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Should the Tigers be Protected?: A Survey on Opinions of Local Inhabitants of Bandhavgarh and Related Social Factors in the Conservation of Tigers

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ABSTRACT

Increased human populations and the resulting encroachment of related anthropogenic land uses into natural landscapes which once afforded wildlife habitats is a global conservation concern. Of particular concern, are the human-wildlife conflicts perpetuated because of human populations' growth in the area where large carnivores occur? These increasing conflicts may further impact the conservation of carnivores because of public concerns for human health and safety and economic impacts on subsistence agriculture. In India, increased population growth has impacted the natural habitats for the Bengal tiger (*Panthera tigris tigris*) and the related conflicts have impacted efforts to conserve the species. To better describe the social factors that may affect large carnivore conservation in India, we surveyed the tiger-affected people, the relatives of the people killed by tigers, and the common villagers in the adjacent villages of Bandhavgarh National Park of Madhya Pradesh in India. All of our questionnaires are related to the protection of tigers and the reasons behind it. This study featured the first assessment and basic data for understanding Bengal tigers in the area of Bandhavgarh Forest.

INTRODUCTION

There was a time when *Panthera tigris* roamed in Russia, Nepal, Bangladesh, India, Vietnam, China, Cambodia, Laos, etc. Yet today this animal has become extinct to 3900 and occupies less than 7% of its historic range (Sanderson et al, 2006) and is now found in 8 countries only: Bangladesh, Bhutan, India, Indonesia, Malaysia, Myanmar, Nepal, and Russia. In spite of continuous and tireless efforts made by international agencies, governments, and local conservation groups (Dinerstein et al., 2007; Scidenstricker et al., 1999) tigers have continued to decline across their range. It is a critically endangered species (Goodrich et al., 2015; Chundawat et al., 2011) due to habitat fragmentation, poaching, diminished prey population, and killings by humans (Aziz et al., 2017; Karanth & Stith 1999; Mcdougal, 1987; Nowell & Jackson, 1996; Nyhus & Tilson, 2004; Wikramanayake et al., 2011).

70% of the world's population of tigers is found in India, with an estimated population number of 2,967 (Government of India, Ministry of

Environment, Forests and Climate change, 2021). There are 53 tiger reserves in India and most of them have shown a substantial increase in tiger population (National Tiger Conservation Authority, Government of India, 19. 09. 2021).

To better manage human-tiger conflicts, managers will need more information regarding public perceptions, and attitudes regarding the nature of the interactions between humans and predators (Knight, 2008; Spash et al., 2009). This information will help managers and decision-makers to develop and implement policies (Clark & Wallace, 1988; Dube, P. P. 2021; Zinn et al., 1998) which may facilitate more effective conservation of tigers (Aldrich et al., 2007; Ojea & Loureiro 2007).

Glikman et al. (2021) relied on the associated concepts of human-wildlife interactions such as co-existence, tolerance, and acceptance as principal merits (Frank, 2016; Pooley et al., 2020; Frank et al., 2019) evaluating the public perceptions in the case of conservation of wildlife. These potential variables, with awareness and knowledge of tigers, are intertwined with socio-cultural and economic

issues and the understanding of these variables indicates a new path to the conservation policies by developing an amicable policy to apply these variables in the long run.

We selected Bandhavgarh National Park (Now BNP) (23°30' to 23°47' N and 80°47' to 81°11' E) and its surrounding villages to serve as our case study. This park lies on the extreme north-eastern border of the Madhya Pradesh State in Central India, and on the northern flanks of the central Satpura Mountain range. The environment of Bandhavgarh may hold up local inhabitants' stimulation for the preservation of tigers but this may counteract by the continuing clashes between the tigers and the

inhabitants of the surrounding areas. Now tolerance and co-existence of humans and tigers in BNP could build up an acceptance condition of how to exist together.

In our case, we used to survey human-tiger conflicts, public awareness, and other important variables in the case of tigers in the Bandhavgarh area. Our objective was to collect the reactions of local villagers, tiger-affected people, and their relatives about the tigers and the ecological balance of their area. We observe from table 1 that the total number of human death is 16 and human injuries is 27 between 2001 to 2011. The details are given in table 1.

