2009), have recognized this issue as well as social scientist researchers who study perceptions of the natural world (Bruyere, Teel, & Newman, 2009).

Several barriers have influenced the disconnection to the natural world, most prominently a recent increase in the numbers of people moving away from rural areas into more urban centers, found by the World Health Organization (2016). Urbanization has greatly influenced this disconnection trend, with 80 percent of the U.S. population living in an urban area, and the numbers are rising each year (World Health Organization, 2016). These physical differences in the landscape where children are raised, from natural spaces to parking lots, affect their

relationship with nature. Daily experiences learning about and interacting with nature are decreasing, especially in urban areas (Cox, Hudson, Shannahan, & Fuller, 2017 ; Karsten, 2005). Historically, a larger percentage of the population lived in predominately rural settings, and greater amounts of green and open spaces allowed for a connection to nature. With increased urbanization in more recent times, confined green spaces and lack of connection with the natural world followed. The important time spent outside, increasing awareness and building a connection to nature, is now spent inside (Pergams & Zaradic, 2006), shifting more Americans to a more sedentary lifestyle, including increased usage of electronic media such as video games (Zaradic & Pergams, 2007).

Time spent away from nature in urban environments decreases not only the awareness of the natural world, but also the appreciation of it (Clayton, 2007; Louv, 2005; Wells & Evans, 2003). Perceptions of the natural world and an individual's involvement with it depend on direct experiences in nature. Positive orientations with intimate experiences in nature create affective relationships and help build an individual's positive attitude about spending time later in life within nature (Hinds & Sparks, 2008). A combination of these attitudes and experiences predict the likelihood of engaging in outdoor nature-based experiences as an adult. Additionally, adults who report having positive orientations to the natural world also hold strong self-identities with the natural world (Stets & Biga, 2003).

Without experiences in the natural world, a newcomer's (those who don't participate in outdoor based experiences) attitude regarding what time spent in nature entails may be influenced by other sources of information, including media, given the power of the media and its ability to influence public perceptions (Frewer, Miles, & Marsh, 2002; Kasperson et al., 1988). This combination is troubling when attempting to reverse or minimize trends like "Nature

Deficit Disorder.” How the media places emphasizes on news is referred to as framing (Druckman, 2001), and framing can influence attitudes, perceptions, and even behaviors (Aarøe 2011; Shen & Edwards, 2005). The power of framing has proven to shape attitudes involving the natural world, as well (Gore, Siemer, Shanahan, Scheufele, & Decker, 2005; Muter, Gore, Gledhill, Lamont, & Huveneers, 2012 ; Peace, 2002). Media consumers in urban areas, without direct experiences with the natural world, are potentially learning about nature via constructed narratives produced by media outlets, which limits the potential for these individuals to build a holistic perception of what time in the natural world includes.

In an effort to re-engage those who do not participate in the natural world, analysis of how the news reports on events occurring in the natural world must be considered. Media reports on occurrences in the natural world could be the only information shaping some people’s perceptions of what time in nature includes, especially for those who do not regularly participate in nature-based activities. The framing of human-wildlife news stories has shown to have effects on both individual responses to the natural world and larger community level responses, as well (Gore et al., 2005; Leschine, 2002). Novel approaches to using media to help contextually inform those who do not participate in the natural world to understand the realities of nature-based experiences could be useful. To be able to effectively reconnect those who do not participate in outdoor nature-based experiences to the natural world, a more complete understanding of how the media portrays people’s experiences in nature is needed.

To further effectively communicate about what time in the natural world entails and re-engage segments of the population that have been distanced from the natural world, this thesis examines the relationship between news coverage of the natural world and the size of the population center receiving the coverage. The focus is on understanding how information about

the natural world might vary depending on the intended audience and the influence of that reporting for those who have stronger (rural) and weaker (urban) connection to the natural world.

Thesis Organization and Purpose

Using the prior research outlined above, this thesis was designed to explore the differences in reporting that different population centers receive covering human-wildlife conflict. Two primary objectives of this thesis are addressed in two separate articles. First, Article 1, using content analysis techniques, investigates the differences in framing of human-wildlife conflict. Specifically, this paper explores the use of episodic or thematic frames when news articles ascribe blame in complex interactions between recreationalists participating in nature-based activities and wildlife. This paper uses data from collected news stories in daily newspapers detailing human-wildlife conflict and examines how newspapers use different frames across different population centers in order to extrapolate how varying audiences with varying connections to the natural world are receiving different reports of human-wildlife conflict.

Article 2 uses content analysis techniques, again from daily newspapers covering human-wildlife conflict, to address presentations of risk associated with spending time in the natural world. Using data collected from news stories covering reports of human-wildlife conflicts, researchers examine how daily newspapers serving varying population centers are reporting human-wildlife conflict. Utilizing key theories in frame setting and frame emphasis, this paper draws conclusions about the resulting risk perceptions of populations distanced from the natural world.

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EPISODIC AND THEMATIC FRAMING OF HUMAN WILDLIFE CONFLICT: IMPLICATIONS FOR EMOTIONAL RESPONSES TO NEGATIVE REPORTS OF THE NATURAL WORLD

Introduction

Time spent in the outdoors, especially at a young age, directly links to future pro-environmental sustainable behavior (Clements, 2004; Thompson et al., 2008; Wells & Lekies, 2006). Work by environmental education scholars consistently finds that future pro-environmental behavior (e.g., participating in recycling programs, voting in favor of environmental regulation) is often influenced by the connection one has with the environment, and the appreciation for nature's workings that comes with such a connection is especially strong when the affective relationship with the natural world starts during young formative years (Bögeholz, 2006; Chawla, 1988a; Taylor & Kuo, 2009). Without a connection to the natural world, participation in pro-environmental behaviors and nature-based recreation diminishes. During the past decade, a great deal of concern has emerged about the decreasing likelihood of children experiencing the natural world (Louv, 2005). Journalists, federal land management agencies such as the USDA Forest Service (see Kimbell, Schuhmann, & Brown, 2009), researchers (see Bruyere et al., 2009), and others have all called attention to this trend. In addition, a recent article in National Geographic (Root, 2017) highlights the lack of diversity in visitors to national parks, a trend that is troubling, given the increasing diversity within the United States population.

Efforts to re-engage those who are not participating in nature-based recreation have a long history, dating back to the National Parks efforts with Mission 66 (Carr, 2007) following WWII to reengage a population that had become disconnected. Current efforts are faced with

new and challenging barriers. Perhaps the greatest challenge is the massive shift in population splits between urban and rural living. The World Health Organization estimates that over 70% of the global human population will live in cities in less than 30 years (World Health Organization, 2016); and research shows that those living in urban environments receive less time with the natural world and will be less likely to have an appreciation of the natural world (Clayton, 2007; Cox et al., 2017). Time historically spent outdoors in a more rural setting has been and continues to be replaced by time inside, leading Americans to a more sedentary lifestyle (Pergams & Zaradic, 2006). The combination of decreased time participating in outdoor activities in urban settings has been shown to increase time with electronic media, including video games (Zaradic & Pergams, 2007).

Without direct experiences in nature, understandings about spending time in the natural world may be influenced by other sources of information, including media. The media's influence on attitudes and behaviors has been proven in several different contexts (Aarøe 2011; Shen & Edwards, 2005) including the natural world (Peace, 2002) and has long-term implications when it comes to sustainability. Given the power of framing in the media (see Druckman, 2001), consumers of media are likely learning about nature via limited narrative, which fundamentally limits their potential to build a complete and contextual perception of what time in the nature world fully entails.

