

# Are corridors good for tigers *Panthera tigris* but bad for people? An assessment of the Khata corridor in lowland Nepal

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SUPPLEMENTARY MATERIAL 1 Household survey and interview questions to investigate people's perceptions of tigers *Panthera tigris* and tiger conservation in the Khata corridor linking Bardia National Park in Nepal and Katarniaghat Wildlife Sanctuary in India.

## 1. Household survey

### A. General information

1. Name of respondent:

2. Age and sex:

3. Address:

Ward:            Village:            VDC:            District:            GPS Location:

4. Education:

Illiterate pre-primary    Primary    Secondary    Higher secondary    University

5. Land owned:            With irrigation:            Without irrigation:

6. Livestock holding

Cattle/oxen:    Buffalo:    Goats/sheep:    Boar:    Poultry:    Other:

7. Sources of income for livelihood support (%)

Crop:                      Livestock:                      Employment/labour:                      Other:  
(specify)

8. Has your family suffered any casualties as a result of attacks by tigers or leopards in last 10 years? If yes, please provide information:

From tiger

|        | Place (GPS) | Month/Year | Sex and age of victim |
|--------|-------------|------------|-----------------------|
| Injury |             |            |                       |
| Death  |             |            |                       |

From leopard

|        | Place (GPS) | Month/Year | Sex and age of victim |
|--------|-------------|------------|-----------------------|
| Injury |             |            |                       |
| Death  |             |            |                       |

9. Where do you go to collect resources?

|                              | Wood | Fuel wood | Fodder | Grass | Livestock grazing | Other |
|------------------------------|------|-----------|--------|-------|-------------------|-------|
| National park                |      |           |        |       |                   |       |
| Buffer zone community forest |      |           |        |       |                   |       |
| Community forest             |      |           |        |       |                   |       |
| National forest              |      |           |        |       |                   |       |
| Marginal land                |      |           |        |       |                   |       |
| Own land                     |      |           |        |       |                   |       |
| Other                        |      |           |        |       |                   |       |

B. Attitude and tolerance towards losses to tigers and leopards

10. Do you like tigers and leopards?

Yes (conserve)                      No (eradicate)

11. If yes, why do you like them?

- (a) Beautiful species              (b) Threatened species              (c) Maintains ecosystem  
 (d) Religious reasons              (e) Revenue from tourism

12. If no, why don't you like them?

- (a) Kill livestock                      (b) Attack people

13. Do you like tigers and leopards to be present in the corridor or community forest?

Yes                                      No

14. I support tiger and leopard conservation even if a family member has been killed or injured in an attack.

- (a) Agree                              (b) Neutral                              (c) Disagree

15. I support tiger and leopard conservation even if my livestock are killed.

- (a) Agree                              (b) Neutral                              (c) Disagree

C. Local people's knowledge of tiger and leopard ecology

16. Why do tigers and leopards come out of the forest?

- (a) Insufficient prey in forest                      (b) They prefer livestock  
 (c) Insufficient space to live                      (d) Don't know

17. How has number of prey species of tigers and leopards changed in the past 5 years?

|          | Increased | Decreased | Similar | Don` t know |
|----------|-----------|-----------|---------|-------------|
| Chital   |           |           |         |             |
| Bandel   |           |           |         |             |
| Laguna   |           |           |         |             |
| Nilghodi |           |           |         |             |

18. Have sightings of tigers and leopards increased or decreased in the past 5 years?

|         | Increased | Decreased | Similar | Don` t know |
|---------|-----------|-----------|---------|-------------|
| Tiger   |           |           |         |             |
| Leopard |           |           |         |             |

19. When do tigers and leopards come out of the forest?

- (a) At night                      (b) In the evening                      (c) At mid-day                      (d) In the morning

20. Where do attacks by tigers and leopards on people occur more frequently?

- (a) Inside the park                      (b) Border of national park and buffer zone  
 (c) Buffer zone community forest    (d) Village    (e) Community forest    (f) National forest

D. Conflict management

21. Why are tigers and leopards being killed?

- (a) Retaliation                      (b) Trade of body parts  
 (c) To minimize risk of attacks on livestock and people

