SITUATIONAL AND EMOTIONAL INFLUENCES ON THE ACCEPTABILITY OF WOLF MANAGEMENT ACTIONS

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Abstract
This article examined the effectiveness of situational and emotional variables in predicting the acceptability of wolf management actions in the Greater Yellowstone Ecosystem. Three hypotheses were advanced: (a) both situational and emotional variables will influence acceptability ratings, (b) emotions will explain the largest proportion of variance for the lethal management action, and (c) this pattern of findings will be the same for residents and visitors. Data were obtained from a survey of local residents and a survey of visitors to Grand Teton National Park. Two situational variables (location of encounter, wolf status) and three emotional variables (sympathy for ranchers, sympathy for wolves, anger about wolves) were included as independent variables. The dependent variables were acceptability of non-lethal and lethal management. Regression analyses supported the hypotheses. While debates regarding wolves are likely to continue, these findings highlight the role that emotion plays in evaluating the acceptability of management actions.

1.0 Introduction

1.1 Wolf Reintroduction and Management

The historic range of the gray wolf (*Canis lupus*) spanned most of North America, including the Greater Yellowstone Ecosystem (GYE). The GYE is comprised of portions of Wyoming, Montana, and Idaho, and it contains both private and public land (e.g., Yellowstone National Park [YNP] and Grand Teton National Park [GTNP]). Conflict between human and wolf populations began in the 1800s with the settlement of the Western United States. During this era, both private citizens and government agencies focused wildlife management efforts on predator control. By the mid-1900s, the gray wolf was almost completely extirpated from the continental United States. The last remaining wolf pack in the GYE was destroyed in 1926 (U.S. Fish and Wildlife Service 2006, Yellowstone National Park 2011).

In 1974, gray wolves were listed as endangered under the Endangered Species Act (ESA). Following this listing, managers began to consider the restoration of wolf populations to their historic range. In 1995–1996, managers reintroduced an experimental population of 31 wolves within the boundaries of YNP. Ten additional wolves from nearby Montana were reintroduced in 1997. The wolf population has now increased to over 400 individuals in the GYE. Due to this remarkable growth, lawmakers have considered removing the population from protection under the ESA (Taylor et al. 2005, Yellowstone National Park 2011).

Concurrent with the growth of the wolf population in the GYE, there has been an expansion of the human population in the area. For example, the population of Teton County, Wyoming (at the southern end of the GYE) has doubled since 1986 (U.S. Census Bureau 2011). In addition to permanent residents, there are millions of visitors to the area every year. In 2010, YNP reported close to 4 million visitors (Yellowstone National Park 2011) and GTNP had approximately 2.5 million (U.S. National Park Service 2011). As both the wolf and human populations increase in the GYE, the probability of interactions (both positive and negative) also increases. GYE wolves, for example, killed over 200 sheep, about 50 cattle, 10 goats, and six dogs between 1995 and 2003. In response, about 60 wolves were destroyed (Taylor et al. 2005, Yellowstone National Park 2011).

When conflicts occur between wolves and humans, managers have to choose an appropriate response. The options range from monitoring the situation to destroying the wolf or wolves involved. An informed choice considers both biological data and public sentiment. Human dimensions research has traditionally evaluated the acceptability of wildlife management actions using situational (e.g., location of encounter, status of the population) and cognitive (e.g., attitudes, norms) concepts (e.g., Decker et al. 2006, Whittaker et al. 2001). Specific attitudinal or normative variables are better predictors of acceptability ratings than are more general situational variables (see Vaske 2008, Vaske & Manfredo in press for reviews). Research has revealed that these cognitive variables can explain about 50% of the variability in behavioral intentions to support management actions (Jacobs et al. in press). This article argues that emotions also play a key role in the public acceptability of management strategies, especially in regards to charismatic species (e.g., wolves, grizzly bears).

1.2 The Concept of Emotion

The term *affect* in attitude and norm research refers to a general class of *feeling states* experienced by humans; *emotions* are subsumed under this category (Manfredo 2008). The study of emotion, however, is complex and no universal definition has emerged (Izard 2007). Many scholars agree that emotional responses consist of the following four components: (a) physiological reactions (e.g., increased heartbeat), (b) expressive reactions (e.g., smiling), (c) behavioral tendencies (e.g., approaching / fleeing), and (d) emotional experiences (e.g., feeling happy, sad, angry) (Cornelius 1996). The experience of emotion brings together, at a specific point in time, affect, perceptions of meaning, and knowledge about the situation.