To understand how media reporting about negative experiences of individuals recreating in the natural world could influence perceptions of an individual with minimal direct experience in nature, a focus on framing is needed. Analyzing frames can provide insight into the potential of media stories to influence perceptions of the natural world, which is important, given that

perceptions and attitudes have been proven predictors of behavior in several theories, including the Theory of Planned Behavior (Ajzen, 1985).

This study investigated news reports of human-wildlife conflict that occurred in a recreational context. Specifically, this study was guided by two research questions. First, do daily newspapers in the intermountain west vary in their framing of negative user experiences in nature? Second, where do media attribute blame in negative human-wildlife interactions in nature?

Conceptual Background

Participation in the natural world

Concern for the recent lack of participation in the natural world was most notably highlighted by Richard Louv's 2005 book *Last Child in the Woods*. Louv builds on work from environmental scholars that explore the issues associated with a lack of a relationship with the nature and how less time in the natural world has lasting consequences (Chawla, 1988). Other scholars have additionally shown that the formative years are vital towards building awareness and appreciation (Wells & Lekies, 2006), and these early connections are predictive of future pro-environmental behavior (Chawla & Cushing, 2007; Taylor & Kuo, 2009).

Additionally, individuals who spend more time engaging in the natural world report a more positive orientation towards participating in the natural world (Hinds & Sparks, 2008), and less urban areas usually have greater access to nature and outdoor recreation (Wells & Evans, 2003). This affective relationship in areas with more access to natural world experiences is crucial to and can lead to forming an environmental identity that has been shown to lead to even stronger positive attitudes and perceptions of the natural world (Clayton, 2007; Stets & Biga, 2003). Segments of the population that lack both the connection to the natural world and an

understanding of what nature-based experiences might entail receive information from media sources. This points to the clear importance of how media communicates and frames the natural world.

Key framing theory

Early literature described *frames* in their simplest form as “schemata of interpretation” that allow individuals “to locate, perceive, identify, and label” information that is most salient in their personal context (Goffman, 1974, p. 21). Framing techniques stress particular aspects of reported reality using a selective function for information delivered (Entman, 1993, Scheufele & Tewksbury, 2007). Entman’s work (1993) is foundational to understanding how frames shape news reports, and as a result, public understanding. Shen and Edwards (2005) found that frames used in the media can go as far as to effect values, which have been described as foundational in guiding human behavior. (Manfredo, Teel, & Bright, 2003)

Two different areas from frame literature specifically influenced this study. Specifically, the *frame setting* literature (Scheufele, 2000) which explains how different frames resonate with media consumers who hold different values. Secondly, the area of *emphasis framing effect* (Druckman, 2001), which finds when media sources emphasize specific aspects of a story, media consumers (audiences) will focus on those same aspects in their attitude formation and valuation of the topic. Creating these frames and emphasizing them proves relevant when considering how stories of the human-wildlife conflict are covered. For example, building a frame that blames only the animal’s aggressive behavior and emphasizes the loss of life of the innocent victim may guide attitudes and interpretations of the reader towards always blaming the natural world.

Episodic and Thematic Framing

Foundational work in *episodic* and *thematic* framing (Iyengar 1991) observed the interaction between the type of framing used and its effect on a participant's interpretation. Iyengar's (1991) seminal work engaged participants to read fabricated news stories covering poverty in either an *episodic* or *thematic* frame. Key results showed that, when poverty was framed as a general trend (i.e., thematic frame) with the inclusion of general statistics that lead to poverty, participants would assign responsibility to society as a whole for allowing those in poverty to reach that level. Conversely when the issue of poverty was framed as an individual who was in poverty (i.e., episodic framing), and did not include more thematic frames, participants shifted responsibility and ascribed blame on the individual.

Episodic and thematic framing studies have expanded, not only to test cognitive interpretations, but also to include the understanding of both the emotional appeals of the two frames and the strength of those appeals in changing behavior (Gross, 2008). Gross' 2008 study focused on news reports about policy changes regarding mandatory minimum sentencing in the justice system and appraisal theory (Scherer, 1999), which claims that subjective appraisal of an event has the highest influence on emotional responses. In similar testing fashion to Iyengar (1991), fabricated news stories were presented to participants using the two frames (episodic or thematic) and the absence or presence of emotional appeals. When episodic frames were combined with emotional appeals it was clear that episodic framing led to attitudinal change from greater emotional responses. Thematic frames were also shown to have power in attitudinal change, and combined with emotional appeals had more attitudinal change. Gross (2008) however suggests that the lasting power of the emotion-laden episodically framed story is higher than thematic stories because the narrative is more memorable as a single episode.

Similarly, Aarøe (2011) built on Gross's work and argued through experimentation of episodic and thematic framing that not only is episodic framing expected to have more influence on audiences, but that episodic framing also holds a stronger capacity to change perceptions, and also important, behaviors. The key determinant in this postulation is the intensity of the emotion reaction in response to the episodic frame. Dudo, Dahlstrom, and Brossbard (2007) also showed that episodic framing has effects on emotional reactions with natural resource issues. Their study of coverage of Avian Flu in national papers combined Iyengar's (1991) work with Aarøe's (2011) findings. Overall, emotional and episodic framing has a powerful effect on an individual perception and the emotional valuations that add to the formation of it (Aarøe, 2011; Dudo, 2007; Gross, 2008).

Episodic frames dominate the media world across a multitude of topics. Columbia Journalism School's Dart Center has reviewed multiple genres of media framing research with a focus on trauma-related news finding a majority of articles across subject reporting episodically. Authors Tiegreen and Newman discuss the problematic impacts of content that lacks the larger context and thematic narratives, specifically in trauma-related news ("How the news is Framed," 2008)

Framing of stories from the natural world

Analysis of framing in stories about the natural world has also been addressed in previous research. Peace's (2002) study of the dingo dog is especially applicable to the power of an emotional-laden episodic approach to framing. The death of a young boy at a popular Australian resort by a dingo resulted in the eventual closure of the resort, despite its previous popularity. The study showed that coverage of the dingoes shifted from its affiliation with wildlife and wildness to an image of fear with headlines, such as "These dogs do kill children (Peace, p. 18)".

Additionally, authors found that after the conflict of the young boy, coverage of dingo attacks increased, despite years of minimal prior news covering such attacks (Peace, 2002). The perception of so-called “dangerous dingoes” was so negative that local land managers were pressured to cull an already threatened species.

Several other studies have focused on how media is framing wildlife species and human interaction, including sharks (Muter et al., 2012 ; Philpott, 2002), wolves (Houston, Bruskotter, & Fan, 2010), and wildlife in general (Gore & Knuth, 2009). Work specific to human-wildlife conflicts and bears revealed an increase in awareness about wildlife conflict following an incident in New York State that resulted in a fatality (Gore et al., 2005). Using comparisons of an existing survey focused on regional differences in perceptions of black bears in the state five months prior to the conflict, the authors’ designed study was specific to the fatality and gaging changed perceptions. Finding no push for changes in wildlife management from the affected community, the conflict did not appear to become a focal point of controversy. The authors credit this outcome to media coverage, which, despite the incident, characterized the risk of bear attacks as significantly low (Gore et al., 2005, p. 507). In contrast to the finding from the Australian dingo example, content analysis in this study results revealed that many news articles included contextual information such as statistics of bear attacks in New York and information about the low risks of bear encounters in the natural world.

