Evaluating the Spatial Distribution of Intolerance Towards Tigers

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Introduction

- Threats to humans
  - Crop raiding
  - Livestock depredation
  - Attacks on people

- Human Intolerance
  - Not support conservation policies
  - Retaliate by killing animal(s)
  - Poach or harbor poachers

Negative human-wildlife encounters hinder conservation programs
Interaction are fundamentally spatial

- Depredation
- Crop raiding
- Economic conditions
- Vulnerability to wildlife

Impacts on people

Tolerance
Objectives

- Develop a conceptual model characterizing intolerance towards wildlife that incorporates space

- Evaluate determinants of intolerance towards tigers in human settled area adjacent to Chitwan National Park, Nepal
  - Conflicts between tigers and people some of the most severe in the world
  - Tiger attacks on people in Chitwan on the rise

- Evaluate spatial patterns of intolerance
Conceptual Model

Site
(e.g., household)

e.g., negative direct experiences with wildlife, household economic conditions

Local
(e.g., neighborhood)

e.g., neighbor’s experiences with wildlife, physical vulnerability to nearby wildlife

Regional
(e.g., district)

e.g., demographic and socioeconomic indicators characterizing one’s position in society

Intolerance towards wildlife
Study Area

- Chitwan, Nepal
  - Large tiger pop. (~125 adults)
  - Rely on forest products
  - More tiger-human conflicts
  - Swell of negative views
Individual Survey

- Record intolerance and determinants
- 499 individuals
- <2.5 km from the nearest protected forest
# GLM Independent Variables

<table>
<thead>
<tr>
<th>Scale</th>
<th>Factor</th>
<th>Survey Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Site</td>
<td>Tiger threatened/attacked family member</td>
<td>Yes/No</td>
</tr>
<tr>
<td></td>
<td>Tiger attacked livestock</td>
<td>Yes/No</td>
</tr>
<tr>
<td></td>
<td>Household livestock holding</td>
<td>Livestock Standardized Unit (0 – 53)</td>
</tr>
<tr>
<td>Local</td>
<td>Tiger threatened/attacked neighbor or friend</td>
<td>Yes/No</td>
</tr>
<tr>
<td></td>
<td>Heard/read about nearby tiger attack on livestock</td>
<td>Yes/No</td>
</tr>
<tr>
<td></td>
<td>Years living in Chitwan</td>
<td>1 - 59</td>
</tr>
<tr>
<td></td>
<td>Days in forest per year</td>
<td>0 – 365</td>
</tr>
<tr>
<td>Regional</td>
<td>Age</td>
<td>15 - 59</td>
</tr>
<tr>
<td></td>
<td>Gender</td>
<td>Male/Female</td>
</tr>
<tr>
<td></td>
<td>Ethnicity</td>
<td>Upper caste Hindu, Hill Tibeto-Burmese, Lower caste Hindu, Terai Tibeto-Burmese</td>
</tr>
<tr>
<td></td>
<td>Years of formal education</td>
<td>0 – 3, 4 – 7, 8 – 11, &gt;12</td>
</tr>
<tr>
<td></td>
<td>Occupation</td>
<td>Crop farmer, mixed (livestock and crop farmer), business owner, salaried employment, daily wage laborer, student</td>
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</tbody>
</table>
Determinants of Intolerance

- Intolerant towards tigers
  - Less formal education
  - Lower caste Hindu or Terai Tibeto-Burmese
  - Female
  - Threatened/attacked someone in family
Intolerance Towards Tigers

- Determinants of Intolerance
  - Person’s position in society
    - Marginalized groups
  - Education
    - Exposure to diverse world views
  - Ethnicity
    - Access to economic/educational opportunities
  - Gender
    - Women primary users of forests
    - Less decision making power
  - Threats/attacks to family members
    - Low probability – high consequence
Maps of Intolerant Attitudes

A) Do not enjoy having tigers in the area
B) Would be happy if no tigers existed in the nearby forests
C) Would prefer less tigers living in the nearby forests in the next 10 years
D) Do not enjoy having tigers in the area
E) Would be happy if no tigers existed in the nearby forests
F) Would prefer less tigers living in the nearby forests in the next 10 years
Spatial Patterns in Intolerance

Spatial autocorrelation
- Not surveyed
- Not significant
- Significant (intolerance)
- Significant (tolerance)
Discussion

- Western concentration of intolerance
  - Recent and increasing trend of tiger attacks on people in that area
  - Less formal education, people from marginalized ethnic groups
- Eastern concentration of tolerance
  - Comparatively more conservation intervention in that area (e.g., fencing, conservation awareness programs)
Conclusions

- Educational and economic opportunities
- Tolerance towards wildlife will change as one’s position in society shifts
- Maps are ideal tool for management/conservation agencies
  - Identify conflict zones
  - ‘Social’ barriers
- Useful for other human-carnivore interfaces
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