Table 1. Human Death and Injury from tiger in Bandhavgarh Tiger Reserve between 2001 to 2011

Human Causalities	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	Total
Death	0	0	0	0	0	2	1	2	2	1	3	11
Injury	0	2	3	1	1	2	1	1	1	2	2	16
Total	0	2	3	1	1	4	2	3	3	3	5	27

Source: Chouksey & Singh, 2018

We selected Bandhavgarh National Park for our study due to the highest population of tigers in the park in India and the increasing interactions between humans and tigers as depicted in Table 1. Across India, the population of tigers estimated in BNP is largely under-studied as BNP retains the most stable population of tigers.

BNP comprises two conservation units - the National Park (448.842 km²) and the Panpatha Wildlife Sanctuary (245.842 km²). The area of the tiger reserve is 1161.471 km² including both the units of the protected area and the buffer area. The altitude of the park varies between 410 m to 811 m. The Park falls mostly in the Umaria district and a chunk of 19.26 km² in Katni District of Madhya Pradesh. The tiger reserve has six ranges namely Tala, Kalwah, Patour, Magdhi, Khitauli and Panpatha (Prakasam 2005). Panpatha is divided into two ranges i.e. Patour and Panpatha. The reserve has earned a reputation worldwide due to the high density of tigers. Our study area was Kaluyava, Garpuri, Sahumahalla, Tala, Dova, Kachwari, Tikuri and Dulhara villages.

MATERIALS AND METHODS

Our study was conducted in March 2018. We have taken the views of grown-up and matured persons over 18 years of our surveyed area.

Emphasis had been placed on the method of collecting answers to the questions by visiting personally each specific house. We made a relationship with our targeted villagers with the help of local people by staying there for two weeks. The local language was Hindi and our survey team (Ashoke Ghosh, Surajit Das, and Tanuka Das) was well-acquainted with the language. Personal communication was helpful here because most of them are illiterate. We also assured the interviewers that their responses would be anonymous. Taking this process was time-imperceptible and also established to enhance the excellence of response for inhabitants. The questionnaire began with a section on the protection of human and cattle lives from tigers. The survey aimed at assessing the following through discrete choice questions grouped in different sections.

It contained: Section A necessary steps taken by the Government to protect human and cattle lives and the questions were given below: (1) opinion of the respondent about the necessary steps taken by the Government to protect the human lives and cattle from the attack of the tigers; (2) the respondent was asked to imagine that the government would have no choice but to introduce a 2% tax to finance a management plan that would guarantee the survival of human life, cattle and

tigers for the next century; (3) If the respondent declared no willingness to pay for the provision of the good in the introductory yes/no questions he was asked to choose a reason among the following list.

- a. I do not want to pay for tiger conservation.
- b. I intend to do so but I cannot afford to pay.
- c. I do not care about cattle and tiger conservation.
- d. The government should deal with this with existing funds.
- e. I do not have enough information to decide.
- f. I object to the way the question is asked.
- g. Society has more important problems than these.
- h. Others
- i. No remarks

Section B contained the questions on awareness of tigers and frequency of contact. There were seven questions in section B and the questions were:

- a. Have you heard of the entrance of a tiger in your locality?
- b. Have you seen a tiger in your locality?
- c. Have any of your acquaintances' fallen prey to tigers?
- d. Do you think that the tiger must be protected?
- e. If one preferred the negative answer to the fourth question then the fifth question was asked, "What is the reason behind it?"
- f. What is your opinion about the number of tigers?
- g. What is the number of tiger sightings in your area compared to the last five years?

Section C contained the feeling toward the tigers of a tiger-affected people, the relatives of a tiger-affected people, and the inhabitants of the surrounding villages of Bandhavgarh. Only four questions were contained in section C. This section was consisted of the questions to relatives of tiger victims or tiger victims and the questions were:

- a. Are you attacked by tigers?
- b. Are you a close relative of tiger-affected people?
- c. If any organization organizes to kill the tigers to protect the human lives and cattle, then what is your opinion about this happening?

- d. If an organization adopts various measures to save human life without killing tigers, then what is your opinion on this issue?

Multiple choices were accepted.

