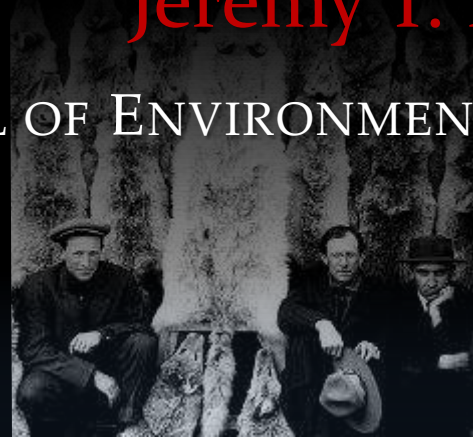


Finding Tolerance for Large Carnivores: Insights from Psychology

Jeremy T. Bruskotter

SCHOOL OF ENVIRONMENT & NATURAL RESOURCES

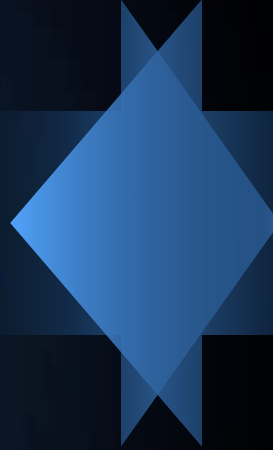
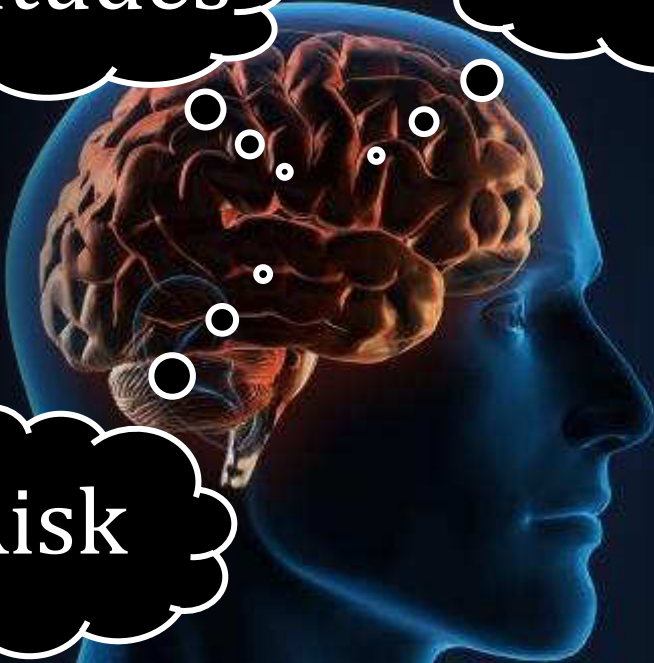


THE OHIO STATE UNIVERSITY

Attitudes

Value

Risk



Understanding Mental Processes



How do people make judgments and decisions?



- The rational actor—
 - Seeks to maximize utility
 - Mentally effortful
- The cognitive miser—
 - Seeks to minimize effort
 - Utilize “heuristics”, affected by biases

How do people make judgments and decisions about animals that kill us (and other things we value)?





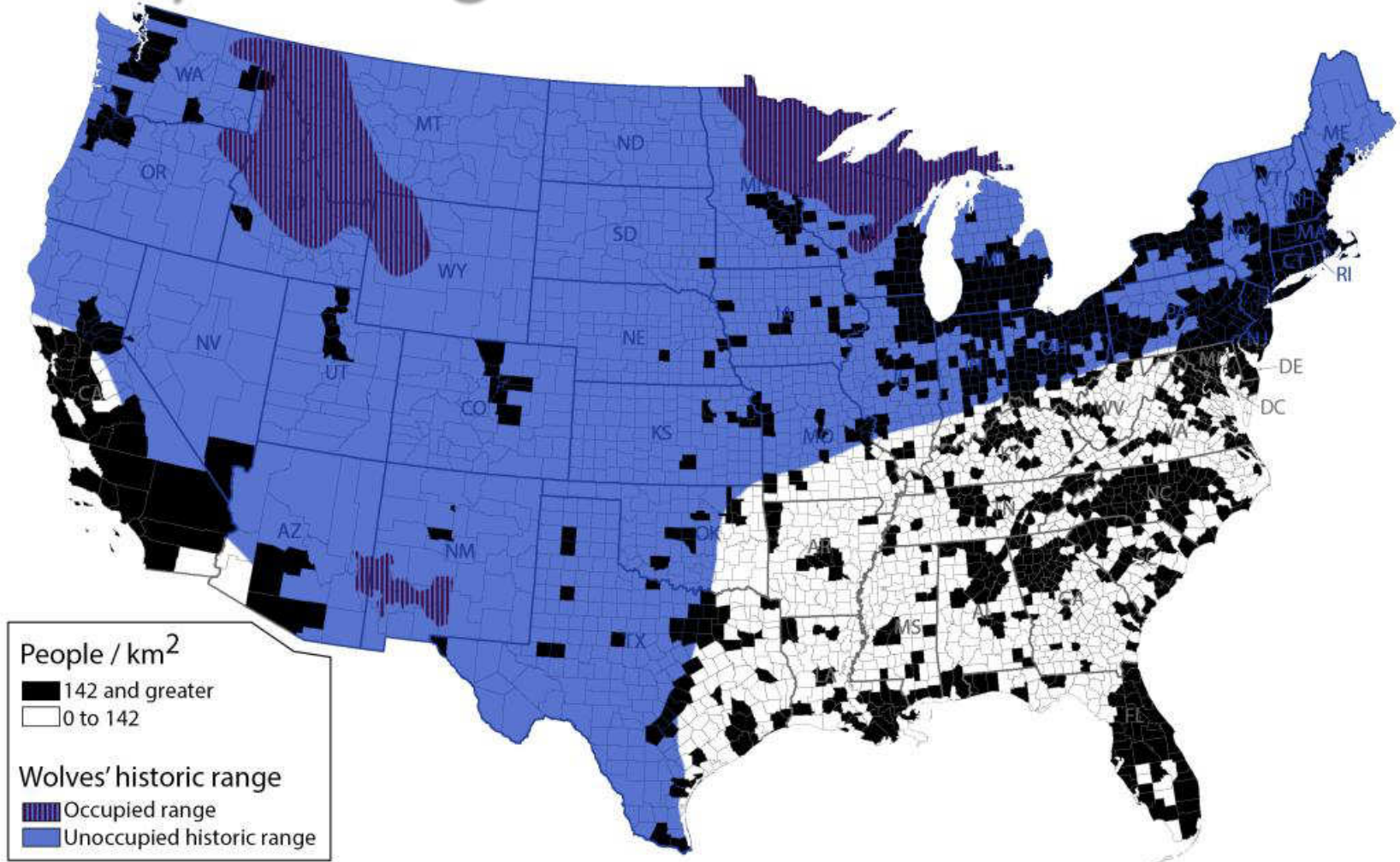
We have a curious history
with wildlife...







