Human Wildlife Conflict in Developing Countries: A Case Study of Nepal

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Introduction

➤ Globally, approx. 6 million sq. miles of land are allocated for national parks (Gray et al., 2016; Melillo et al., 2016)

➤ 300-350 million people living within or nearby parks (World Wildlife Fund, 2018)

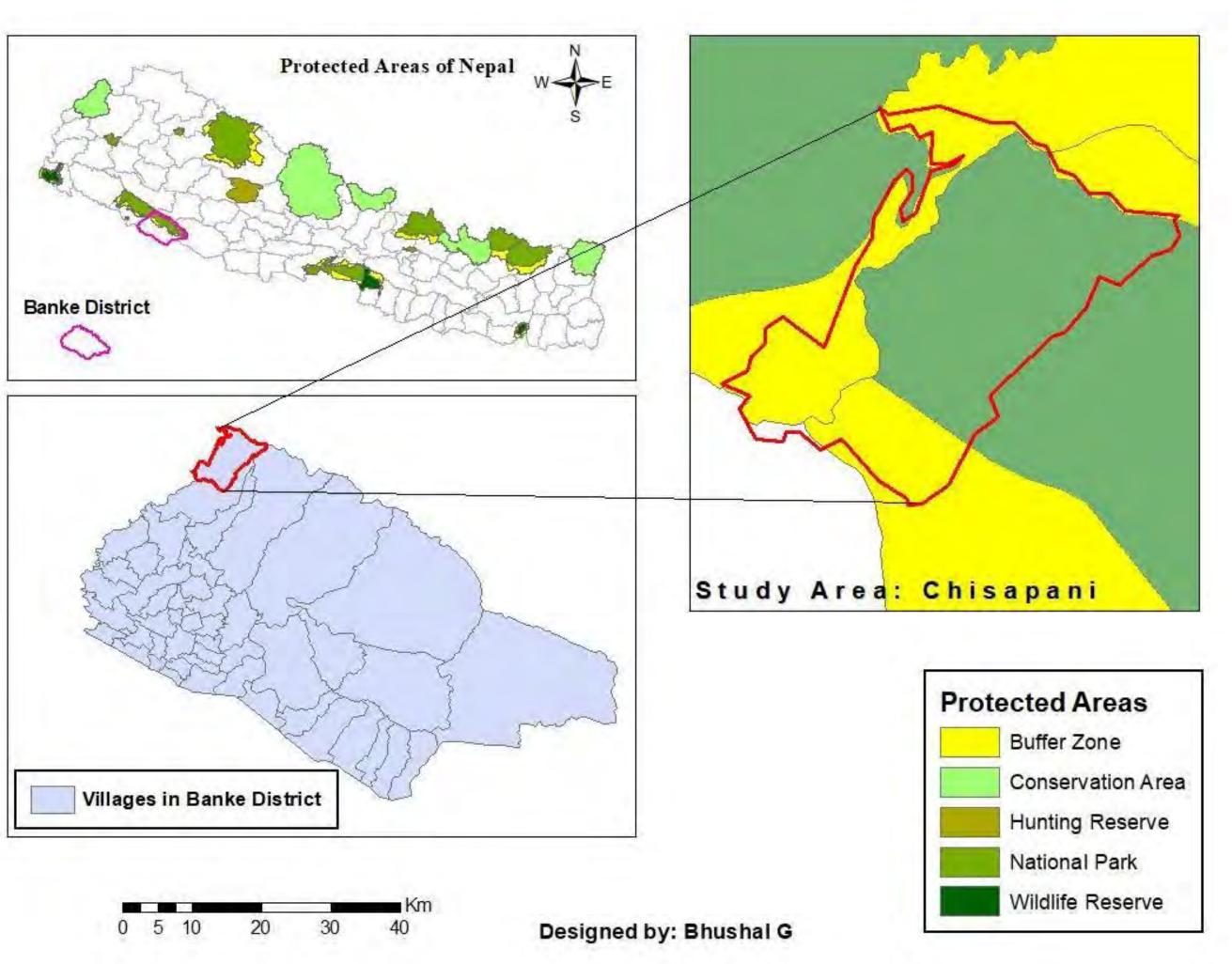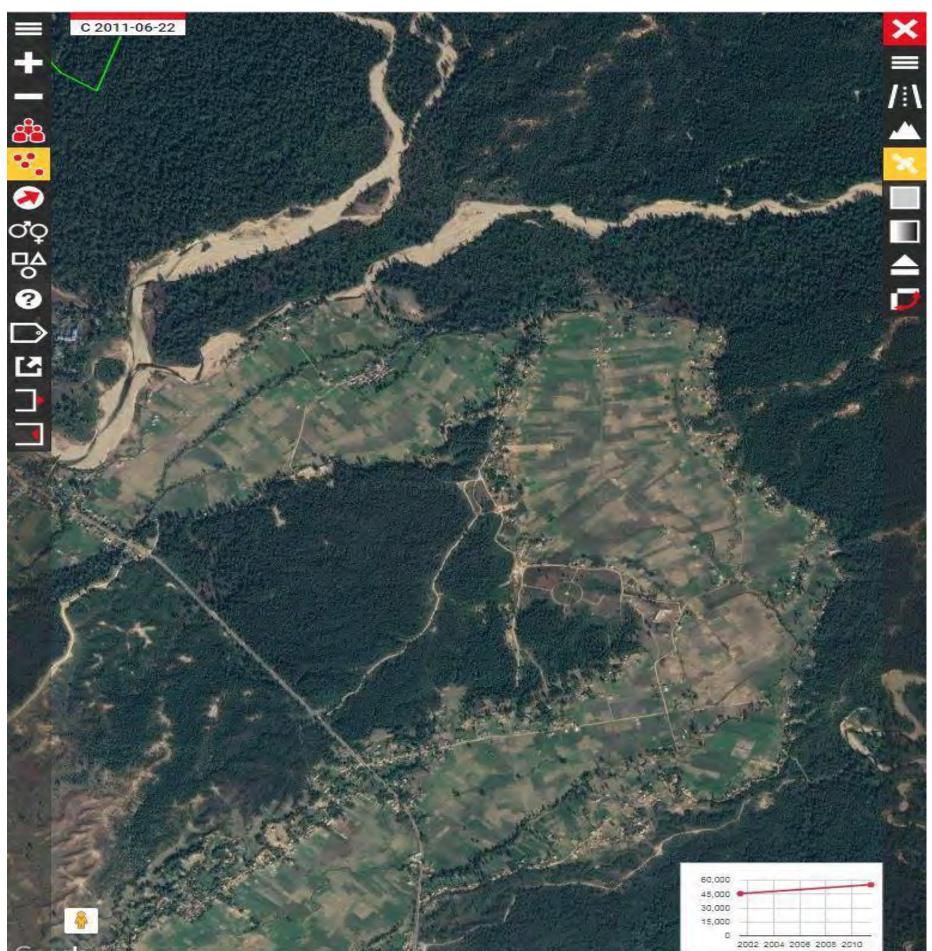➤ Proximity causes heightened human-wildlife conflict (Peterson et al., 2010)