Next section D contained only one question and it was on trust in institutions. The question was: What kind of organizations do you trust for tiger conservation?

Two questions were contained in section E on opinion about Governmental actions.

The questions were:

- a. What is your opinion about the actions taken by the authorities for the conservation of tigers?
- b. What is your opinion about the actions taken by the authorities for the security and safety of the local inhabitants?

There were five questions in section F on attitude towards Bandhavgarh National Park. The questions were:

- a. Whether you or your ancestors were uprooted from the jungle of Bandhavgarh?
- b. Do you the know date or year of uprooting?
- c. Do you get any grants from the government due to uprooting?
- d. What kind of grant or help is given?
- e. Do you want the forest of Bandhavgarh to be uprooted and all the forest lands to be distributed among you?

Surveys were carried out during evening hours (3.00 P. M. – 9.00 P. M.) because the villagers were available then. They return home from the agricultural field and stay home at that time.

RESULTS AND DISCUSSION

We have taken the opinion of four hundred and twenty-four persons. Of the surveyed people numbers of female persons and male persons were eighty and three hundred and forty-four respectively.

On Protection of Human Lives and Cattle

We started with the question (Q 1. i), "What measures do you think the Government can take to prevent the human and cattle deaths from tiger attacks?"

Table 2. Different opinions on preventing measures

Wall	Iron- fencing	Wire mesh	Shifting of inhabitants from core area/ buffer area	Cutting of wide water canal	Surrounding by anything	No remarks
240	40	96	24	8	8	8

57% voted for a wall, 9% gave their verdict on iron fencing, and 22% expected wire mesh. 6% have chosen to shift inhabitants from the core area or buffer area to a safe one. 2% opted for cutting of wide water canal and another 2% voted for surrounding by anything. No remarks were given by 2%. The next hypothetical question (Q 1. ii) was asked to respondents, "Please imagine that the government has no choice but to introduce a 2% tax for 2 years levied upon you to implement the aforesaid management plan. Would you pay the tax?"

Table 4. Reason for not tax paying

a	b	c	d	e	f	g	h	i
	192		200					8

Most of the negative answered people i.e. 50% choose the reason "The government should deal with this with existing funds" whereas 48% selected the reason "I intend to do so but I cannot afford to pay". 2% made no comments. This result showed that they were willing to pay taxes but their financial condition made a hindrance. So they relied on Governmental action.

On Awareness

We started with the first question on the consciousness of the interviewee about tigers in common and the answer was noted as a binary (yes / no) option to the question (Q 2. a). The question was, "Have you heard of the entrance of tiger in your locality?"

Table 5. Entering the tigers in the locality

Yes	No
424	0

Since all of the respondents gave their opinion "yes", then it confirms that tigers enter here and the villagers are aware of it. Next, we moved to the question of awareness (Q. 2 b). The question was, "Have you seen a tiger in your locality?"

Table 6. Seeing the tigers in the locality

Yes	No
392	32

Table 3. Number of tax-payers

Yes	No	No Remarks
0	400	24

No one answered affirmatively. 94% answered negatively but 6% did not comment on this question. This indicates that the surveyed people did not want to give money to the management plan. If the surveyed people voted for no willingness to pay he was asked to choose a reason among the list (Q 1. iii).

92 % responded positively and only 8 % gave negative answers. It showed that villagers' resource of information regarding tigers was linked with the presence of tigers in the Bandhavgarh jungle. Our next question was related to the tiger attack. The next question (Q. 2c) was, "Have any of your acquaintances been attacked by tigers?"

Table 7. Relatives of answerers' attacked by tigers

Yes	No
152	272

Relatives of 36 % of the surveyed people were attacked by tigers. 64 % answered negatively. The next question (Q. 2d) was, "Do you think that the tiger must be protected?"

Table 8. On tiger survival

Yes	No	I do not know
344	16	64

81% answered positively. 15% were puzzled by the question and told us that they did not know what to answer. 4% answered negatively. It indicates that most of the villagers wanted that the tiger should be protected. Our next question, "(If one preferred the negative answer to the question, "Do you think that the tiger must be protected", then the question was asked, "What is the reason behind it?") tried to find out the reason behind the negative answer. All of them answered that they are

poor and living in a destitute condition because there is no factory in Bandhavgarh and only tourism and agriculture are the main sources of earning. The Table 9. On a number of tigers.