C. Lupus Range in the Conterminous US



Bruskotter, J. T., Vucetich, J. A., Enzler, S., Treves, A., & Nelson, M. P. (2013). Removing protections for wolves and the future of the US Endangered Species Act (1973). *Conservation Letters*.



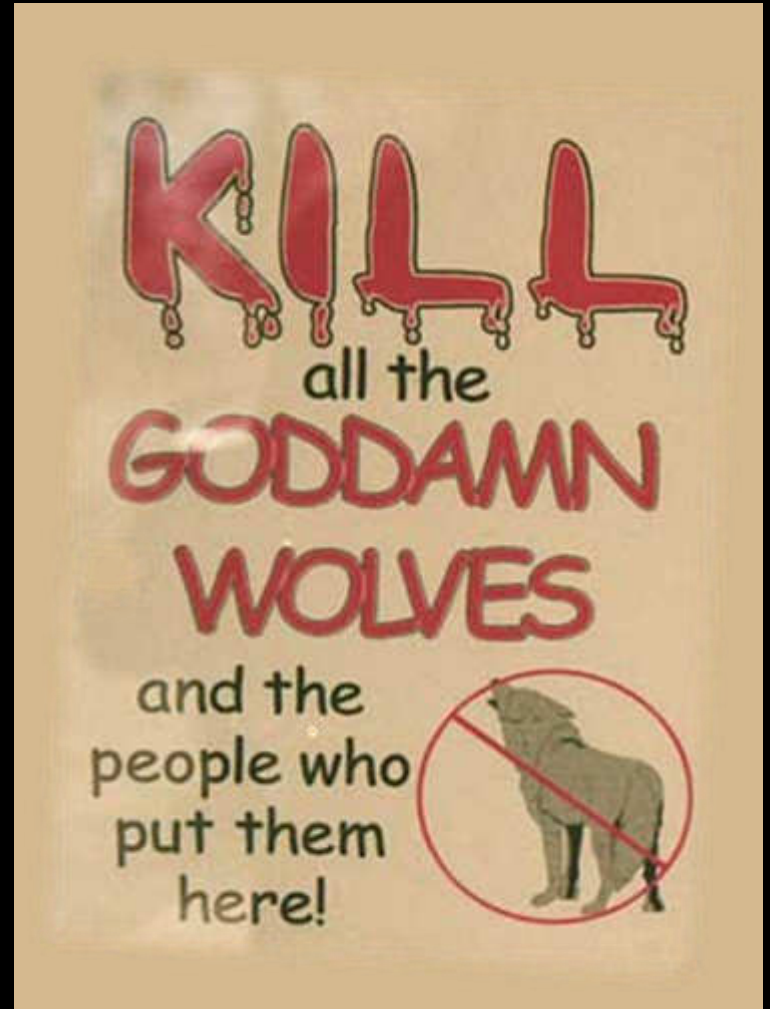
Conservation challenge:

How to coexist with animals that can kill us?

Researchable question:

What factors impact individuals' judgments and decisions about large carnivores?







Kellert's 1978 work

<i>Most liked</i> $\bar{X} < 3.00$		<i>Least liked</i> $\bar{X} > 4.00$	
Dog	1.72	Cockroach	6.46
Horse	1.82	Mosquito	6.29
Robin	2.04	Rat	6.21
Swan	2.04	Wasp	5.72
Butterfly	2.14	Rattlesnake	5.69
Trout	2.24	Bat	5.40
Eagle	2.38	Vulture	5.20
Salmon	2.41	Shark	4.94
Cat	2.77	Skunk	4.48
Elephant	2.78	Lizard	4.23
Turtle	2.80	Crow	4.18
Raccoon	2.90	Coyote	4.17
Ladybug	2.95	Wolf	4.09

Kellert interviewed 3,107 US residents about their attitudes toward (26) animals

In February of 2014 we replicated these measures in a sample of 1,200 adult U.S. residents



Changes in attitudes...



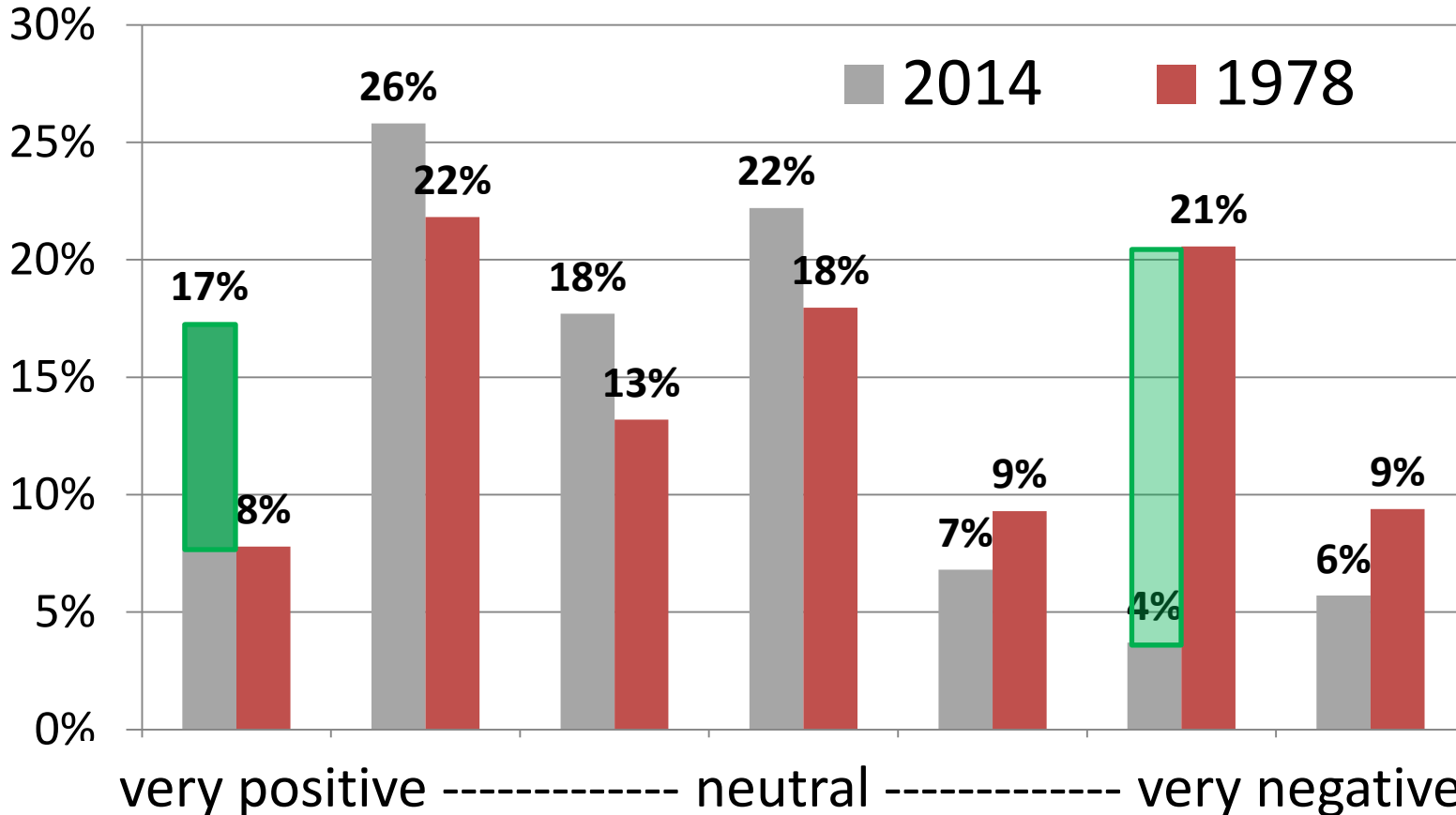
- + Bat ($d = 0.78$)
- + Vulture ($d = 0.66$)
- + Rat ($d = 0.53$)
- + Shark ($d = 0.53$)
- + **Wolf ($d = 0.50$)**
- + **Coyote ($d = 0.40$)**