The concepts employed in human dimensions cognitive models denote mental dispositions (e.g., attitudes, norms); thus, focusing on "emotional dispositions" provides a starting point for studying emotions toward wildlife (Jacobs et al. in press). An emotional disposition refers to the criteria against which the emotional relevance of stimuli is appraised (Frijda 1986, Lerner & Keltner 2000). People do not exhibit emotional reactions randomly. Rather, a process of emotional appraisal occurs in response to specific situations or objects.

Theory and research (e.g., Ellsworth & Scherer 2003, Scherer 1999, Smith & Ellsworth 1985) suggest that humans evaluate the emotional relevance of stimuli in terms of the following questions: (a) has anything changed, (b) is it good or bad, (c) is it obstructive or conducive to my (or others') goals, and (d) can it be controlled or predicted? To illustrate, imagine that a person learns that wolves are killing a rancher's cattle. This knowledge draws attention. If the individual generally fears wolves, the situation is rated as negative. The information might then be evaluated against the goal of the rancher (i.e., to make a living), prompting the person to feel sympathy for the rancher and anger that this situation has occurred. The intensity of this emotional disposition will likely vary depending on the consequences for the human and the wolf. Stronger emotional responses will occur if the rancher loses all of his or her cattle to wolves and/or if the wolf is killed by the rancher or a managing agency.

People also have emotional dispositions toward specific objects, such as wildlife (Manfredo 2008). Emotional responses are at the heart of human conflict with, and attraction to, wildlife. Thus, while one person may express sympathy for the rancher, another individual who believes that wolves symbolize the wilderness spirit may have sympathy for the animal when it has to rely on livestock for food. By understanding emotional responses to wildlife, managers can better assess public sentiment toward management actions and potentially make better decisions as a result (Bright & Manfredo 1996).

1.3 Hypotheses

Based on previous research, the following hypotheses are advanced:

H_1: Both situational and emotional variables will explain variability in acceptability ratings of wolf management actions.

H_2: Compared to situational variables, emotions will explain more of the variance in acceptability ratings, especially for a lethal management action where an emotional appraisal is likely to be held with more intensity.

H_3: This pattern of findings will be the same for both residents and visitors of the GYE.

2.0 Method

2.1 Sampling Design

Data for this article were obtained from two separate mail surveys. The first was sent to residents near GTNP (i.e., within a 100-mile radius of Jackson, Wyoming) and resulted in a sample size of 604 (response rate = 51%). The second survey was distributed to GTNP visitors (n = 596, response rate = 81%). A telephone non-response check suggested that there were no significant differences between non-respondents and respondents (e.g., in demographics, in wolf experience); thus, the data were not weighted.

2.2 Variables Measured

Five independent variables were analyzed. The first set of independent variables consisted of two situational variables: (a) location of wolf encounter and (b) status of the wolf population. These variables were derived from four hypothetical scenarios about human-wolf conflict in the GYE (see Table 1). Location of encounter was coded 0 (public land) or 1 (private land), and wolf status was coded as 0 (delisted) or 1 (endangered).

<Insert Table 1 about here>

The second set of independent variables consisted of three emotion indices (i.e., sympathy for ranchers, sympathy for wolves, anger about wolves). These indices were created from variables coded on 5-point scales ranging from -2 (strongly disagree) to +2 (strongly agree). The first index, sympathy for ranchers, was composed of three items (e.g., ranchers losing livestock to wolves saddens me). The second index, sympathy for wolves, also was created from three survey questions (e.g., I have sympathy for wolves that rely on livestock for food). Finally, anger about wolf presence was composed of five items (e.g., I get angry when I learn that a wolf has destroyed someone's livestock).

Two dependent variables were used in this analysis: (a) acceptability ratings of non-lethal wolf management actions and (b) acceptability ratings of lethal wolf management. All acceptability ratings were coded on 7-point scales ranging from -3 (highly unacceptable) to +3 (highly acceptable); responses referred to the hypothetical scenarios illustrated in Table 1. The first dependent variable, acceptability of non-lethal management actions, was an index composed of three separate items: (a) monitor

the situation, (b) frighten the wolf or wolves involved, and (c) capture and relocate the wolf or wolves involved. The second dependent variable was the respondents' ratings of the acceptability of destroying the wolf or wolves involved in a conflict.