Too many	Many	Fine	Less	Too less
80	176	168	00	00

18 % of the surveyed people gave their opinion that the number of tigers had increased 'too many'. 42 % told that it was 'many'. 48 % selected the option 'Fine'. The answers came from the beliefs of the villagers which showed that the number of tigers was increasing in the jungle of Bandhavgarh. The Table 10. On tiger sightings

Much Increased	Increased	Stable	Decreased	Much decreased
80	216	40	88	00

The opinion of 19% of the inhabitants was that tiger sightings had increased. 51% gave their verdict in favor of an increase. Only 9% suggested their view on stability. 21% of respondents thought that the sightings of tigers had declined. Nobody answered much decreased. These types of questions exposed the demographic status of tiger populations and the feedback from the villagers revealed that the sightings of tigers bore an increasing trend.

Question to the tiger-attacked persons and their relatives

Our survey tried to seek the qualities and psychological outcomes of respondents linked to tigers. The questions were set for the tiger-attacked people and their relatives in the Bandhavgarh area. The first question (Q. 3a) was, "Are you attacked by tigers?". All tiger-affected people here were dead except one. That respondent told us that he was attacked by a tiger and crippled by this attack. The next question (Q. 3b) was, "Are you a close relative of tiger-affected people?".

Table 11. Relatives of tiger affected people

Yes	No
88	336

Table 14. Different organizations

Governmental	N. G. O	Panchayet	Local administration	Forest department	No choice	Others
16	16	208	96	40	32	16

They voted 4% for governmental organization, 4% to N.G. O., and 49% to Panchayets (Local administrative councils manned by village leaders). 23% gave their support to local administration and 9% relied on the forest department. 4% choose different organizations but 7% made no choice. Table 14 shows that 65% relied on governmental organizations in different forms.

next question was related to the number of tigers. The question (Q. 2f) was, "What is your opinion about the number of tigers?"

next question was on tiger sightings. The question was (Q. 2g), "What is the number of tiger sightings in your area compared to the last five years?"

Out of the surveyed people 424, 21% were the relatives of tiger attacked people. 79 % told negatively. The next question (Q. 3c) was, "To protect the human lives and cattle if an organization organizes to kill the tigers, tell your opinion".

Table 12. On tiger killings

Supportable	No Opinion	Not Supportable
1	1	422

More than 99% of people did not support the killings of tigers. Only one person supported it and one person did not give an opinion. The next question (Q. 3d) was, "To save human life, if an organization adopts various measures without killing tigers, tell your opinion."

Table 13. Opinion on different measures

Agreeing	Disagreeing
423	1

Most of the surveyed people except one agreed with our proposal.

Trust on Institutions

Here only one question (Q. 4a) was asked to the villagers of Bandhavgarh. The question was, "What kind of organizations do you trust for tiger conservation?"

Public Opinion about Current Governmental Actions

Here the next question (Q. 5a) was, “What is your opinion about the actions taken by the authorities for the conservation of tigers?”

Table 15. On governmental organizations to conserve tigers

Very good	Good	Insufficient	Bad	I do not know (DNK)
00	144	168	56	56

34% selected government measures as good but none selected very good. 40% of the respondents voted against government and selected insufficient whereas 13% chose bad. 13% also went for DNK. Here 53% of the surveyed people were

not satisfied with the actions taken by the authorities. The next question (Q. 5b) was, “What is your opinion about the actions taken by the authorities for the security and safety of the local inhabitants?”

Table 16. On governmental actions for the security and safety of the local inhabitants

Very good	Good	Insufficient	Bad	I do not know (DNK)
00	48	152	224	00

11% selected good but none selected very good. 36% cast their vote in favor of insufficient and 53% of the surveyed people selected bad. None answered DNK. The majority of the respondents that is 89% were not satisfied with the government measures taken for the security and safety of the local people.