-
- Swan ($d = 0.45$)
 - Raccoon ($d = 0.43$)



Attitudes toward wolves over 36 years



43% to 61%

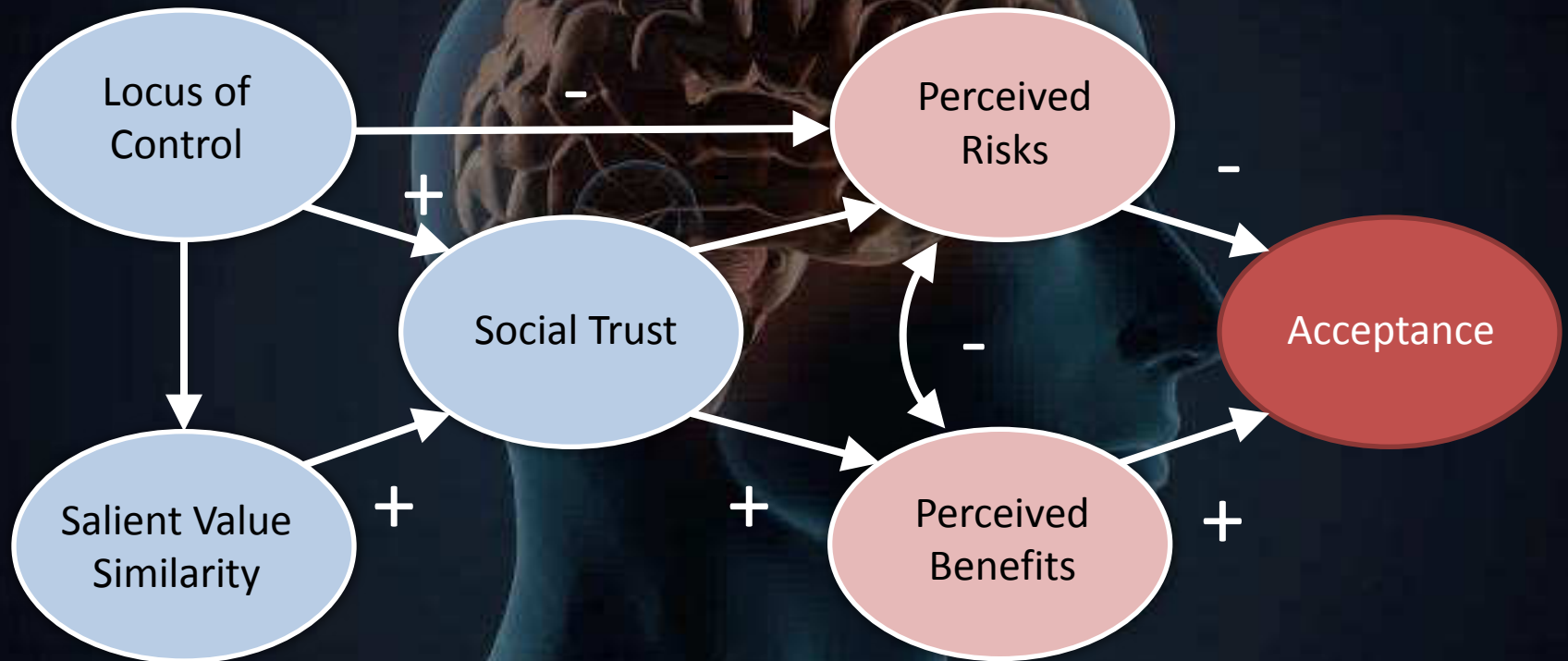
+9% pts

39% to 17%

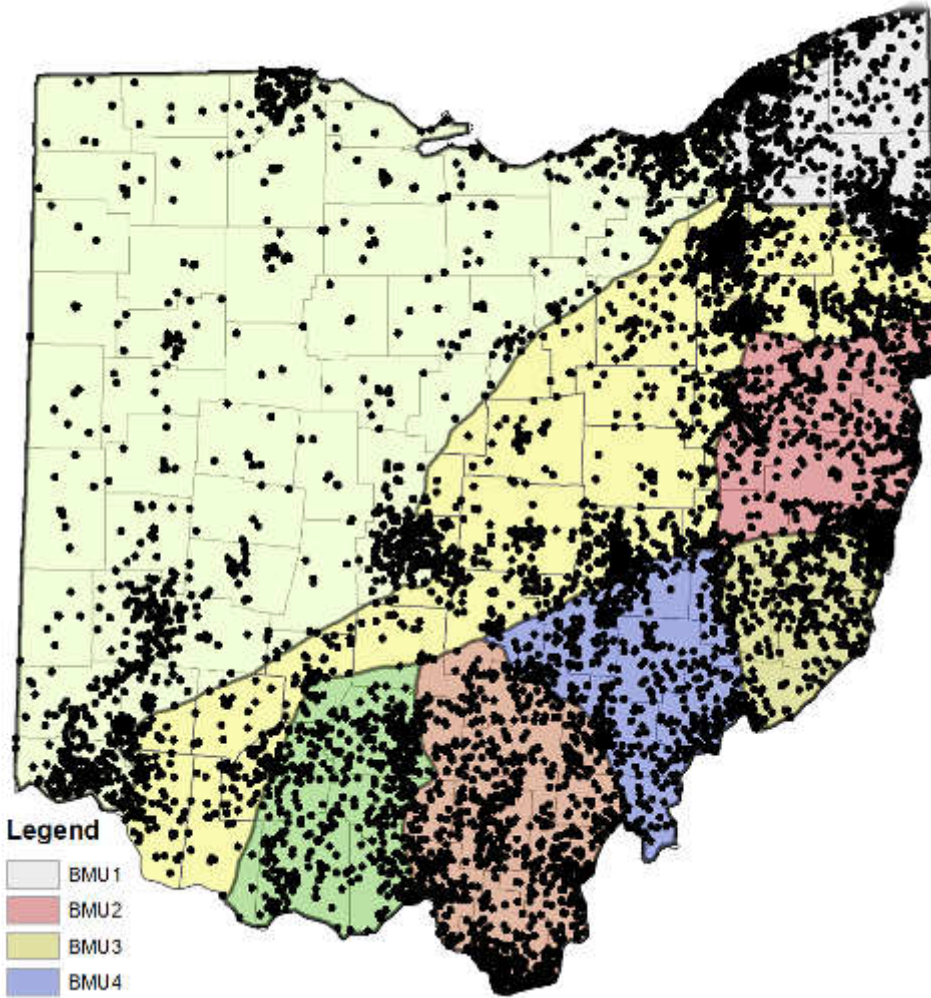
-17 % pts



Theoretical Model: Hazard Acceptance



Adapted from Siegrist et al. 2000a,b



- RQ: Can we explain judgments regarding the acceptability of black bears?
- Mailed Survey of Ohio households (n=9400) stratified across 8 BMUs
- 33% adjusted response rate, n=2900 returns
- Analyzed results using Structural Equation Modeling (SEM)