Study Focus

This study explores the differences in media coverage of newspapers across several communities of differing sizes in the intermountain West, and compares these newspapers’ coverage based on the size of the community it serves. Specifically, we were interested in understanding the frames of the media coverage in order to extrapolate how the coverage might

influence an individual's perceptions of spending time in the natural world. Through an examination of whether articles included episodic versus thematic framing and blame attribution, we compared articles and formulated research questions about the ways that media coverage can influence perceptions of spending time in nature. The study was guided by the following research questions:

RQ1: Do daily newspapers in the intermountain west vary in their framing of negative user experiences in nature between the different populations they serve?

RQ2: Where do media attribute blame in negative human-wildlife interactions in nature?

Methods

In this study, researchers analyzed five years (2010-2015) of news reports about human-wildlife conflict in a context of recreation, which resulted in 392 articles. The researchers were interested in the intermountain west region of the United States (Montana, Idaho, Wyoming, Colorado, Utah, Arizona, and New Mexico) because of the large percentage of federal land in the region and its historical precedent of larger Mammalian wildlife. The land coverage in the states within our sample includes 249 state parks, 63 National Park Service sites, and over 174 million acres of public land between the USDA National Forest and the Bureau of Land Management (USFS, 2011).

Data Collection

We followed the sampling methods of (Long, Slater, Boiarsky, Stapel, & Keefe, 2005), and specifically their use of Designated Market Areas (DMA) because of its representativeness when research questions address large geographical areas (Slater, Long, Bettinghaus, & Reineke, 2008). Nielson Media Research, the organization responsible for DMA distinctions, describes them as “all counties whose largest viewing share is given to stations of that same market area”

(Nielsen Media Research, n.d.). An example of a DMA map is provided in Figure 1. For this study, 21 DMAs were considered.

Following the work of Long et al. (2005), the newspaper with the highest circulation was selected from each DMA (see Long et al., 2005). Selecting the remaining newspapers involved several steps. First, all remaining newspapers (minus the largest newspaper) within a DMA were rank-ordered based on circulation, and the median was then identified. One paper from above and below the median split was randomly chosen resulting in three newspapers per DMA. If a DMA included fewer than five daily newspapers in total, all newspapers within the DMA were selected into the sample based on the assumption that fewer numbers of papers results in less variation in reporting.

Search Procedures

Initial exploratory searches were completed about human-wildlife conflicts in newspapers (e.g., New York Times, Washington Post) and online news sites (e.g., CNN, National Public Radio) with a national focus, to reveal key wildlife species commonly involved in human-wildlife conflicts. Final key terms were identified in the intermountain west sample area [see Table 2 for a list of species and verbs (e.g., attack, maul) commonly paired with the species in human-wildlife conflict reports]. All wildlife species and the associated verbs were then searched using each of the sampled newspapers' internal search engines (e.g., "bear maul," "bear attack," "cougar maul," "cougar attack"). This process was completed for all seven wildlife species identified from the exploratory review of national media as commonly involved in conflicts. Inclusion criteria included the article's focal point, meaning the article needed to have a focus on the human-wildlife incident as opposed to an unrelated theme, such as economic impacts of conflict on tourism or legislation concerning management of a species. In addition,

stories covering a conflict that occurred in an urban or unnatural area (e.g., a coyote in a neighborhood) were not included since the research question focused on ways that media can influence understandings of participating in the natural areas.

Code Development and Procedure

Previous literature informed the coding scheme, including episodic or thematic narratives (Aarøe, 2011; Gross, 2008), and blame attribution. Overall, researchers reviewed the articles for frames of episodic/thematic and blame attribution (see Table 3). Coding these more latent frames required reviewing the entire article and determining if the authors constructed a more episodic or thematic frame, and where blame was attributed throughout. For example, stories coded as human blame could have started with sensationalized language of the animal attack, but the coder's review of the entire article may reveal a more complete view of the human's fault in the conflict. Similarly, articles reporting on a singular human-wildlife conflict without larger themes of these conflicts in natural areas may have included in some cases the final line of the article a sentence or two about another human-wildlife conflict. These stories were coded as episodic on the basis that the most relevant information is often included towards the top of the article ("Writing from the top down", 2003) and might have the greatest impact on the reader in their understanding of human-wildlife conflict.

Two research assistants were trained on the coding scheme. Both coders reviewed the same 392 articles. Coders read the entire article and coded for both frame variables simultaneously. After initial independent coding of 20 articles, the two researchers met and made adjustments to any discrepancies, following the protocol of Thomas et al. (2015) that showed such an approach can produce high levels of agreement in such research in the field of conservation.

Analysis

Data were entered and analyzed in Statistical Packaging for the Social Sciences (SPSS). Researchers created five categories of newspapers from the size of the community served by the newspaper, using aggregated census data between 2010 and 2015.

The five population center groups are summarized in Table 5 and include: Group A: (less than 20,000), Group B: (20,001-40,000), Group C: (40,001-100,000), Group D: (100,001-500,000), and Group E: (More than 500,000). These five groups were determined based on equal distribution between groups, as well as selecting ranges that allowed for distinction by community size.

Hypotheses were tested using chi-square tests with population size as an independent variable and A, B, and C as dependent variables. Researchers used an alpha level of $p < 0.05$ to designate statistical significance and used the interaction effect strength (V) to evaluate the practical findings of the study (see Vaske, 2008).

Results

Episodic vs. Thematic Reporting

No statistical significance on the presence of episodic or thematic framing was found between population sizes served by of newspaper ($\chi^2 = 6.66$ $p < .15$, $V = .13$). All population groups reported high frequencies of episodic reporting. Highest frequencies were found in Group B (87.5%) and Group D (82.3 %) newspapers; slightly lower frequencies of episodic (i.e., thematic frames) was used in Groups C (73.3%), and E (71.4%). Episodic and thematic comparisons across population centers are summarized in Table 6.

Blame Attribution

Options for blame ascription included four different possibilities: 1) animal, 2) human, 3) no blame, and 4) both animal and human. Relationships between blame and the size of the newspaper's circulation were found ($\chi^2= 20.88, p= 0.05, V= 0.134$).

Animals were blamed most frequently across all five newspaper categories, accounting for 48% of all articles (and an average percent of 69.5% of articles in which blame was ascribed somewhere) ranging from 31% in Group A to 61% in Group E. Across all group sizes an average percent of 30.9% of articles did not ascribe any responsibility to the human-wildlife conflict being reported. The remaining articles that do ascribe some level of responsibility accounted for the remaining 69.5%. Within that percentage of articles, the average percent of articles reporting animal blame was recorded 69% of the time (Table 6).

Discussion

Newspapers of all types tended to report human wildlife conflict in similar ways, including high frequencies of episodic reporting and high frequencies of animal blaming. Descriptive differences were observed between sizes of populations. Newspapers serving urban centers are reporting human-wildlife conflict differently than papers serving smaller population centers.

Reporting human-wildlife conflict with high frequencies of episodic framing is discouraging to efforts aimed at reconnecting populations to nature. This style of reporting is not surprising since episodic style reporting has been found to be common across several areas of journalism ranging from children's health issues (Kunkel & Smith, 2002), to coverage of the Iraq War (Dimitrova, 2005). Episodic stories prove to produce highly emotional responses (Aarøe, 2011; Gross, 2008), and these media stories cover negative encounters about humans in nature,

so the resulting emotional responses have the potential to be negative. Additionally, these episodic stories consistently blame the animal, which encourages avoidance behavior of the natural world. This same type of phenomena was seen in Peace's (2002) study about media reporting on dingoes following an attack. However the reporting of negative incidents in the natural world will not always lead to negative emotional responses. Following guidance from the media covering black bear incidents in New York, these articles reported with more representative narratives, and the response to the incident and perceptions to the animal did not change (Gore et al., 2005). This reporting is critical for urbanites that have less developed connections to the natural world.

