Conservation ethics and risk perceptions of human-wildlife conflict: Implications for stakeholder engagement

Michelle L. Lute & Meredith L. Gore
Department of Fisheries & Wildlife
Michigan State University

Photo credit: M. Medina, AFP/Getty Images
Wolves in Western Great Lakes

Gray Wolf - Western Great Lakes Distinct Population Segment

http://www.fws.gov/midwest/wolf/delisting/WGLDPS.html
Wolves in MICHIGAN: Key Historical Dates

- 1965: State listed as endangered in Michigan
- 1974: Federally listed as endangered
- ~1990s: Delisting considered
- ~2003: Delisted
- 2012-2013: Hunted
What drives DISAGREEMENT over human-wolf conflict?
... the SYMBOLIC nature of wolves?

Risk Perceptions
How to overcome disagreement?

Current disagreement = Hunting
<table>
<thead>
<tr>
<th>Intrinsic value:</th>
<th>All life + collectives</th>
<th>Ecocentric</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All life</td>
<td>Biocentric</td>
</tr>
<tr>
<td></td>
<td>Certain animals</td>
<td>Zoocentric</td>
</tr>
<tr>
<td></td>
<td>Only humans</td>
<td>Anthropocentric</td>
</tr>
</tbody>
</table>
Stewardship

Direct and indirect actions undertaken to positively impact wildlife, including individuals, populations, species, or habitats on which they depend

Treves & Martin 2011, Bruskotter & Fulton 2011

Photo credit: J. Sartone, NatGeo
CONTINUUM OF STEWARDSHIP BEHAVIORS

opposition to steward
inaction
willingness to steward

(Treves & Martin 2011)

EMOTIONAL DISPOSITIONS
favoring humans/wolves
(Vaske, Roemer, & Taylor 2012)

ACCEPTABILITY
hunting trapping
(Bruskotter et al. 2009)

RISK PERCEPTIONS
affective cognitive
(Slovic 1987)

INTRINSIC VALUE
anthropocentrism zoocentrism biocentrism ecocentrism

(Nelson & Vucetich 2012)
Objectives

1. Quantify factors related to conservation ethics
   a) Acceptability of hunting/trapping
   b) Conservation goals
   c) Emotional dispositions
   d) Intrinsic value

2. Quantify Risk Perceptions

3. Model relationships between conservation ethics, risk perceptions, and stewardship behaviors

Lute, Navarrete, Nelson & Gore. In prep. Integrating conservation ethics into wildlife management. Society and Natural Resources.
Methods

- **HOW:** Qualtrics web-based survey
  - Snowball sampling within groups

- **WHO:** Stakeholder groups from DNR participation
  - Active and aware
  - Not representative of MI

- **WHEN:** Oct-Nov 2013

- **WHERE:** Home computer

IRB -1144ex11

Photo credit: J. Sartone, NatGeo
## Results

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Detail</th>
<th>N</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample size</td>
<td></td>
<td>1239</td>
<td></td>
</tr>
<tr>
<td>Stakeholder Identity Group</td>
<td>Animal welfare/rights advocates</td>
<td>77</td>
<td>2.44</td>
</tr>
<tr>
<td></td>
<td>Conservationists</td>
<td>253</td>
<td>4.25</td>
</tr>
<tr>
<td></td>
<td>Environmentalists</td>
<td>141</td>
<td>3.87</td>
</tr>
<tr>
<td></td>
<td>Farmers</td>
<td>34</td>
<td>3.22</td>
</tr>
<tr>
<td></td>
<td>Hunters</td>
<td>404</td>
<td>4.20</td>
</tr>
<tr>
<td></td>
<td>Wildlife Advocates</td>
<td>63</td>
<td>4.15</td>
</tr>
<tr>
<td>Age</td>
<td>Years</td>
<td>906</td>
<td>53.8</td>
</tr>
<tr>
<td>Education</td>
<td>1 = elementary school ... 9 = PhD/MD</td>
<td>981</td>
<td>College degree</td>
</tr>
<tr>
<td>Gender</td>
<td>0 = female, 1 = other, 2 = male</td>
<td>978</td>
<td>1.5</td>
</tr>
<tr>
<td>Income</td>
<td>1= Less than $10,000/yr ... 8 = +$100,000/yr</td>
<td>971</td>
<td>$55-70,000</td>
</tr>
<tr>
<td>Political Ideology</td>
<td>1 = very liberal ... 7 = very conservative</td>
<td>959</td>
<td>4.3</td>
</tr>
<tr>
<td>Political Party Affiliation</td>
<td>1 = strong Democrat ... 7 = strong Republican</td>
<td>947</td>
<td>3.6</td>
</tr>
</tbody>
</table>
Who has INTRINSIC VALUE?

- All life: 62%
- Wolves: 59%
- Only humans: 8%
Why do WOLVES have INTRINSIC VALUE?

- They are part of an ecosystem: 77%
- All life has value: 59%
- They are conscious/can feel: 21%
- They have human-like qualities: 6%
Do you WORRY about RISKS posed by wolves to...?

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Livestock</td>
<td>73%</td>
</tr>
<tr>
<td>Pets</td>
<td>65%</td>
</tr>
<tr>
<td>Hunting dogs</td>
<td>57%</td>
</tr>
<tr>
<td>Children</td>
<td>55%</td>
</tr>
<tr>
<td>Game species</td>
<td>51%</td>
</tr>
<tr>
<td>My hunting traditions</td>
<td>32%</td>
</tr>
<tr>
<td>My personal safety</td>
<td>18%</td>
</tr>
<tr>
<td>My health</td>
<td>9%</td>
</tr>
<tr>
<td>My livelihood</td>
<td>6%</td>
</tr>
</tbody>
</table>
Have you ever engaged in activities INTENDED to SUPPORT WOLVES?