2.3 Analysis Strategy

Reliability analyses were performed on the variables included in the emotion indices, as well as the non-lethal management actions index; four new composite indices were computed. Twelve regression analyses were performed (i.e., six for residents, six for visitors). Within each sample, three regressions (i.e., a situational model, an emotional model, and a combined full model containing both situational and emotional variables) were performed to assess the relative influence of these predictors on the acceptability ratings of non-lethal management actions. An identical set of regressions was used to evaluate the relationships among the situational and emotional variables and the acceptability of the lethal management action.

3.0 Results

3.1 Reliability Analyses

The reliability analyses of the emotion items supported creation of three separate indices: (a) sympathy for ranchers ($\alpha = .83$), (b) sympathy for wolves ($\alpha = .81$), and (c) anger about presence of wolves ($\alpha = .82$) (see Table 2).

<Insert Table 2 about here>

A reliability analysis of the non-lethal management actions also provided support for computing a composite index ($\alpha = .65$, see Table 3). Although deleting the third variable (i.e., capture and relocate the wolf or wolves involved) increased the overall alpha slightly ($\alpha = .68$), this variable was retained for validity reasons, and the index was calculated using all three items.

<Insert Table 3 about here>

3.2 Residents – Non-Lethal Management Actions

Three regression models were used to evaluate the influence of the two situational variables (model 1), the three emotional variables (model 2), and the combined influence of these predictors (model 3) on the acceptability of non-lethal management actions for residents of the GYE. All three models were significant ($p < .001$, see Table 4). The two situational variables when considered alone (model 1), however, only accounted for 1% of the variance in residents' acceptability ratings. The three emotional variables (model 2) explained 15% of the variance. Finally, when both situational and emotional variables were included in model 3, 16% of the variance was explained. Three predictors were significant in this full model, and their effect sizes ranged from minimal to typical: (a) location ($\beta = -.07$, $p = .001$), (b) wolf status ($\beta = .09$, $p < .001$), and (c) sympathy for wolves ($\beta = .31$, $p < .001$). The remaining two predictors (i.e., sympathy for ranchers, anger) were not significant ($p > .05$).

3.3 Residents – Lethal Management Action

A similar set of three regressions was computed for the GYE locals to predict acceptability ratings of the lethal wolf management action. These three models were all significant ($p < .001$, see Table 4). In model 1, the two situational variables explained only 3% of the variability in residents' acceptability ratings for the lethal wolf management action, while the emotion indices (model 2) accounted for 49% of the variance. Taken together (model 3), all five predictors explained 52% of the variance in residents' acceptability ratings. All five predictors were significant ($p < .001$) in this full model, and their relationships with acceptability ratings ranged from minimal to typical ($.12 \leq \beta \leq .35$).

<Insert Table 4 about here>

3.4 Visitors – Non-Lethal Management Actions

The same sets of regression models were computed for the visitors to the GYE (see Table 5). For the non-lethal wolf management actions, all three models (i.e., situational, emotional, full) were significant ($p < .001$). Situational variables predicted 2% of the variance (model 1), the three emotional variables accounted for 3% of the variability (model 2), and their combined influence explained 4% (model 3). In the full model, only two variables had significant, minimal relationships with acceptability ratings: (a) location of encounter ($\beta = .13$, $p < .001$) and (b) sympathy for wolves ($\beta = .16$, $p < .001$). The remaining three predictors (i.e., wolf status, sympathy for ranchers, anger about wolf presence) were not significant ($p > .05$).

3.5 Visitors – Lethal Management Action

Finally, for the GYE visitors, three regression analyses were used to predict acceptability ratings for the lethal wolf management action. All three models were significant ($p < .001$, see Table 5). Situational variables (model 1) accounted for 5% of the variance in visitors' acceptability ratings of the lethal wolf management action, while emotional variables (model 2) predicted 41% of the variance. Together, situational and emotional variables (model 3) accounted for 46% of the variability in visitors' acceptability ratings of the lethal wolf management action. In this full model, all five variables were statistically significant ($p < .001$), and effect sizes ranged from minimal to typical ($.14 \leq \beta \leq .41$).