These urban populations with less connection and understanding of the natural world (Cox, et al., 2017) may be impacted more by this style of reporting. The lack of experience provides them with limited reference points for what time in the natural world includes. Therefore, the more emotional response to stories paired with narratives with heavy animal blame created by the newspaper media may become a major point of understanding. For those with more of a connection and understanding of the natural world, these stories will arguably create less of an effect on their future behavior in outdoor nature-based recreation.

To remedy this problem land agencies and their public information officers or public affairs officials have the capability to shape the initial report describing these incidents. Their access to historical data about human-wildlife conflicts allows for more thematic information to be included that would shift readers away from highly emotional responses that are a result of episodic framing. Information such as how many attacks occur annually versus the number of wildlife conflicts that have occurred in the park, forest, management area since its designation would assist framing of wildlife conflicts. Newspapers do not have access to the same

information and should not be depended upon to report that type of information. The ways that newspapers report on human wildlife conflict is ultimately out of the control of land management agencies. Still, follow-ups with reporters are a common practice and should be used by public affairs officials to communicate more fully about these incidents. These meetings should be used in an effort to report on the bigger picture of outdoor nature-based activities and hopefully lead to more participation.

Limitations

Analysis in this study compared articles reporting multiple different human-wildlife conflicts, each of which varied from the other in many ways (time of year, injuries versus fatalities, animal involved, number of people involved). These complexities in each situation were not captured or controlled within this study. Additionally, researchers did not compare the reported facts from the land management agency with news coverage to see if blame was ascribed correctly. Analysis of articles also did not focus on how the story stated or give more weight to the title or lead of the article compared to the rest of the report.

Some high profile stories were included in multiple newspapers and were in essence counted twice, although researchers did sort stories before coding to be sure that no exact duplicates were included into the sample. When multiple articles that had slight journalistic differences covering the same incident were found, the stories were kept to reveal differences between population groups.

Future research

Future research should consider exploring the gap between what land agencies report about a conflict and the information that is actually included in media stories. For example, investigating the inclusion of thematic information in news releases, and comparing that

information to news reports, would help illuminate if newspapers chose not to include such information, or simply did not have efficient access to it. This would have new implications for how to think about this issue.

In addition, this study was tested to determine how incidents were framed and where blame was ascribed; it did not measure actual effect on readers' beliefs or attitudes about spending time in nature. Future research could address this question and provide greater certainty to our discussion about whether episodic frames, for example, actually have a negative effect on beliefs and attitudes.

Furthermore, this study did not look at the placement of the story in terms of which major section of the paper the article was placed (i.e. hunting & fishing, sports, health, etc.). Analysis in the variation between reports of human-wildlife and their placement within daily newspapers could prove to be another relevant factor. Finally, future analysis into who is the original author of the story (Associated Press Wire versus local reporter, etc.) might influence the coverage of these conflicts. Factors such as the well being of the victim of the attack (not injured, serious injured, killed) should be considered in future content analysis of human-wildlife conflicts.

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RISK PERCEPTIONS AND SELF-EFFICACY IN THE NATURAL WORLD: CONTEXTUAL REPORTING DIFFERENCES IN MEDIA ABOUT HUMAN-WILDLIFE CONFLICT.

Introduction

Time spent in the outdoors, especially at a young age, directly links to future pro-environmental sustainable behavior such as recycling and willingness to vote in favor of environmental protection legislation (Chawla, 2003; Clements, 2004; Wells & Lekies, 2006). Concern in the past decade however, is that many segments of the United States population have not been exposed to the natural world (Louv, 2005). Recognition of this issue has been expressed by federal land agencies including the USDA Forest Service (Kimbell et al., 2009) and by practitioners who research study connecting populations with the outdoors (Bruyere, Teel, & Newman, 2009; Louv, 2005). The National Kids Survey concluded that children ages six through 15 spend less time in outdoor nature based activities (Larson et al., 2011).

The overall trend of less participation and lack of diversity highlights the new challenges for connecting people to that natural world. Agencies have pushed several different strategies to engage in several efforts to connect those who do not participate in nature-based recreation, including the National Parks Service's Mission 66 following World War II (Carr, 2007). More modern efforts are faced with new challenging barriers to participation. Perhaps the greatest challenge is the massive shift in population dimensions between urban and rural living. U.S. census numbers from 2010 show an increase of those living in urban areas (80.7%) from the previous collected census data (79%) in 2000 (U.S. Census, 2012)

Research shows that those living in urban environments typically experience less time in the natural world (Cox et al., 2017) and, therefore, will be less likely to have an appreciation of

the natural world (Clayton, 2007). Time historically spent outdoors building a connection to nature -- often in rural settings -- has been replaced by time inside, in more urban settings. This time spent in more urban settings brings with it an increase in time spent with video screens and significantly less participation in outdoor nature-based recreation (Pergams & Zaradic, 2006). Using visitation to National Parks as an indicator, the authors suggest we are in the midst of a cultural shift in American traditions away from exploring nature to more sedentary options such as increasing time spent with electronic media (Zaradic & Pergams, 2007).

However, development of a connection with the natural world at a young age can shift an individual's relationship in nature. Those who report a positive orientation towards direct experiences in the natural world typically also hold a connection that is largely affective (Hinds & Sparks, 2008; Thompson et al., 2008). This relationship and its influence on participation in nature-based experiences leads to a stronger identification with the natural world, which in turn leads to stronger positive attitudes toward and perceptions of nature. These are all predictors of future participation in nature-based experiences (Stets & C. Biga, 2003)

Without direct experiences in nature, understandings about spending time in the natural world may be influenced by other sources of information, including media. The media's influence on attitudes and behaviors has been proven in several different contexts (Aarøe, 2011; Shen & Edwards, 2005), including the natural world (Peace, 2002). Given the influence of framing in the media (see (Druckman, 2001), consumers of media are likely learning about nature via limited narratives, which fundamentally limits their potential to build a complete and contextual risk perception of what time in the nature world fully entails.

This study investigated news reports of human-wildlife conflict that occurred in a recreational context. Specifically, this study was guided by the following research questions:

RQ1: How do media represent recreation based human-wildlife conflict and the associated risk involved with participation in outdoor recreation?

RQ2: What are the differences in the reporting of risk, safety tips, and the preparation of the user?

Conceptual background

Risk perceptions and self-efficacy

Risk is defined as “a characteristic of a situation or action wherein two or more outcomes are possible. The particular outcome that will occur is unknown, and at least one of the possibilities is undesired” (Covello & Markhofer, 1993, p. 2). Perceiving risk has been defined as the subjective assessment of both the probability of a specific type of accident and concerns about the consequences associated with it. An individual’s perception of risk involves evaluations regarding the probability and, equally important, the consequences of negative outcomes (Sjöberg, Moen, & Rundmo, 2004).

Risk research has shown that not only do cognitive factors or the perceived probability of a threat carry heavy influence on risk perceptions, but affective factors are influential, as well (Sjöberg, 1998). The emotional response to a threat has proven important when considering future behavior and how an individual may report future participation in perceived risky behavior (Renn, 1992).