Please make any additional comments in the space provided:

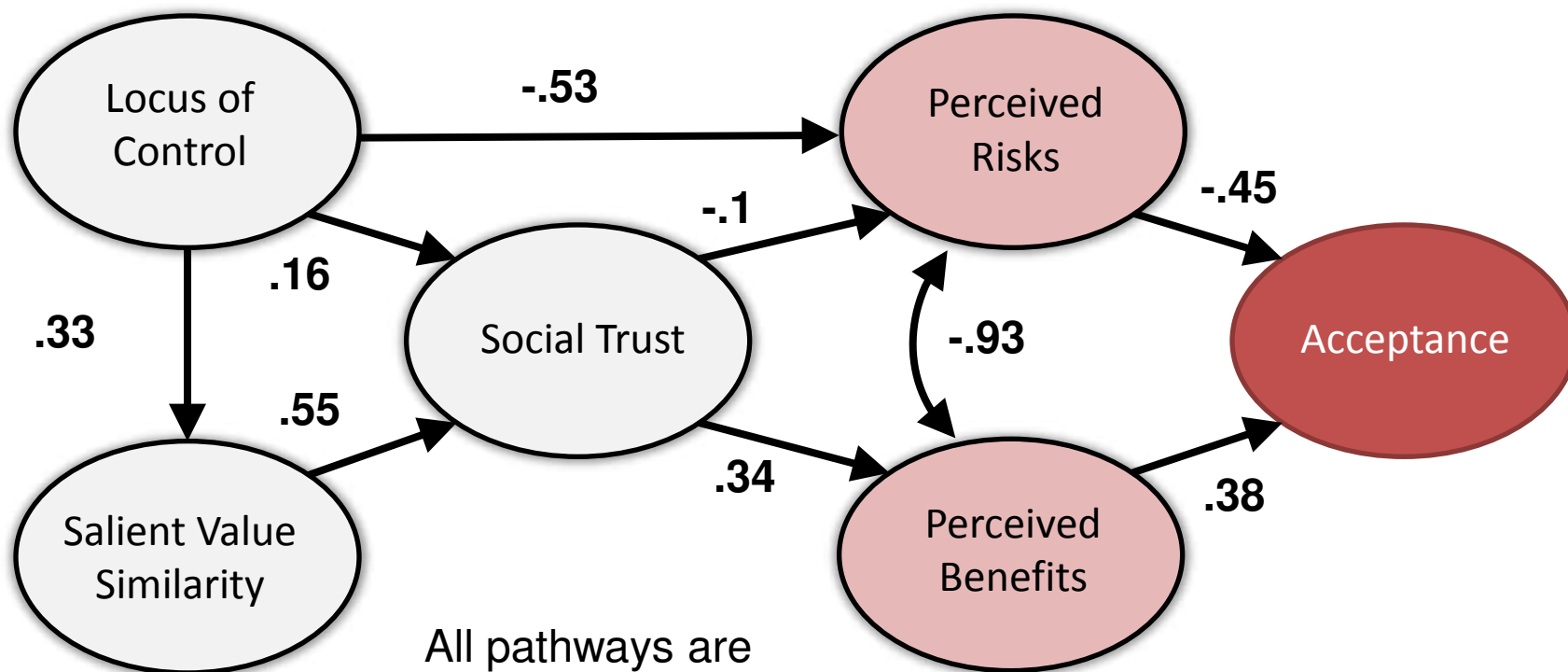
SHIP OHIO BEARS TO VIRGINIA WHERE
MY SON LIVES. HE HAS A GUN

Please make any additional comments in the space provided:

My place is available if you wish to
release Bears.



Model of "Tolerance"