<Insert Table 5 about here>

4.0 Discussion

4.1 Summary of Findings

Overall, study results supported all three hypotheses. First, both situational and emotional variables were useful in explaining variability in acceptability ratings of wolf management actions (H_1). Second, as predicted by hypothesis 2 and the specificity principle in social psychology (Vaske 2008), the situational variables consistently accounted for less of the variability than did the emotional variables. For all four situational models, the percentage of explained variance in acceptability ratings ranged between 1 and 5%, whereas the range for all four emotional models was between 3 and 49%. Moreover, emotions did explain the largest proportion of variability in acceptability ratings for the lethal wolf management action. Emotions explained between 3 and 15% of the variance in acceptability ratings of non-lethal management actions, while they accounted for between 41 and 49% of the variance for the lethal management action. Finally, this pattern of findings was consistent for both residents and visitors of the GYE (H_3).

4.2 Theoretical and Managerial Implications

The results of this study have both theoretical and managerial implications. Compared to the cognitive approaches, empirical research on emotions is relatively scarce in human dimensions of wildlife (Jacobs et al. in press). This lack of attention given to emotional responses in human dimensions research can be attributed to a couple of factors. First, wildlife professionals have traditionally emphasized *science* and sought to exclude emotional considerations from the decision-making process (Manfredo 2008). This emphasis has not encouraged researchers to embark upon an exploration of the role of emotion in human-wildlife relationships. Second, emotion research often employs techniques that use physiological measures that necessitate laboratory-based, experimentally-designed studies. Findings from these types of studies often have limited implications for an applied field such as the human dimensions of wildlife management.

The examination of emotional responses to wildlife, however, may be one of the most intriguing and fruitful areas for future investigation (Manfredo 2008). First, emotions reflect our most basic reactions to animals. Research suggests that the rudiments of emotion are inherited and interact closely with cognitive functions to affect human behavior (Izard 2007). Second, although emotions may produce uncontrolled reactions (e.g., fear, rage, anger), they are critical to sound decision making (Cacioppo & Gardner 1999). Ultimately, we can enhance our understanding of human behavior by exploring the interrelationship of cognitive concepts (e.g., value orientations, attitudes, norms) with affective concepts (e.g., emotion). When examining this interaction between cognitions and emotions, it must be emphasized that cognitions and emotions are theorized to be part of separate systems (i.e., emotions have an effect on behavior that is independent of thoughtful processing).

From a managerial perspective, conflicts between wolf and human populations, and debates about wolf management options in the GYE, are likely to continue as both populations of both humans and wolves increase. While biological and ecological data are important for evaluating wolf management alternatives, public opinion also plays a crucial role (Taylor et al. 2005). The findings here suggest that wildlife managers in the GYE need to consider emotion, as well as the more traditionally analyzed cognitive and situational variables, in decision-making processes.

4.3 Opportunities for Future Research

We believe that an examination of emotional dispositions offers a starting point for integrating emotional and cognitive frameworks. A specific emotional reaction results from an activation of different emotional dispositions. The conceptual and empirical challenge lies in understanding the relationships between emotional dispositions and cognitive dispositions toward wildlife. For example, emotions can enforce and reinforce the values and norms important to a social group and can communicate social acceptance or rejection. A display of disgust over a given wildlife issue, such as wildlife trapping, conveys the person's orientation. This revelation invites response and provides the basis for acceptance or rejection, commonality or difference, and approach or withdrawal from the individual. The display helps define social group boundaries.

Emotional dispositions vary with respect to situations (e.g., wolves killing a rancher's livestock) and/or objects (e.g., wolves). Appraisal theorists have not focused on object-related emotional dispositions, perhaps due to their focus on generic principles that apply to every situation. For the study of emotional responses to wildlife, however, both general situation dispositions and specific object dispositions are relevant.

This article focused on one charismatic species (i.e., wolves) in a single location (i.e., GYE), using a limited number of emotions (i.e., sympathy, anger). Whether or not our findings generalize to other species and locations is a topic for future research. Similarly, a range of other emotional dispositions and emotional responses needs to be examined.

Finally, measuring emotions is challenging. This study evaluated respondents' emotions through a series of self-report survey questions. Whether this approach reflects an emotional or a cognitive evaluation needs to be considered. Alternative ways to measure emotion (e.g., galvanic skin response, analyses of brain activity) abound in psychological research (e.g., Desmet 2004, Watson & Clark 1992), and these options should be considered in research on the human dimensions of wildlife management.

5.0 Citations

Bright, A. D., & Manfredo, M. J. (1996). A conceptual model of attitudes toward natural resource issues: A case study of wolf reintroduction. *Human Dimensions of Wildlife, 1*(1), 1–21.

Cacioppo, J. T., & Gardner, W. L. (1999). Emotion. *Annual Review of Psychology, 50*, 191–214.