22. How can we minimize human–tiger and human–leopard conflict?

- (a) Conservation education    (b) Monitoring and alarming    (c) Compensation for loss  
 (d) Protection of livestock

23. How can you support tiger and leopard conservation?

E. Livestock depredation

24. Where do you graze your livestock?

- (a) National park                      (b) Buffer zone community forest/Community forest  
 (c) National forest                      (d) Private land                      (d) Stall feeding

25. Grazing system

- (a) Grazing without herder    (b) Grazing with herder





### 3. Questionnaire for nature guides/tourism entrepreneurs

1. Name of respondent:

2. Age and sex

3. Address: Ward:                      VDC:                      District:

4. Name of hotel or employer:

5. Why do tourists visit in homestays in the Khata or Dalla areas? (Rank 1 to 9)

Tiger; Leopard; Rhinoceros; Elephant; Birds; Forest; Dolphins at Kothiyaghat; Culture; Education and research

6. What are the major threats to tigers and leopards?

7. Have sightings of tigers and leopards increased or decreased in the past 5 years?

|         | Increased | Decreased | Similar | Don't know |
|---------|-----------|-----------|---------|------------|
| Tiger   |           |           |         |            |
| Leopard |           |           |         |            |

8. Has the number of prey species of tigers and leopards increased or decreased in the past 5 years?

|           | Increased | Decreased | Similar | Don't know |
|-----------|-----------|-----------|---------|------------|
| Chital    |           |           |         |            |
| Wild boar |           |           |         |            |
| Laguna    |           |           |         |            |
| Nilgai    |           |           |         |            |

9. What are the causes of decreases/increases in prey species?

10. What role could nature guides play in mitigating human-tiger and human-leopard conflict?

11. How can human-tiger and human-leopard conflict be minimized?

### 4. Questionnaire for hattisar (elephant stable) staff/mahouts

Name of respondent:

Age and sex

1. Why do tigers and leopards come out of the forest?

(a) Insufficient prey in forest

(b) They prefer to eat livestock

(c) Insufficient space to live

(d) Don't know

2. Has the number of prey species of tigers and leopards increased or decreased in the past 5 years?

|          | Increased | Decreased | Similar | Don't know |
|----------|-----------|-----------|---------|------------|
| Chital   |           |           |         |            |
| Bandel   |           |           |         |            |
| Laguna   |           |           |         |            |
| Nilghodi |           |           |         |            |

3. Livestock loss and human injury as a result of predation in the past 3 years

|                        | By tiger  |           |         |            | By leopard |           |         |            |
|------------------------|-----------|-----------|---------|------------|------------|-----------|---------|------------|
|                        | Increased | Decreased | Similar | Don't know | Increased  | Decreased | Similar | Don't know |
| Cow                    |           |           |         |            |            |           |         |            |
| Buffalo                |           |           |         |            |            |           |         |            |
| Goat                   |           |           |         |            |            |           |         |            |
| Boar                   |           |           |         |            |            |           |         |            |
| Poultry                |           |           |         |            |            |           |         |            |
| Human injury and death |           |           |         |            |            |           |         |            |
| Other                  |           |           |         |            |            |           |         |            |

4. Crop loss and human injury as a result of predation in the past 3 years

|                        | Elephant  |           |         |            | Rhinoceros |           |         |            |
|------------------------|-----------|-----------|---------|------------|------------|-----------|---------|------------|
|                        | Increased | Decreased | Similar | Don't know | Increased  | Decreased | Similar | Don't know |
| Crop raiding           |           |           |         |            |            |           |         |            |
| Property damage        |           |           |         |            |            |           |         |            |
| Human injury and death |           |           |         |            |            |           |         |            |

5. Have you heard of any casualties as a result of attacks by tigers or leopards in the past 10 years? If yes, please provide information:

From tiger

|        | Place (GPS) | Month/Year | Sex and age of victim |
|--------|-------------|------------|-----------------------|
| Injury |             |            |                       |
| Death  |             |            |                       |