All pathways are significantly different than 0 at $p=.001$ level

$R^2 = 0.62$

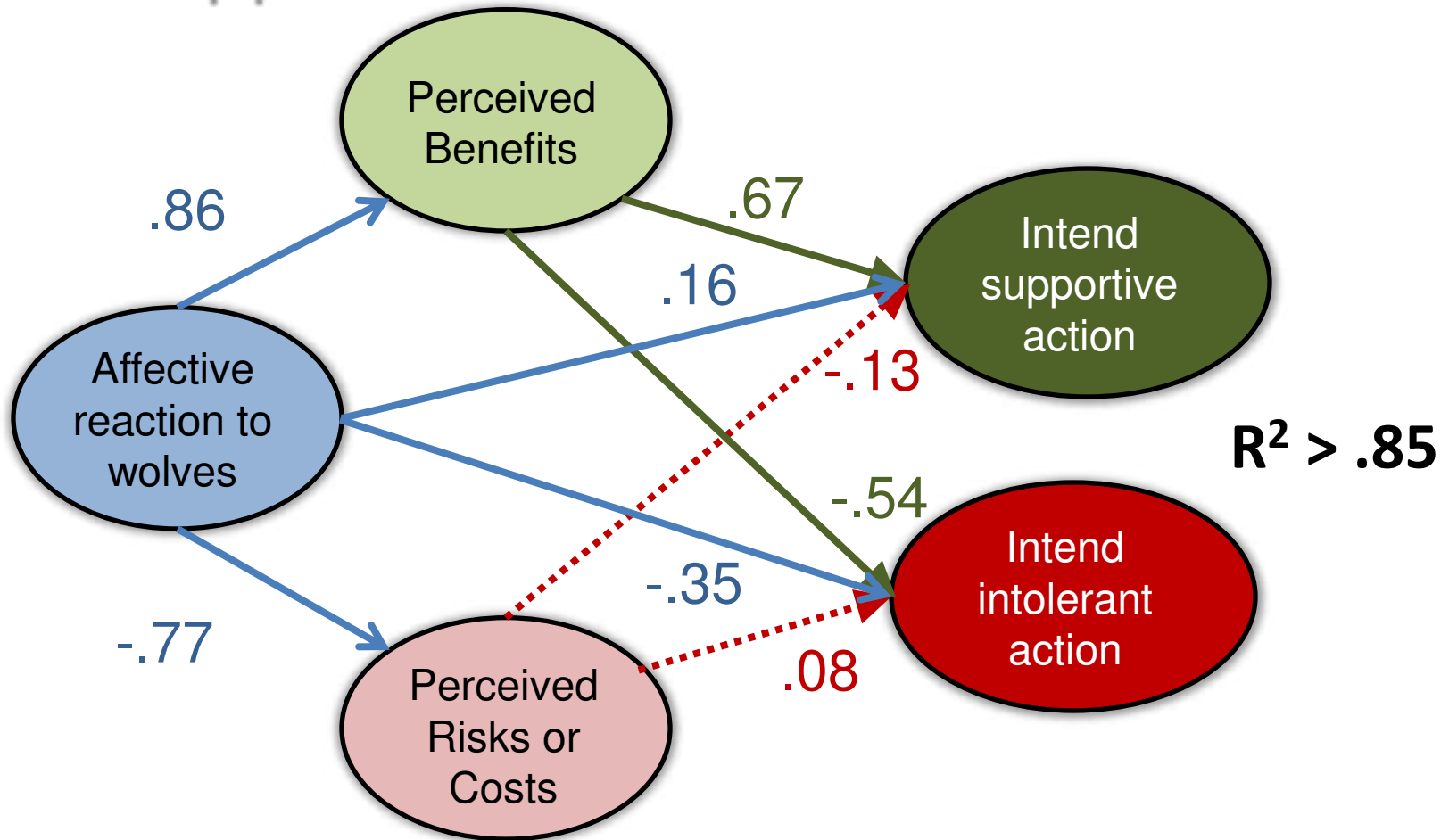


Lingering questions

- What about behavior/actions?
- Are 'intolerant' actions explained by the same factors as supportive actions?



Explaining Intentions to Engage in Supportive and Intolerant Actions





Lingering Questions

- Okay, the model is useful for explaining intentions to engage in both supportive and oppositional actions...
- **But can we actually increase tolerance for a species?**



Study 3: Strategic Communication

- Contacted ~400 respondents to black bear survey via email to participate in a follow-up study
- Randomly assigned to four treatments
 - FACTS: Info about bear biology & behavior
 - BENEFITS: Info about the benefits of bears
 - CONTROL: Info on how to reduce risk of conflict
 - COMBINED: Received info from all three



The Bear Facts



The black bear
 Male bears t
 while female
 are most fre
 considerably
 and some be

Black bears
 openings. F
 the fall, whil
 in the spring
 forbs, fruits,
 diet, bears a
 anything, in
 mammals, a

Bears gener
 (November
 time of the y

Benefits of Bears



Historically, pe
 black bears. B
 tribes of Amer
 their hides for
 decoration. Be
 purposes.

Today, sport h
 their hides, an
 provide. Bear
 of visitors to Y
 black bears ar
 excited to see.

Finally, bears l
 seeds of the pl
 diseased wildl
 disease.

Preventing Bear Problems

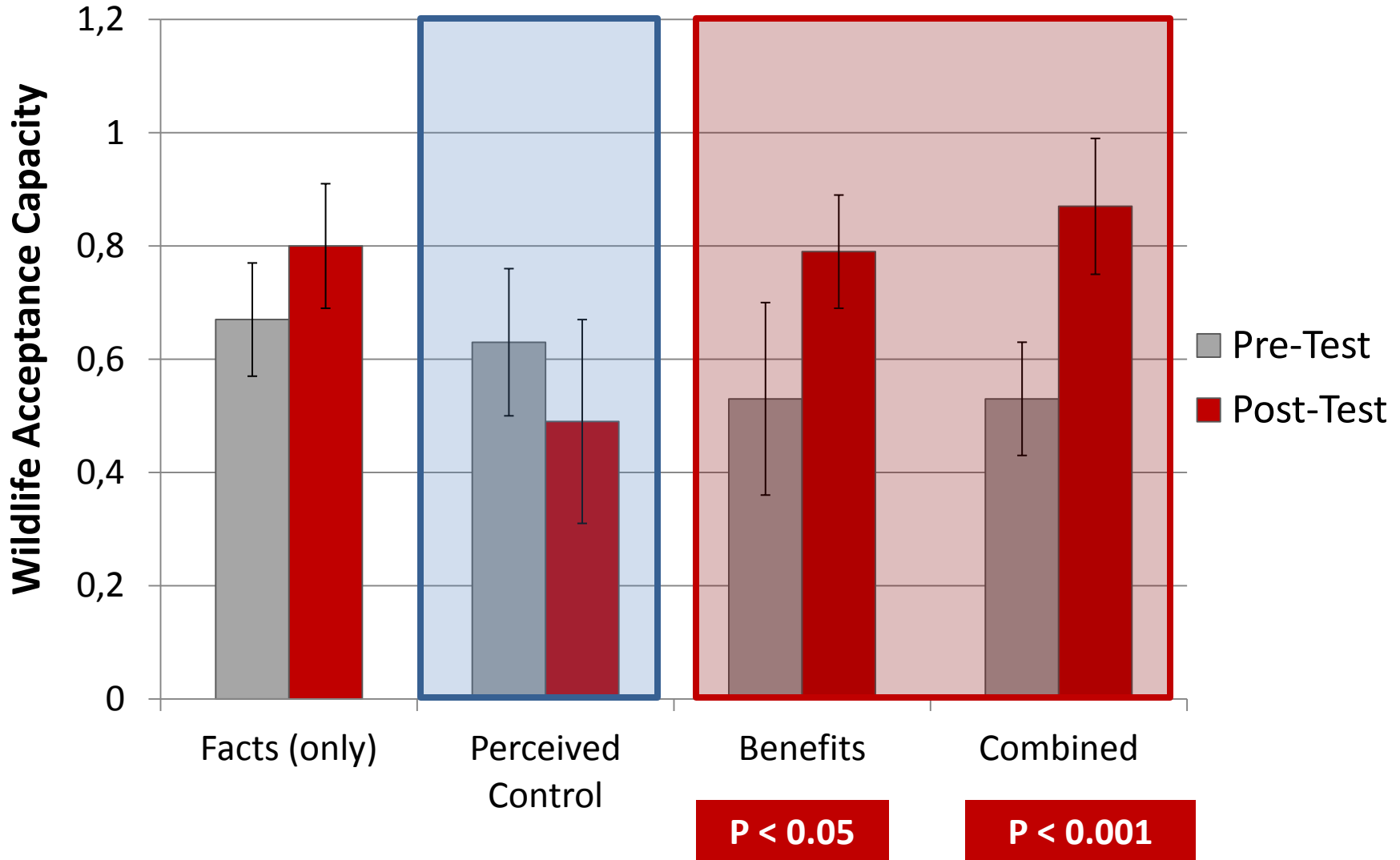
Black bears are typically wary of people and avoid human settlements. However, bears learn very quickly to take advantage of food near human settlements, such as garbage, pet food, bird feeders, and compost piles. Bears that learn to associate people with food can pose a threat to both people and themselves. Fortunately, you can prevent problems with bears by following these simple rules:

- **Remove birdfeeders or bring birdfeeders inside at night:** Bears consume seeds and nuts found in the wild, so bird feeders become a favored target for bears.
- **Remove pet food:** Feed pets only what they will eat in a single feeding or feed them indoors. Remove the food bowl soon after pets finish. Do not leave food out overnight.
- **Secure your garbage:** Store garbage indoors, in a shed, in a garage, or in a bear-proof container. Put garbage out the morning of pickup, not the night before.
- **Remove other foods:** Keep grills clean and grease free. Pick up and remove ripe fruit from fruit trees and surrounding grounds. Avoid composting in areas with bears.