Cornelius, R. R. (1996). *The science of emotion: Research and tradition in the psychology of emotion*. Upper Saddle River, NJ: Simon and Schuster.

Decker, D. J., Jacobson, C. A., & Brown, T. L. (2006). Situation-specific "impact dependency" as a determinant of management acceptability: Insights from wolf and grizzly bear management in Alaska. *Wildlife Society Bulletin, 34*(2), 426–432.

Desmet, P. A. (2004). Measuring emotions. In M. A. Blythe, A. F. Monk, K. Overbeeke, & P. C. Wright (Eds.), *Funology: From usability to enjoyment* (pp. 111–124). Dordrecht, Netherlands: Kluwer Academic Publishers.

Ellsworth, P. C., & Scherer, K. R. (2003). Appraisal processes in emotion. In R. J. Davidson, K. R. Scherer, & H. H. Goldsmith (Eds.), *Handbook of affective sciences* (pp. 572–595). Oxford, UK: Oxford University Press.

Frijda, N. H. (1986). *The emotions*. Cambridge, UK: Cambridge University Press.

Izard, C. E. (2007). Basic emotions, natural kinds, emotion schemas, and a new paradigm. *Perspectives on Psychological Science, 2*(3), 260–280.

Jacobs, M. H., Vaske, J. J., & Roemer, J. M. (in press). Toward a mental systems approach to human relationships with wildlife: The role of emotional dispositions. *Human Dimensions of Wildlife, 16*(6).

Jacobs, M. H., Vaske, J. J., Teel, T. L., & Manfredo, M. J. (in press). Human dimensions of wildlife. In L. Steg, M. de Groot, & A. E. van den Berg (Eds.), *Handbook of environmental psychology*. London, UK: Wiley-Blackwell.

Lerner, J. S., & Keltner, D. (2000). Beyond valence: Toward a model of emotion-specific influences on judgment and choice. *Cognition and Emotion, 14*(4), 473–493.

Manfredo, M. J. (2008). *Who cares about wildlife? Social science concepts for exploring human-wildlife relationships and conservation issues*. New York, NY: Springer Press.

Scherer, K. R. (1999). Appraisal theory. In T. Dalgleish & M. Power (Eds.), *Handbook of cognition and emotion* (pp. 637–663). London, UK: John Wiley & Sons, Ltd.

Smith, C. A., & Ellsworth, P. C. (1985). Patterns of cognitive appraisal in emotion. *Journal of Personality and Social Psychology, 48*(4), 813–838.

Taylor, J. G., Johnson, S. S., & Shelby, L. B. (2005). *Public acceptance of management actions and judgments of responsibility for the wolves of the Southern Greater Yellowstone Area: Report to Grand Teton National Park* (Open-File Report 2005–1408). Reston, VA: United States Geological Survey, Biological Resources Discipline.

U.S. Census Bureau. (2011). *Teton County, WY population: Estimates of the resident population.* Retrieved from http://www.census.gov/popest/estimates.html

U.S. Fish and Wildlife Service. (2006). *Gray wolf range in the contiguous United States.* Retrieved from http://www.fws.gov/mountain-prairie/species/mammals/wolf/nationalrangemap2.pdf

U.S. National Park Service. (2011). *NPS stats: Grand Teton National Park.* Retrieved from http://www.nature.nps.gov/stats/park.cfm?parkid=399

Vaske, J. J. (2008). *Survey research and analysis: Application in parks, recreation, and human dimensions*. State College, PA: Venture Publishing, Inc.

Vaske, J. J., & Manfredo, M. J. (in press). Social psychological aspects of wildlife management. In D. J. Decker, S. Riley, & W. F. Siemer (Eds.), *Human dimensions of wildlife management*. Baltimore, MD: The Johns Hopkins University Press.

Watson, D., & Clark, L. A. (1992). On traits and temperament: General and specific factors of emotional experience and their relation to the five-factor model. *Journal of Personality, 60*(2), 441–476.

Whittaker, D., Manfredo, M. J., Fix, P. J., Sinnott, R., Miller, S., & Vaske, J. J. (2001). Understanding beliefs and attitudes about an urban wildlife hunt near Anchorage, Alaska. *Wildlife Society Bulletin, 29*(4), 1114–1124.

Yellowstone National Park. (2011). *Yellowstone resources and issues 2011*. Mammoth, WY: Yellowstone National Park Division of Interpretation.