From leopard

|        | Place (GPS) | Month/Year | Sex and age of victim |
|--------|-------------|------------|-----------------------|
| Injury |             |            |                       |
| Death  |             |            |                       |

6. What are the major threats to tigers and leopards?

7. Have sightings of tigers and leopards increased or decreased in the past 5 years?

|         | Increasing | Decreasing | Similar | Don't know |
|---------|------------|------------|---------|------------|
| Tiger   |            |            |         |            |
| Leopard |            |            |         |            |

8. Causes of decrease/increase:

9. What role could hattisars play in mitigating human–tiger and human–leopard conflict?

10. How can human–tiger and human–leopard conflict be minimized?

## 5. Questionnaire for protected area managers

Name of respondent:

Age and sex:

1. What types of human–tiger and human–leopard conflict occur outside protected areas? Which is a more serious threat for conservation?

2. How are these conflicts mitigated/minimized?

3. How are problem tigers and leopards managed?

4. Can you suggest better ways of minimizing conflict?

5. What measures can be adopted to increase people's tolerance of losses to tigers and leopards? (Rank 0 for least priority and 4 for highest priority):

Conservation education/awareness

Timely monetary compensation against losses

Effective local participation in management and conservation activities

Implement Integrated Conservation and Development Programmes (ICDPs)

Other (specify)

6. Do you have any record of revenge killing of tigers or leopards? Please give details (number, where, when).



7. How can problem tigers and leopards be managed? (You may choose multiple options.)

(a) Kill            (b) Send to zoo            (c) Capture and release deep in the forest

(d) Translocate to areas with a lower density of tigers and leopards

8. Have you faced any problems in tiger and leopard conservation as a result of human–tiger and human–leopard conflict? Please specify.

9. How can tigers and leopards be conserved in a better way?

TABLE S1 Regulations and activities initiated to conserve tigers *Panthera tigris* and other large mammals in the Khata corridor in south-western Nepal (Fig. 1).

| Regulation/Activity  | Initiated | Comments   |
|--|-----------|--|
| Establishment of community forests                           | 1990s     | To involve local community in conservation & management of forests   |
| Establishment of buffer zone around park                     | 1996      | Regulations regarding grazing of livestock & collection of timber & fuelwood in southern buffer zone extending into Khata                    |
| Watch tower & water hole construction                        | 1997/2010 | For crop protection & ecotourism   |
| Regulation of resource collection (mainly firewood & fodder) | 1998      | Only dead wood & fodder collection allowed in designated areas for short period  |
| Fencing & trenching  | 1998      | To protect regeneration from cattle & prevent elephants & rhinoceros from entering cultivated land   |
| Alternative crop production                                  | 1998      | To reduce crop damage by wild herbivores   |
| Grazing regulation   | 1998/2014 | Partly regulated since 1998, prohibited in most of the corridor since 2014   |
| Conservation education programmes                            | 1998/2014 | To raise awareness about wildlife conservation among school children & local communities   |
| Alternative livelihood & income generation activities        | 1998/2014 | Instalment of biogas, & fish, vegetable & pig farming  |
| Prohibition of timber cutting                                | 2003/2010 | Regulated & prohibited since 2003 & further restricted since 2010 when declared as protected forest  |
| Native tree seedling plantation                              | 2003      | To restore the corridor forest   |
| Compensation   | 2007      | For damage to people, crops, houses, property & livestock  |
| Community-based anti-poaching units                          | 2008      | Mobilization of local youth to control illegal activities in corridor  |
| Declaration of protected forest                              | 2010      | Provided legal basis for forest & wildlife protection  |
| Ecotourism & homestay in villages                            | 2010      | Established with local guides  |
| Pasture improvement  | 2010      | For wild ungulates & livestock: seeding in designated patches, controlled burning, & uprooting of invasive species ( <i>Lantana camara</i> ) |
| Insurance scheme   | 2012      | Against damage to people, crops & livestock  |
| Corral construction  | 2012      | For small stock, mainly against leopards   |
| Stall feeding programme                                      | 2014      | To reduce free grazing in corridor   |