Within-subjects (paired t-tests)





Summary & Conclusions

- Tolerance can be explained by people's perceptions of the risks & **benefits** associated with carnivores; also influenced by **trust** and **control**, and **affect**
- These factors *can* be highlighted via strategic communications in order to influence tolerance
- Our data suggest information about the **benefits and how to control the risk** (i.e., avoid conflict) will be most useful in increasing tolerance
- **Information that highlights only how to avoid conflict could actually decrease tolerance by making risks more salient**



Caveats

- Information needs to come from a trusted source (agencies not always trusted)
- Increased 'acceptance' (as an attitude) may not translate to desired behavioral outcomes
- People with strong (well-formed) attitudes are unlikely to change – especially true of they have had personal experience (e.g., folks in the wolf study)



Lingering Questions

- Is it really this simple? Do people simply 'weigh' the risks and benefits and act accordingly...?



Nein.



Social groups matter

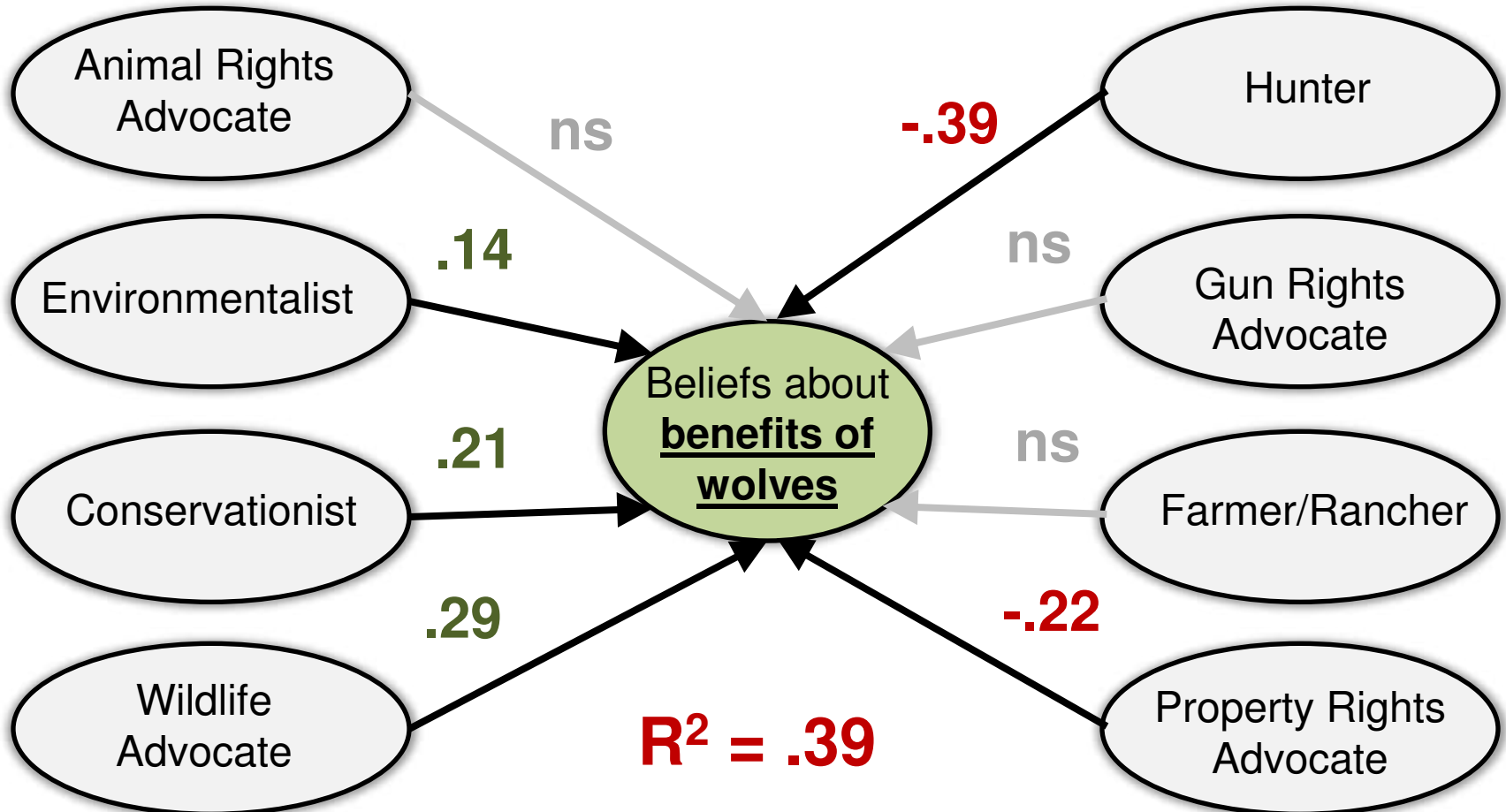
- Interest groups may ‘market’ information that is consistent with our existing beliefs
- The social groups with which we identify utilize different information sources
 - These groups may distrust ‘outgroup’ sources, making them more likely to counter-argue
- The result is that groups construct their own realities—their own beliefs about these animals and



Residents of the Northern Rockies

The "New West"

The "Old West"