Table 1. Hypothetical survey scenarios

Scenario #	Status of Wolves	Encounter Type	Location of Encounter
1	Endangered, experimental population	Wolves chasing cattle	Public land
2	Endangered, experimental population	Wolves killing cattle	Private land
3	Delisted	Wolves killing pet	Private land
4	Delisted	Wolves killing cattle	Public land

Table 2. Reliability analyses for emotion indices

Concept/Variable[a]	Item-Total Correlation	Alpha If Item Deleted	Cronbach's Alpha
Sympathy for ranchers			.83
Ranchers losing livestock to wolves saddens me	.74	.71	
It upsets me to learn that livestock have been destroyed by reintroduced wolves	.69	.76	
I have no sympathy for ranchers who lose livestock to wolves[b]	.63	.81	
Sympathy for wolves			.81
I have sympathy for wolves that rely on livestock for food	.62	.78	
I do not have any sympathy for wolves that are destroyed for killing livestock[b]	.71	.68	
I feel sorry for wolves when they are destroyed for any reason	.65	.75	
Anger about wolf presence			.82
I get angry when I learn that a wolf has destroyed someone's livestock	.76	.73	
It does not anger me that pet dogs may be killed by wolves[b]	.63	.78	
I do not understand why people become angry when wolves kill livestock[b]	.48	.81	
It angers me that wolves may be killed if they harass livestock[b]	.61	.78	
I get angry at the NPS when I hear that visitors may encounter wolves	.57	.79	

[a]All emotional variables coded on 5-point scales from -2 (strongly disagree) to +2 (strongly agree). [b]Items are reverse coded.

Table 3. Reliability analysis for non-lethal management actions index

Concept/Variable[a]	Item-Total Correlation	Alpha If Item Deleted	Cronbach's Alpha
Non-lethal management actions			.65
Monitor the situation	.40	.64	
Frighten the wolf or wolves	.65	.28	
Capture and relocate the wolf or wolves	.36	.68	

[a]All variables coded on 7-point scales from -3 (highly unacceptable) to +3 (highly acceptable).

Table 4. Situational and emotional influences on the acceptability[a] of wolf management actions for GYE residents

	Non-lethal			Lethal		
	F	R^2	β	*F*	R^2	β
Situational model	14.30**	.01		34.68**	.03	
Location (Public [0] vs. Private [1] land)			-.06*			.13**
Wolf status (Delisted [0] vs. Endangered [1])			.09**			-.12**
Emotional[b] model	127.95**	.15		710.58**	.49	
Sympathy for ranchers			-.05			.21**
Sympathy for wolves			.31**			-.35**
Anger about presence of wolves			-.05			.22**
Full model	84.84**	.16		477.21**	.52	
Location (Public [0] vs. Private [1] land)			-.07*			.12**
Wolf status (Delisted [0] vs. Endangered [1])			.09**			-.12**
Sympathy for ranchers			-.05			.21**
Sympathy for wolves			.31**			-.35**
Anger about presence of wolves			-.05			.22**

[a]Acceptability coded on 7-point scales from -3 (highly unacceptable) to +3 (highly acceptable). [b]Emotion indices coded on 5-point scales from -2 (strongly disagree) to +2 (strongly agree).

* $p < .05$, ** $p < .001$

Table 5. Situational and emotional influences on the acceptability[a] of wolf management actions for GYE visitors

	Non-lethal			Lethal		
	F	R^2	β	*F*	R^2	β
Situational model	19.55**	.02		61.20**	.05	
Location (Public [0] vs. Private [1] land)			.13**			.15**
Wolf status (Delisted [0] vs. Endangered [1])			-.01			-.16**
Emotional[b] model	20.27**	.03		505.81**	.41	
Sympathy for ranchers			.01			.18**
Sympathy for wolves			.16**			-.41**
Anger about presence of wolves			-.02			.14**
Full model	20.10**	.04		373.71**	.46	
Location (Public [0] vs. Private [1] land)			.13**			.16**
Wolf status (Delisted [0] vs. Endangered [1])			-.02			-.16**
Sympathy for ranchers			.01			.18**
Sympathy for wolves			.16**			-.41**
Anger about presence of wolves			-.02			.14**

[a]Acceptability coded on 7-point scales from -3 (highly unacceptable) to +3 (highly acceptable). [b]Emotion indices coded on 5-point scales from -2 (strongly disagree) to +2 (strongly agree).

* $p < .05$, ** $p < .001$