Self-efficacy has also been shown to have a powerful influence on behavioral responses to risks and future behavior, particularly in the field of health. Witte’s 1992 Extended Parallel Process Model (EPPM) has remained relevant in this field and has been applied to predict future behavior using self-efficacy as a key factor (Maloney, Lapinski, & Witte, 2011). The EPPM suggests that an individual will typically respond to a perceived threat in one of three possible ways: 1) non-response, 2) fear control, or 3) danger control. The perception of the threat, the severity and the susceptibility all influence the response. These three factors lead to affecting

both the individual's self-efficacy (whether they think they possess the ability to respond to the threat) and their response efficacy (whether they think the provided strategies are effective in responding to the threat) in responding to the threat to determine which of the three outcomes will persevere. For example, if the individual does not perceive the threat to be substantial, then there is no action and the process ends. If the individual determines the ability to respond to the threat is beyond the self-efficacy of the individual, then fear control is employed and results in behaviors related to avoidance and denial. The danger control outcome is reached when a threat is observed and the individual's self-efficacy is assessed as sufficient to reduce the threat to a manageable level (Witte, 1992a). This model has been successfully applied to predict behaviors such as occupational health hazards (Murray-Johnson et al., 2004), efficacy in AIDS prevention (Witte, 1992b), and firearm safety (Roberto, Meyer, Johnson, & Atkin, 2000).

Media influences

Threats to public safety are often covered by the media and have the ability to mirror prevailing public perceptions (Gans, 2004 ; Jensen, 2003). Additionally, media reports about relatively rare events can lead to salient public concern and behavior toward managing risks that actually are unlikely (Gore & Knuth, 2009). When media reports cover risk-related events, negative perceptions of the risk have been shown to last longer than the possible benefits of the risky behavior. It has also been shown that certain segments of a population are more impacted by risk-related coverage based on knowledge and saliency of the issue (Frewer, Miles, & Marsh, 2002). Leschine (2002) explains how coverage of environmental disasters can lead public perception into false perceptions both of the risk and the causes of dramatic events. Research in this area has shown that media coverage contributed to amplified fear and risk perception of wildlife through sensationalized language and dramatic imagery (Peschak, 2006; Philpott, 2002).

Key framing theory

Early literature described *frames* in their simplest form as “schemata of interpretation” that allow individuals “to locate, perceive, identify, and label” information that is most salient in their personal context (Goffman, 1974, p. 21). Framing techniques stress particular aspects of reality using a selective function for information delivered (Entman, 1993). Entman’s work is foundational to understanding how frames shape news reports, and as a result, public understanding. Shen and Edwards (2005) found that frames used in the media can go as far as to affect values, which are key towards predicting human behavior (Manfredo et al., 2003).

Two different areas from framing literature influence this study. Specifically, the *frame setting* literature (e.g., Scheufele, 2000) that explains how different frames resonate with media consumers with different values. Secondly, the area of *emphasis framing effect* (Druckman, 2001), which finds when media sources emphasize specific aspects of a story, media consumers (audiences) will focus on those same aspects in their attitude formation and valuation of the topic. These two sections of frame literature draw upon Entman’s (1993) work in selecting identified dimensions of reality of the reported story and making those segments both relevant to readers and what the readers should be focused on.

Risk and frames: Examples from the natural world framing of stories

Analysis of framing in stories about the natural world has also been addressed in previous research. Peace’s (2002) study of the dingo dog is especially applicable to the power of an emotional-laden episodic approach to framing. The death of a young boy at a popular Australian resort by a dingo resulted in the eventual closure of the resort, despite its previous popularity. The study showed that coverage of the dingoes shifted from its affiliation with wildlife and wildness to an image of fear with headlines, such as “These dogs do kill children (citation, p.

18)”. Additionally, authors found that after the conflict of the young boy, coverage of dingo attacks increased, despite years of minimal news covering such attacks prior (Peace, 2002). The perception of so-called “dangerous dingoes” was so negative that local land managers were pressured to cull an already threatened species.

Several other studies have focused on how media are framing wildlife species and human interaction, including sharks (Muter et al., 2012 ; Philpott, 2002) wolves (Houston, Bruskotter, & Fan, 2010) and wildlife in general (Gore & Knuth, 2009). Work specific to human-wildlife conflicts and bears revealed an increase in awareness about wildlife conflict following an incident in New York State that resulted in a fatality (Gore et al., 2005). Using comparisons of an existing survey focused on regional differences in perceptions of black bears in the state five months prior to the conflict, the authors’ designed study was specific to the fatality and gaging changed perceptions. Finding no push for changes in wildlife management from the affected community, the conflict did not appear to become a focal point of controversy. The authors credit this outcome to media coverage that, despite the incident, characterized the risk of bear attacks as significantly low (Gore et al., 2005, p. 507). In contrast to the finding from the Australian dingo example, content analysis in this study results revealed that many news articles included contextual information such as statistics of bear attacks in New York and information about the low risks of bear encounters in the natural world.

Study Focus

This study explores the differences in media coverage of newspapers across several communities in the intermountain West of differing sizes, and compares these newspapers’ coverage based on the size of the community it serves. Specifically, we were interested in understanding the frames of the media coverage in order to extrapolate how the coverage might

influence an individual's perceptions of spending time in the natural world and if that coverage differed based on the newspapers' primary community. Through an examination of whether articles included content related to context, preparation of the parties involved, safety tips, and blame, researchers compared articles and drew conclusions about how media coverage can influence perceptions of spending time in nature. Furthermore, this study examines how the presence or absence of this content may influence the reader's attitude towards the natural world and resulting response in terms of both their self-efficacy and response efficacy, answering this over arching question, *how do media represent recreation based human-wildlife conflict and the associated risk involved with participation in outdoor recreation?* Specifically, researchers put forward the following research questions:

- R1: Does the reporting of frequencies related to human-wildlife conflicts vary between newspapers serving different community sizes?*
- R2: Does the reporting of safety tips related to human-wildlife conflict differ between newspapers serving different community sizes?*
- R3: Does the reporting of the victim's preparation prior to being involved in a human-wildlife conflict differ between newspapers serving different community sizes?*
- R4: Does the ascription of blame differ between newspapers groups?*
- R5: Does the inclusion of preceding conditions that result in human wildlife conflicts differ between blame attributions?*

Methods

In this study, researchers analyzed five years' (2010-2015) of news reports about human-wildlife conflict in a context of recreation that resulted in 392 articles. The researchers were interested in the intermountain west region of the United States (Montana, Idaho, Wyoming, Colorado, Utah, Arizona, and New Mexico) because of the large percentage of federal land in the region and its historical precedent of larger mammalian wildlife. The land coverage in the states within our sample includes 249 state parks, 63 National Park Service sites, and over 174 million

acres of public land between the USDA National Forest and the Bureau of Land Management (USFS, 2011).

Data Collection

We followed the sampling methods of (Long, Slater, Boiarsky, Stapel, & Keefe, 2005), and specifically their use of Designated Market Areas (DMA) because of its representativeness when research questions address large geographical areas (Slater, Long, Bettinghaus, & Reineke, 2008). Nielson Media Research, the organization responsible for DMA distinctions, describes them as “all counties whose largest viewing share is given to stations of that same market area” (Nielsen Media Research, n.d.). An example of a DMA map is provided in Figure 1. For this study, 21 DMAs were considered.

Following the work of Long et al. (2005), the newspaper with the highest circulation was selected from each DMA (see; Long et al., 2005). Selecting the remaining newspapers involved several steps. First, all newspapers within a DMA were rank ordered based on circulation (minus the largest newspaper), and the median was then identified. One paper from above and below the median split was randomly chosen resulting in three newspapers per DMA. If a DMA included fewer than five daily newspapers in total, all newspapers within the DMA were selected into the sample based on the assumption that fewer numbers of papers results in less variation in reporting.