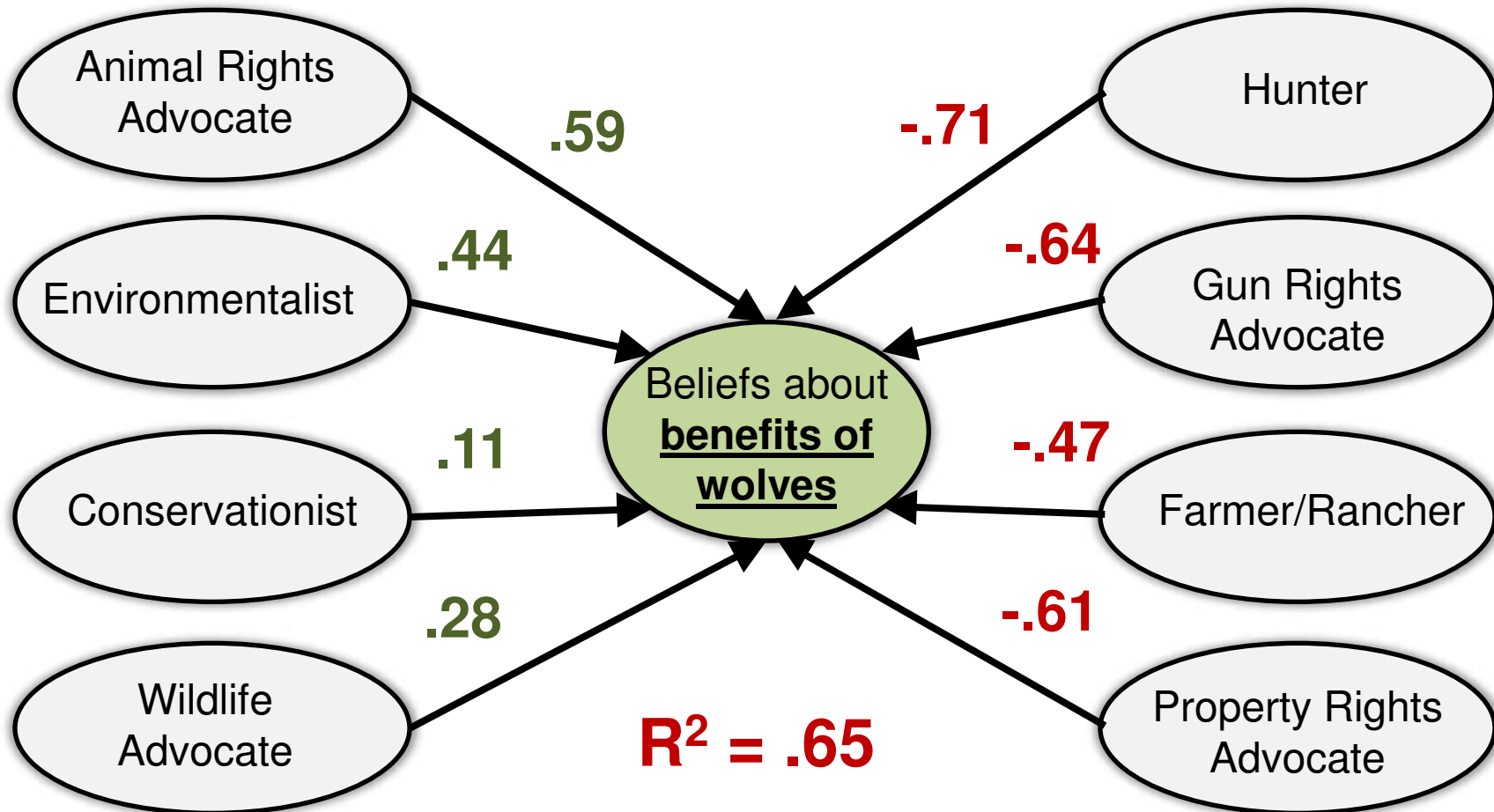




The Social Construction of Wolves

The "New West"

The "Old West"

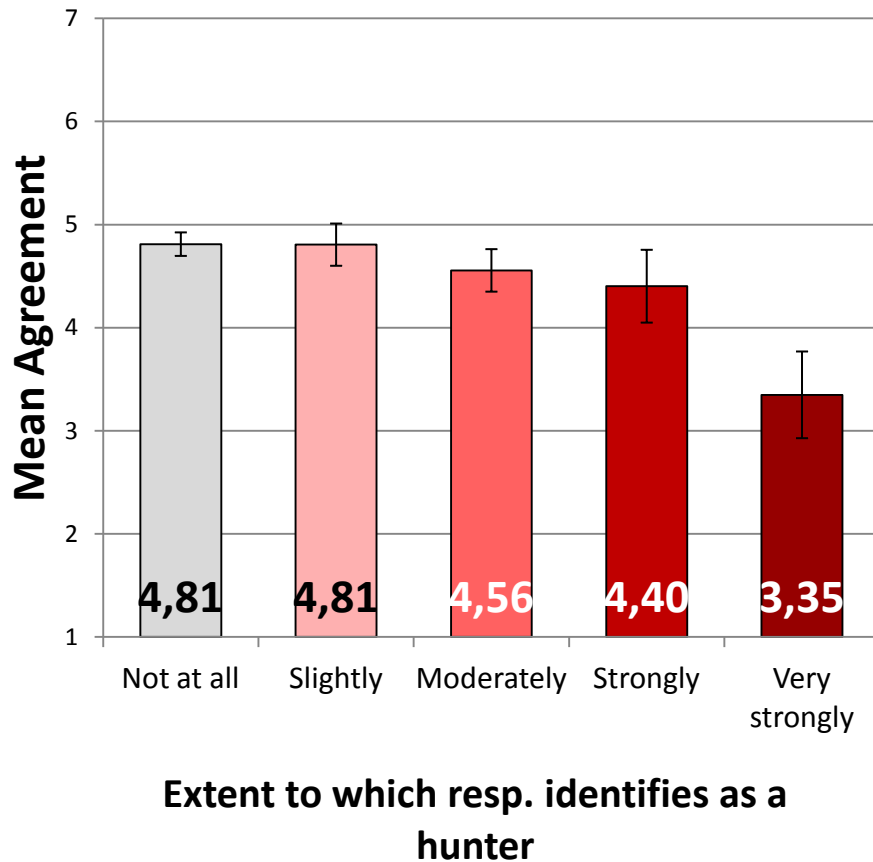




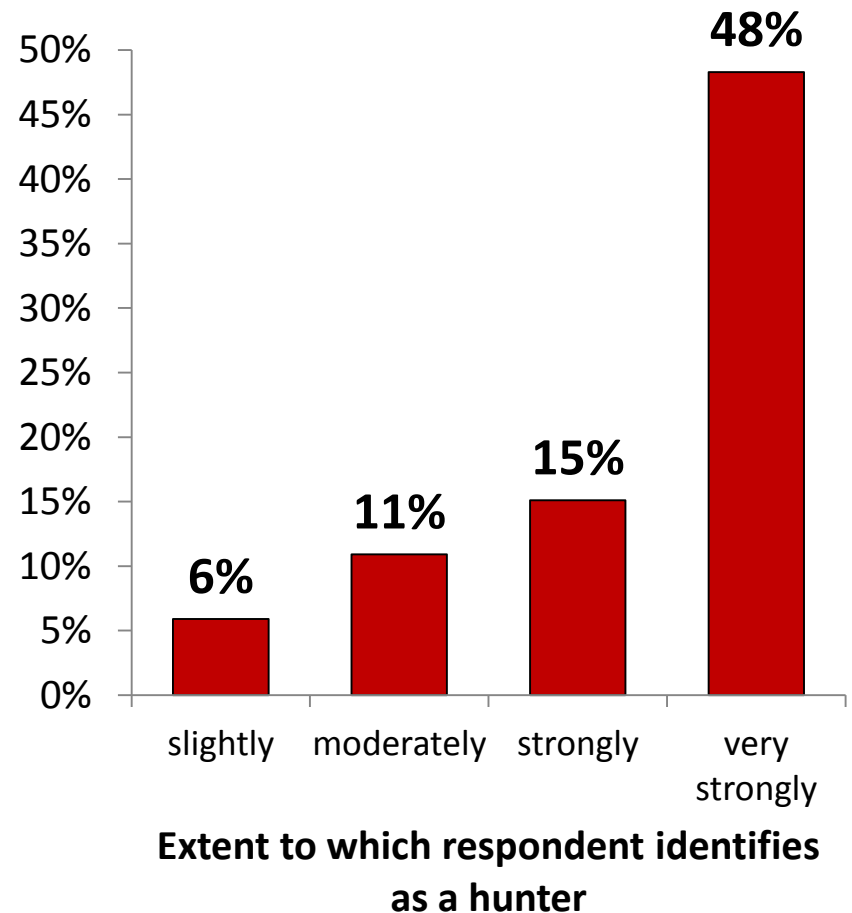
- Clearly members of these groups disagree about the impacts of wolves, and their beliefs are (in part) rooted in their identities, and group membership
- **But does identification affect behavior?; and how do they feel about each other...?**

National Survey of 1,200 adults (2014)

...keep deer, elk and moose populations in balance.