Rationale

➤ Compensation schemes: ex-ante or ex-post (Boitani and Raganella, 2010)

➤ Schemes have been largely ineffective (Madhusan 2003)

➤ People choose not to, or are unable to, report their loss

Objective

➤ To explore the factors influencing the likelihood to report the loss from wildlife

Study Area

Study Area: Chisapani

Protected Areas
- Buffer Zone
- Conservation Area
- Hunting Reserve
- National Park
- Wildlife Reserve

Villages in Banke District

Designed by: Bhushal G

Methods

➤ In-person survey included:

Part I: Socio-demographic background of respondents

Part II: Experience of human wildlife conflict

➤ 197 households were randomly surveyed

➤ Households within 1.5 km from forest were considered

➤ Survey date: July 2017

Theoretical Framework

➤ Dependent variable (Y): "whether the respondent has reported a loss after experiencing human-wildlife conflict"

➤ The probability of a "yes" response was estimated given the independent (X) variables as:

$$\pi(x) = Probability\ (Y = 1 | X = x) = \frac{e^{\alpha + \beta_1 x_1 + \beta_2 x_2 + \cdots + \beta_n x_n}}{1 + e^{\alpha + \beta_1 x_1 + \beta_2 x_2 + \cdots + \beta_n x_n}}$$

Results

➤ All respondents reported crop loss, and about 60% reported livestock death

Table1: Logistic Regression showing only significant variables

Variables	Coefficient (β)	Standard Error (SE)	Level comparisons
Age	**1.63****	**0.65**	**30-39 vs 20-29**
	-0.99	0.54	40-49 vs 30-39
	0.56	0.68	50-59 vs 40-49
	-1.45	0.79	≥60 vs 50-59
Gender	**-0.53****	**0.26**	**Male vs Female**
Family size	0.65	0.71	4-6 persons vs 1-3 persons
	1.14***	**0.43**	**≥7 persons vs 4-6 persons**
Common Leopard	**0.83****	**0.34**	**Yes vs No**
Bengal Tiger	**0.63*****	**0.22**	**Yes vs No**
Asian Elephant	**0.58****	**0.27**	**Yes vs No**

Note: ***and ** indicates significance at α=0.01 and α=0.05 respectively

Conclusions and Policy Recommendations

➤ Statistically significant variables like age, gender, family size, common leopard, Bengal tiger, and Asian elephant were likely to influence the likelihood to report the loss

➤ Age 20-29 population and males in the community should be targeted while disseminating the information about compensation scheme

➤ The compensation scheme should also consider deer, monkey, porcupine, black buck, and wild birds rather than being limited to the current eligible species

Future Work

➤ This research could be expanded to include other parts of the country, and other developing countries that experience challenges with conservation areas

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References

- Boitani, L., Ciucci, P., & Raganella-Pelliccioni, E. (2010). Ex-post compensation payments for wolf predation on livestock in Italy: A tool for conservation? Wildlife Research, 37(8), 722. doi:10.1071/wr10029. Gray, C. L., Hill, S. L., Newbold, T., Hudson, L. N., Börger, L., Contu, S., Scharlemann, J. P. (2016). Local biodiversity is higher inside than outside terrestrial protected areas worldwide. Nature Communications, 7, 12306. doi:10.1038/ncomms12306.
- Madhusudan, M.D. 2003. Living amidst large wildlife: livestock and crop depredation by large mammals in the interior villages of Bhadra Tiger Reserve, South India. Environmental Management 31: 466–475.
- Melillo, J. M., Lu, X., Kicklighter, D. W., Reilly, J. M., Cai, Y., & Sokolov, A. P. (2016). Protected areas' role in climate-change mitigation. Ambio, 45(2), 133–145. http://doi.org/10.1007/s13280-015-0693-1.
- Peterson M.N. , Birckhead J.L. , Leong K. , Peterson M.J. & Peterson T.R. (2010) Rearticulating the myth of human-wildlife conflict . Conservation Letters , 3 , 74 -82 .10.1111/j.1755-263X.2010.00099.x World Wildlife Fund (2018). https://www.worldwildlife.org/habitats/forest-habitat?utm_medium=sociales&utm_source=twitter.com&utm_campaign=forests. Retrieved on 07/05/2018.