Search Procedures

Initial exploratory searches were completed about human-wildlife conflicts in newspapers (e.g., New York Times, Washington Post) and online news sites (e.g., CNN, National Public Radio) with a national focus, to reveal key wildlife species commonly involved in human-wildlife conflicts to later be narrowed the intermountain west sample area [see Table 2

for a list of species and verbs (e.g., attack, maul) commonly paired with the species in human-wildlife conflict reports]. All wildlife species and the associated verbs were then searched using each of the sampled newspapers' internal search engines (e.g., "bear maul," "bear attack," "cougar maul," "cougar attack). This process was completed for all seven wildlife species identified from the exploratory review of national media as commonly involved in conflicts. Inclusion criteria included the article's focal point, meaning the article needed to have a focus on the human-wildlife incident as opposed to an unrelated theme, such as economic impacts of conflict on tourism or legislation concerning management of a species. In addition, stories covering a conflict that occurred in an urban or unnatural area (e.g., a coyote in a neighborhood) were not included since the research question focused on how media can influence understandings of spending time in the natural world.

Code Development and Procedure

Previous literature (Gore, 2005; Muter, 2009; Peace, 2002) informed the coding scheme, including the frame for blame attribution. This latent frame was coded for how the article came across overall, requiring the coder to read the entire article to determine where blame was ascribed in the conflict reporting. Blame ascription was divided into four different categories: human, wildlife, neither, or both.

The additional codes relevant to risk-perception were coded as either presence or absence within the article. These additional codes were comprised of reporting of contextual frequency statistics about wildlife attacks (Context A), and confounding effects that may have led to the conflict (Context B). Overall, researchers reviewed the articles for five variables: blame attribution, inclusion of safety tips, the victim's preparation prior to the conflict, and two styles of contextual information (see Table 3).

Two research assistants were trained on the coding scheme. Coders reviewed 20 articles outside of the sample to confirm mutual understanding of the coding scheme, and subsequently coded all 392 articles.

Coders read the entire article and coded for all four variables simultaneously. Inter-coder agreement (Blame $\alpha = .78$; Safety $\alpha = .86$; Victim's preparation $\alpha = .78$; Contextual Frequencies $\alpha = .82$; Contextual factors leading to incident $\alpha = .85$) using Krippendorff's alpha (see Krippendorff, 2011) was acceptable ($\alpha > .67$) according to parameters for exploratory research across variables according to Lombard, Snyder-Duch, and Campanella Bracken (2002).

Analysis

Data were entered and analyzed in Statistical Packaging for the Social Sciences (SPSS). Researchers created five categories of newspapers from the size of the community served by the newspaper using aggregated census data between 2010 and 2015.

The five population center groups are summarized in Table 5 and include: Group A: (less than 20,000), Group B: (20,001-40,000), Group C: (40,001-100,000), Group D: (100,001-500,000), and Group E: (More than 500,000). These five groups were determined based on equal distribution between groups as well as selecting ranges that allowed for distinction by community size.

Hypotheses were tested using chi-square tests with population size as independent variable and Blame attribution, Safety Tips, Victim's Preparation, reporting frequency of human-wildlife conflicts, as dependent variables. Researchers used an alpha level of $p < 0.05$ to designate statistical significance and used the interaction effect strength (V) to evaluate the practical findings of the study (see Vaske, 2008).

Results

Human wildlife frequencies

Including contextual frequencies (i.e. eighth known bear attack in Yellowstone since 1800, third fatality from wildlife since the park's opening) about the conflict was not statistically different across population groups ($\chi^2= 9.66$; $p= 0.05$, $V= .20$). Group A papers included frequencies most often 58.5%, and Group D reported frequencies the least often (24.2%). Group E newspapers included contextual statistics half of the time (see Table 9).

Safety

Similar to blame, the presence of safety tips in articles (i.e. carrying bear spray, keeping a minimum distance near wildlife) did not differ across the five newspaper groups (see Table 7). In all five groups, safety tips were generally absent from a high of 72.6% in Group D to 58.5% in Group A. ($\chi^2= 4.38$; $p= .36$, $V= .11$).

Victims Preparation

Statistical significance was present when comparing newspaper groups by the inclusion of information about the victim's preparation (i.e., prior experience hiking in grizzly bear territory, hanging food at a campsite). Articles from groups B, C, D, and E included information about preparation most often 36% of articles ($\chi^2=19.95$, $p< .05$, $V= .23$). Newspapers in Group A included more details of the preparation of the victim (70.7%). These smaller papers included information about the victims' preparation 71% of time (Table 8).

Blame

Newspapers generally did not differ on their blame ascription ($\chi^2= 20.88$; $p= .05$, $V= .13$). Group A most often ascribed no blame for the incident, but all other newspaper groups most often blamed the animal (See Table 6).

In terms of blaming humans, Group A newspapers did so the most across the five newspapers (22%), while fewer than 20% of articles in all others newspaper groups did the same (see Table 6). Group B blamed humans least often, in only 8.9% of articles.

Conditional factors

Reporting about contributing events leading to the conflict showed significance in relationship to blame attribution categories. Contextual details were reported more frequently (85.7%) when humans were blamed for the conflict ($\chi^2= 93.13$; $p < .01$, $V= .49$) as opposed to the other categories (see Table 10).

Discussion

Our results show that between some variables (blame, victim's preparation and contextual information about frequency of wildlife conflicts) there are statistical differences between newspaper groups; large papers tend to report about conflicts in a way that could mislead readers' risk assessment and also affect beliefs about their ability to influence the likelihood of such an event (e.g., self-efficacy). For example, larger papers generally failed to provide tips to mitigate the occurrence of such an incident or to address if victims were sufficiently prepared (or confounded the situation) through their behavioral choices. Contextual information – also notably absent from most articles in larger papers-- would also help readers conduct a more informed risk analysis, and information about the victim's preparation (or lack of it) can influence an individual's self-efficacy about managing risks in nature. If media has an influence on how an individual builds an understanding of and analyzes risk about spending time in the natural world, these findings about large newspapers are potentially troubling. Applying the EPPM model, (Witte, 1992a), it would be reasonable to conclude that a possible outcome for

a media-influenced new visitor in nature, in the instance of experiencing an event similar to stories studied in this research, would be the undesirable fear response.

Larger newspapers also tended to ascribe blame to animals in their articles, a situation which could lead readers to conclude that there are few mitigation or prevention strategies; the animal is to blame and there is little anyone can do about it. For example, in one article, a grizzly bear was blamed for the death of a husband while he and his wife were hiking in Yellowstone National Park. The couple had seen the bear twice from a great distance, following park suggestions about proximity to wildlife. Quickly and dramatically, the husband was killed and the wife seriously injured (article 362). Even after following protocol, the couple was attacked and the unfortunate fatality was the end result.

Using this example further, the grizzly bear was attributed responsibility for this conflict. When animals were ascribed blame, information about the possible contributing events of an incident, such as behavioral choices of the user that may have contributed to a higher likelihood of an encounter with wildlife, similar factors were less likely to be included, suggesting again that animal responsibility has no predictive behavior, and there are no factors that explain animal responsibility other than wildlife attacking humans.

Articles in large papers also generally provided less contextual information; there were few instances in which statistics about the occurrence of similar incidents were shared. As a result, individuals with minimal prior experience or knowledge about the natural world may draw incorrect conclusions about safety and the ability of recreationists to minimize potential conflicts with wildlife through preparation and informed decisions on how to experience nature.