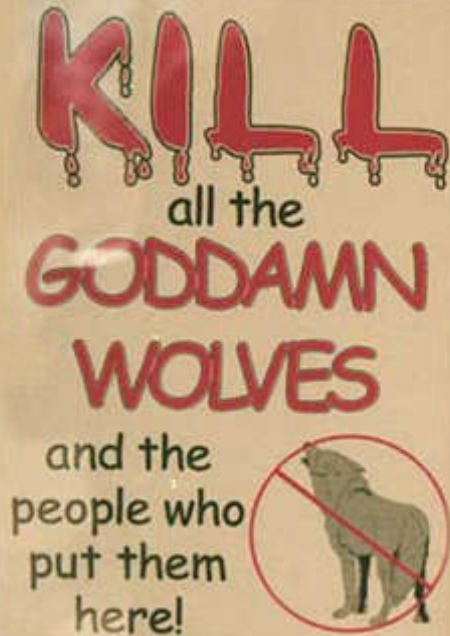


% indicating they would shoot a wolf if saw one





Elite Cues Utilize Identity



“... [wolves are] devastating the wildlife population and they’re also devastating to the livestock population...[t]he goal of our **anti-grazing, anti-hunting friends**, if you can call them friends, is to end grazing and to end hunting, and they have got the perfect biological weapon...”

-- *Director of Utah Department of Natural Resources*



“This is what revenge looks like...When people raise their guns as an emotional expression of hatred toward a species it is **not hunting**...

(Mangelsen 2013)





Lessons: Escaping NR conflict

- Focus on 'shared' goals (win/win)
- Build trust through cooperative efforts
 - Demonizing 'outgroups' can turn potential allies into foes
- Be wary of power structures that favor some groups over others (equality fosters cooper.)
- May require focus on improvements, as opposed to solutions



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- Ohio Div. of Wildlife





Questions?

Support provided by:

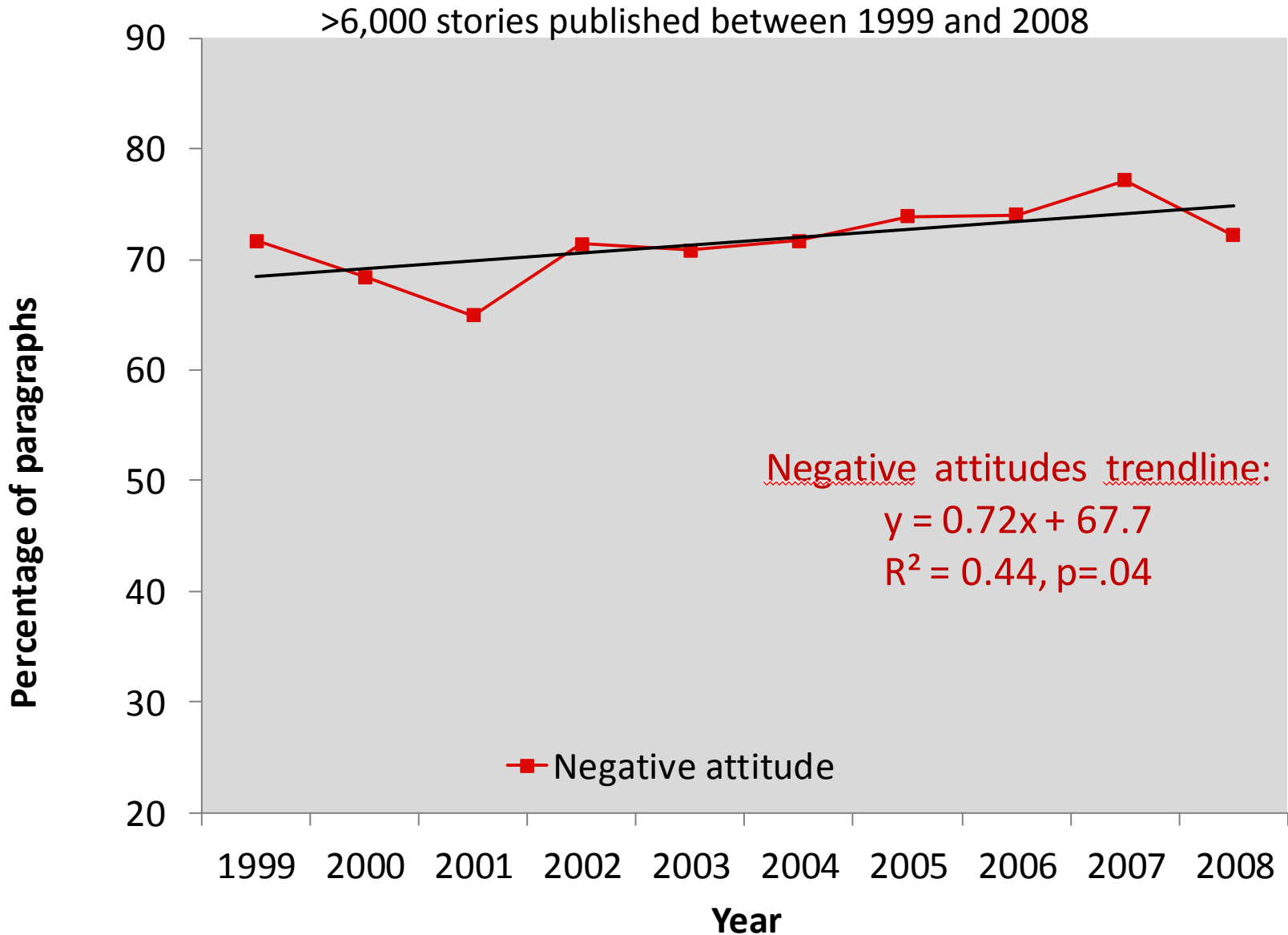
The Ohio Division of Wildlife

Terrestrial Wildlife Ecology Lab,

School of Environment & NR,
Ohio State University



Trend in overall valence of news media coverage.





Research Article

Learning to Live With Black Bears: A Psychological Model of Acceptance

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The Journal of Wildlife Management 77(4):863–869; 2013; DOI: 10.1002/jwmg.515

Human Dimensions

Building Tolerance for Bears: A Communications Experiment

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MINI REVIEW

Determining where the wild things will be: using psychological theory to find tolerance for large carnivores

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