- Read publication: 41%
- Educated others: 28%
- Signed petition: 22%
- Donated money: 21%
- Contacted legislator: 19%
- Voted for candidate: 15%
- Attended meeting: 13%
- Volunteered: 11%
- Boycotted: 9%
- Contacted media: 6%
- Managed land: 5%
- Opposed to Stewardship: 14%
Hunting and trapping is ACCEPTABLE...

- To protect pets or livestock from immediate threats: 60% (Hunting) 48% (Trapping)
- Because wolf populations can sustain hunting/trapping: 53% (Hunting) 45% (Trapping)
- As a tool to reduce conflict: 50% (Hunting) 43% (Trapping)
**Mediation**

- Mediation: ‘sgmediation’ module in STATA v 13.1
- Standardized coefficients

**Emotions and Cognitions**

- Intrinsic Value
- Stewardship Behaviors

\[ + 0.35 \]
Intrinsic Value

\[ \beta = 0.20, \text{ S.E.} = 0.02, \text{ 95\% CI} = [0.16, 0.24] \]

Emotional Dispositions

\[ + .35 \]

Stewardship Behaviors

\[ + .54 \]

Proportion of total effect mediated: 62%

Mediation

\[ * = p < 0.001 \]
Stewardship Behaviors

Unacceptability of Hunting

Intrinsic Value

Stewardship Behaviors

\[ \beta = 0.18, \text{ S.E.} = 0.02, 95\% \text{ CI} = [0.14, 0.22] \]

Proportion of total effect mediated: 58%

\[ + 0.29 \to + 0.30 \to + 0.35 \]

* = p < 0.001
Mediation

Unacceptability of Trapping

Proportion of total effect mediated: 45%

β = 0.13, S.E. = 0.02, 95% CI = [0.10, 0.17]  
* = p < 0.001

Intrinsic Value

+ .29

+ .35

+ .28

Stewardship Behaviors
Mediation

Affective Risk Perception

Intrinsic Value

Stewardship Behaviors

Proportion of total effect mediated: 45%

$\beta = 0.15$, S.E. = 0.02, 95% CI = [0.11, 0.20]

* = $p < 0.001$
Key FINDINGS

1. High intrinsic value for wolves, life and ecosystems

2. Intrinsic Value → Stewardship

3. Strongest mediator = Emotional dispositions

4. >50% respondents worried about risks to vulnerable others, not self
Ethics, emotions, affective risk perception influence behavior
1. Emphasizing intrinsic value may encourage stewardship
2. A common biocentric ethic may guide decision-making
3. Emotional appeals in communication should not be discounted
4. Address risk concerns regardless of frequency
1. How can ethics be leveraged to encourage stewardship?

2. How can incorporating (1) ethical dialogue and (2) emotions improve decision-making?
Acknowledgements

Funding:
Michigan Department of Natural Resources
Michigan State University
Fisheries & Wildlife
School of Criminal Justice
Indiana University

Special thanks to research participants
Questions?
mlute@indiana.edu
The GOAL of CONSERVATION should be…?

- Wisely use natural resources: 64%
- Coexist with nature: 28%
- Preserve ecosystems for humans: 5%
- Preserve in protected areas: 3%
**Conservation Goal by Identity**

<table>
<thead>
<tr>
<th>Identity</th>
<th>Percent Agreement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gun rights</td>
<td>Coexist with nature (30%) Preserve in protected areas (10%) Preserve ecosystems for humans (5%) Wisely use natural resources (55%)</td>
</tr>
<tr>
<td>Conservationists</td>
<td>Coexist with nature (30%) Preserve in protected areas (15%) Preserve ecosystems for humans (4%) Wisely use natural resources (51%)</td>
</tr>
<tr>
<td>Hunters</td>
<td>Coexist with nature (35%) Preserve in protected areas (10%) Preserve ecosystems for humans (4%) Wisely use natural resources (51%)</td>
</tr>
<tr>
<td>Property rights</td>
<td>Coexist with nature (30%) Preserve in protected areas (10%) Preserve ecosystems for humans (5%) Wisely use natural resources (55%)</td>
</tr>
<tr>
<td>Farmers</td>
<td>Coexist with nature (30%) Preserve in protected areas (10%) Preserve ecosystems for humans (5%) Wisely use natural resources (55%)</td>
</tr>
<tr>
<td>Wildlife advocates</td>
<td>Coexist with nature (30%) Preserve in protected areas (15%) Preserve ecosystems for humans (4%) Wisely use natural resources (51%)</td>
</tr>
<tr>
<td>Environmentalists</td>
<td>Coexist with nature (30%) Preserve in protected areas (15%) Preserve ecosystems for humans (4%) Wisely use natural resources (51%)</td>
</tr>
<tr>
<td>Animal rights/welfare</td>
<td>Coexist with nature (30%) Preserve in protected areas (10%) Preserve ecosystems for humans (5%) Wisely use natural resources (55%)</td>
</tr>
</tbody>
</table>
Mediation

\[ \beta = 0.05, \text{S.E.} = 0.01, 95\% \text{ CI} = [0.03, 0.07] \]

* = \( p < 0.001 \)

Proportion of total effect mediated: 15%

Intrinsic Value + .22 Harm/Care + .35

\[ + .51 \]

Stewardship Behaviors