If strides are to be made in addressing the concern about potential downward trends in time spent in nature, information sources such as news media must be considered. Prior literature

indicates that coverage with contextual information and safety tips can have positive influences on risk analysis and self-efficacy about spending time in nature. However, this study showed that newspapers, especially large newspapers, failed to include such content. Conversely, smaller papers showed the opposite – a higher likelihood to include contextual information and safety tips, and a lower likelihood to ascribe blame to the animal. Ironically, the information in the smaller papers would have a positive effect on risk analysis and self-efficacy about spending time in nature, but rural populations arguably have more of this skills and knowledge already through direct experience in nature. It is the large newspapers that could follow the smaller papers' approach to have a positive influence on how people perceive risks of spending time in nature, and their perceived ability to minimize and/or manage those risks. Ultimately, it might move readers of large newspapers from the fear response in the EPPM model to the danger response (which gives the individual room to control the risk), which is more desirable.

Conclusion

Our results provide insights into the current reporting of human-wildlife conflicts within the intermountain west and explore how risk perceptions may be impacted. Mass media's potential impact on the perceptions and comprehension of risk including examples the natural world is clear (Gore et al. 2007; Peace, 2002; Peschak 2006). In an effort to reconnect those who are not participating in the natural world, the ways in which media reports risk in nature must be considered. The larger trend in our results shows that those who are the most removed and unaware are receiving information that continues to build risk perceptions that mirror already held beliefs of fear and align with behaviors of avoidance, framing the natural world as an inherently risk place where self-efficacy is not discussed as a way to overcome the potential negative outcomes. Reporting is rarely providing strategies to increase self-efficacy, and

consistently failing to provide context about the risk while participating in nature. The lack of participation in the natural world then is not surprising and has the likelihood to continue.

Future research

In the face of urbanization that increases not only the physical distance but also the likelihood of connection to the natural world, an understanding of how human-wildlife conflict is reported can be useful in comprehending the effects of media coverage on perceptions and attitudes of the natural world. Using results from this and similar studies, and collaborating with land management agencies to craft stronger public messages about risks in the natural world could prove to be beneficial. Further analysis is needed to understand what information agency officials publish on human-wildlife conflicts and what information is included (or not included) by the mass media. Working with conservation professionals to consider the framing and contextual risk reporting could help lessen the gap between information released on behalf of the agency and how news outlets report on these events. Partnering with land management agencies delivering the initial messages from which news reports are built has been mentioned by others (Muter et al., 2012).

Sampling across a five-year period of human-wildlife conflicts allowed for culminating results but may be a limitation in that analysis on the same event were minimal. Highly covered events (e.g. multiple victims, multiple attacks within a short period time, loss of young life) did have multiple articles both within newspapers but also between newspapers. Analysis on this scale could allow for further discussions on how population size influences reporting.

Limitations

Analysis in this study compared articles reporting multiple different human-wildlife conflicts, each of which varied from the other in many ways (time of year, injuries versus

fatalities, animal involved, number of people involved). These complexities in each situation were not captured or controlled for within this study. Additionally, researchers did not compare the reported facts from the land management agency with news coverage to see if blame was ascribed correctly.

Some high profile stories were included in multiple newspapers and were in essence counted twice, although researchers did sort stories before coding to be sure that no exact duplicates were included into the sample. When multiple articles that had slight journalistic differences covering the same incident were found, the stories were kept to reveal differences between population groups.

Finally, this study did not look at the placement of the story in terms of what major section of the paper the article was placed (i.e. hunting & fishing, sports, health, etc.). Analysis in the variation between reports of human-wildlife and their placement within daily newspapers could prove to be another relevant factor. Furthermore, future analysis into who is the original author of the story (Associated Press Wire versus local reporter, etc.) might influence the coverage of these conflicts. Factors such as the well being of the victim of the attack (not injured, serious injured, killed) should be considered in future content analysis of human-wildlife conflicts.

Table 1. Daily newspapers within Denver DMA rank ordered by circulation size.

Newspaper	Circulation Size
The Denver Post	324,970
The Tribune	25,185
Fort Collins Coloradan	21,086
Telluride Daily Planet	20,000
Daily Time-Call	19,230
Daily Reporter Herald	16,234
Vail Daily	15,500
Aspen Times	15,000
Aspen Daily News	14,500
Glenwood Springs Post Independent	13,000
Summit Daily News	12,000
Steamboat Pilot and Today	9,738
Gillette News-Record	6,900
Valley Courier	5,700
Laramie Daily Boomerang	5,233
Journal-Advocate	4,796
Mountain Mail	4,000
Fort Morgan Times	3,925
Rawlins Daily Times	3,600

Table 2. Animal species and related action verbs identified as prominent in media coverage of human-wildlife conflict.

Animal Species	Action Verbs
Bear (Black, Grizzly, Polar)	Maul
Mountain Lion	Gore
American Bison	Trample
Moose	Stalk
Coyote	Bite
Elk	Strike
Snake	Attack
Cougar	

Table 3. Examples of frames and codes in human-wildlife media coverage.

Frames	Attributes	Examples & Explanations
Blame Attribution	No Blame	<i>“Officials said the attack occurred when the couple surprised the female grizzly, which was with its cubs. They said the grizzly attacked to defend its young”</i> – Article 422
	Animal Blame	<i>“The bear responsible is still at large”</i> – Article 530
	Human Blame	<i>“... ignored warning signs posted advising hikers to avoid the area because of the likelihood of a dangerous bear encounter.”</i> –Article 446
	Human & Animal Blame	<i>“...a wrongful death lawsuit filed by the parents of a 12-year-old boy who was killed by a bear while camping.... they (United States Forest Service) failed to warn people of a dangerous bear in the area, which had attacked other campers”.</i> – Article 107
Episodic		Common episodic framing included incident report style stories that did not include information about other human-wildlife conflicts that had previous taken place.
Thematic		Common thematic framing included details of other human –wildlife conflicts. Including conflicts that had taken place geographically close to the area or other recent conflicts.
Coding Variables	Attributes	Examples:
Safety	Absent/Present	<i>“Fish, Wildlife and Parks has posted signs in the area warning hunters of the danger of traveling in bear country and recommends they carry pepper spray”.</i> – Article 243
Victim's Preparation	Absent/Present	<i>“We're glad this turned out to be nothing more than a frightening experience for the hiker,” Masters said in a news release Tuesday. “She was obviously educated as to what to do in this unexpected situation.”</i> – Article 251
Frequencies of human-wildlife conflicts	Absent/Present	<i>“Three attacks in three years - we haven't ever had anything like that, and I've been coming up here since I was a kid,” Vincelette said</i> “– Article 668
Preceding conditions that result in human wildlife conflicts	Absent/Present	<i>“The woman and a companion were walking in the dark when they came upon a bison down about 10 feet from them. The companion turned and ran from the bison, but the bison charged her and tossed her in the air.”</i> –Article 227

Table 4. Population categories of media service.

Groupings	Population Categories	Articles within category	Count of daily newspapers
Group A	Less than 20,000	41	8
Group B	20,000-40,000	56	8
Group C	41,000-100,000	191	15
Group D	101,000-500,000	62	7
Group E	Greater than 500,000	42	4
Total		392	42

Table 5. Percentages of episodic and thematic framing by population groupings.

	Overall frame	
	Episodic	Thematic
Group A	75.6	24.4
Group B	87.5	12.5
Group C	73.3	26.7
Group D	82.3	17.7
Group E	71.4	28.6
Total	76.8	23.2

($\chi^2 = 6.659$, d.f. = 4, p -value = .155)

Table 6. Percentages of ascribed blame by population groupings.

	No Blame	Animal	Human	Both
Group A	30.9	31.7	22	7.3
Group B	37.5	44.6	8.9	8.9
Group C	28.3	51.3	17.3	3.1
Group D	35.5	41.9	11.3	11.3
Group E	19	61.9	9.5	9.5
Total	30.9	48	14.8	6.4

($\chi^2 = 20.877$, d.f. = 12, p -value = .05)

Table 7. Percentages of safety tips by population categories.

	Safety tips for time in nature present	
	No	Yes
Group A	58.5	41.5
Group B	66.1	33.9
Group C	70.7	29.3
Group D	72.6	27.4
Group E	59.5	40.5
Total	67.9	32.1

($\chi^2=19.950$, d.f.= 4, p -value=.36)

Table 8. Percentages of victim's preparation prior to human-wildlife conflict by population categories.

	Information about preparation of victim	
	No	Yes
Group A	29.3	70.7
Group B	64.3	35.7
Group C	55.5	44.5
Group D	66.1	33.9
Group E	71.4	28.6
Total	57.4	42.6

($\chi^2=19.950$, d.f.= 4, p -value= .001)

Table 9. Percentage of contextual frequencies of human-wildlife conflict by population groupings.

	Frequencies of human-wildlife conflicts present	
	Yes	No
Group A	41.5	58.5
Group B	66.1	33.9
Group C	61.3	38.7
Group D	75.8	24.2
Group E	50	50
Total	61	39

$\chi^2= 9.664$, d.f.=4, *p-value*=.005)

Table 10. Percentages of presenting information leading to conflict by blame attribution categories.

	Casual events of conflict present	
	No	Yes
No blame	43.8	56.2
Animal	76.6	23.4
Human	15.5	84.5
Both	20	80
Total	53.8	46.2

(χ^2 ,=89.868, d.f.= 3, *p-value*=.000)

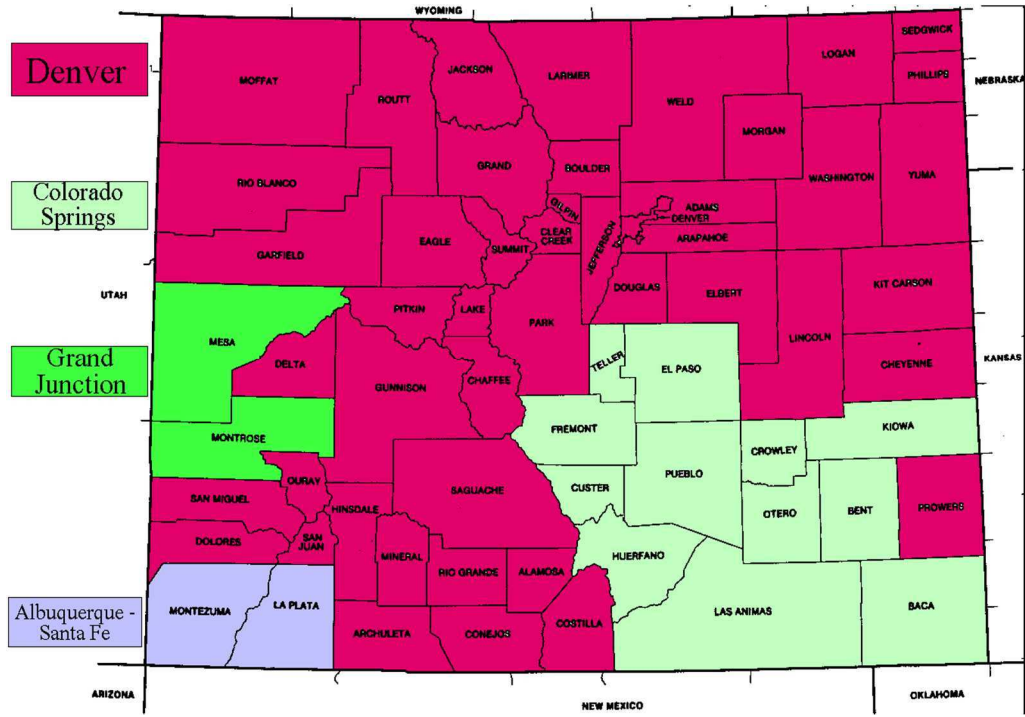


Figure 1. Colorado DMA clusters map.

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CONCLUSION

The purpose of this thesis was to explore the differences in reporting human-wildlife conflict by daily newspapers serving different-sized communities. Researchers investigated these differences to explore the possibilities for the potential effect of reporting style on perceptions of spending time in the natural world, particular for those who do not already regularly participate in outdoor nature-based activities. The first paper's objectives were guided by framing literature in mass media, and more specifically the influence of episodic and thematic framing. The second paper also used framing effects of literature in combination with considerations given to risk perception and self-efficacy. The combination of the results can influence future communication about human-wildlife conflicts in the natural world, particularly by land management agencies that serve as information sources about such incidents.

Previous literature highlights the importance of experiences in the natural world and emphasizes that, without these experiences, the possibility of a future connection and appreciation of the natural world is minimal (Chawla, 1988; Wells & Lekies, 2006). For those living in more urban areas, time spent in the natural world is limited, and as a result the strength of the connection to nature is diminished (Cox et al., 2017 ; Pergams & Zaradic, 2006). Perceptions of the natural world by those who live in more urban environments have been researched (Bruyere, Wesson, & Teel, 2012; Lin, Fuller, Gaston, & Shannahan, 2014). Analysis of the effects of media coverage on those perceptions is lacking, however.

In recognition of this gap in the literature, this study sought to explore how media, specifically daily newspapers, delivered information about the natural world. Building on methodology from mass media analysis (Long et al., 2005) and using population size allowed

this study to examine the potential impacts of multiple sized newspapers and their reporting of human-wildlife conflict on in similar sized communities. Using this methodology allowed for analysis of differences of media sources serving communities and their perception and possible connection to nature.

Summary

The purpose of the first article was to outline and clarify the differences in framing human-wildlife conflict in newspapers serving communities of different sizes, exploring the differences between framing these conflicts as episodic (one-time events) or thematic (part of a larger trend). Results showed that newspapers serving larger and more urban communities utilize more episodic reports, which can illicit more emotional responses, which have potential for influencing future behavior.

The second article combined prior research from the power of framing (Druckman, 2001; Scheufele, 2000) and risk perception literature in its relation to self-efficacy (Murray-Johnson et al., 2004). The intent of the study was to build an understanding of possible responses of media consumers across varying population sizes. Media's inclusion or non-inclusion of information including blame attribution, contextual risk factors and self-efficacy measures all lead to understanding possible end state behaviors (Witte, 1992a). Including either fear control or danger control end states, each of which have implications for connecting non-users into experiences with the natural world. Results indicated that daily newspapers serving larger communities provide less of a contextual story than those papers serving smaller communities.

Overall, the findings from both articles point to the need for larger newspapers to radically shift the reporting of human-wildlife conflict. The results indicate that papers serving larger urban centers continually fail to report the realities of spending time in nature. Highly

emotional, one time reporting that does not include contextual risks, strategies for raising self-efficacy may not allow for non-users to build positive perceptions of the natural world. The moment to counteract less participation in the outdoors by not only our youth, but as a culture in general will stall even further if these messaging styles are not addressed.

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