On Bandhavgarh Jungle Related

Here the questions were designed with the Bandhavgarh Jungle and the related problems of its inhabitants. The first question (Q. 6a) was, “Whether you or your ancestors were uprooted from the jungle of Bandhavgarh?”.

Table 17. On uprooting

Yes	No	I do not know (DNK)
24	376	24

6% of the surveyed people answered affirmatively but most of the people i. e. 88% told that they had been living here since long ago. 6% were in a dilemma and answered DNK. The next question (Q. 6b) was, “Do you the know date or year of uprooting?”. The uprooted persons did not recollect the year of uprooting. The next question (Q. 6c) was, “Do you get any grants from the government due to uprooting?”

Table 18. On governments grants

Yes	No	I do not know (DNK)
8	9	7

33% of the uprooted people answered affirmatively but 38% responded negatively. 29% chose DNK. The next question (Q. 6d) was, “What kind of grant or help is given?”

Table 19. On types of grant

Service	Money	Land	Home	I do not know (DNK)
00	00	4	00	4

50% of the grant getting people answered land and 50% answered DNK. None selected service, money, and home. The next question (Q. 6e) was, “Do you want the forest of Bandhavgarh to be uprooted and all the forest lands to be distributed among you?”

Table 20. Proposal of uprooting Bandhavgarh jungle

Yes	No	No remarks
3	405	16

95% of the surveyed people answered negatively and 4% did not make remarks. Only 1% of the people replied affirmatively. The persons who answered affirmatively received no compensation from governmental organizations or Non-governmental organizations.

By observing the reactions of the respondents towards tigers their answers related to the protection of tigers came. The answer to the question, “If any organization organizes to kill the tigers to protect the human lives and cattle, then what is your opinion about this happening?”, impressed us. We found that out of 424 people we surveyed 99% that is 422 people answered against tiger killings. Only one person did not give an opinion and one person supported tiger killings by an organization.

To evaluate the inherent environmental and functional importance of tigers, the villagers were requested to evaluate to what level he thinks this species to be “environmentally significant” and further worldwide “optimistic for creatures of the

earth''. The spirit of the answers collected was the giant percentage of surveyed people who replied that if the tiger survives then the jungle of Bandhavgarh will live otherwise the forest will be destroyed by the people in the near future.

After Survey we discussed different propositions. They agreed with all to save the tigers and were interested in measures to save the cattle and human lives also. They told us about different measures like digging a deep canal, erecting a concrete cement wall, and also making an iron fence between the village area and the Bandhavgarh forest. Most of the people in the surrounding villages of Bandhavgarh forest were illiterate but their love for nature and the jungle of Bandhavgarh astonished us. Their subsistence was solely dependent on agriculture and tourism. They were aware of the rules and regulations of the National forest. They were also aware of poaching and habitat destruction of the jungle and also aware of their illegal entrance into the deep core area of the jungle.

CONCLUSION

Our survey finds few attractive characteristics of the inhabitants of the surrounding villages of the Bandhavgarh jungle. They are solely dependent on jungle and tourism but only smaller numbers of them depart outer for service. They are against the illegal and forceful extraction of the local inhabitants residing in the periphery of the jungle by the local authority that may hamper the ecological condition of the National Park.

Our investigations on conflicts between tigers of Bandhavgarh National Park and local inhabitants and also comparative consciousness and community discernment of local inhabitants on *Panthera Tigris* is a pioneer work since no study has been published previously. Our study reveals that the consciousness and social discernment towards tigers and the ecological balance of the Bandhavgarh area are standard but not sufficient.

By observing the different aspects of possible preservation of the Bandhavgarh jungle and the reactions of the local inhabitants, we advocate starting an immediate ecological and environmental campaign to enlighten local inhabitants about the ecological importance and utilitarian significance of Bandhavgarh National Park for wildlife conservation.

We also advocate setting up a management program to protect the predators before the condition deteriorates and ecological research projects are necessitated to corroborate its specific danger point without any delay. The villagers of that locality give their opinion on defending their lives and lives of cattle than merely conserving tigers. For that reason, a management program is required to make clear and deal with the different issues to achieve the inhabitants' support.

Our survey does not observe any distrust of activities of the authority of Bandhavgarh National Park or disobedience of Governmental acts from the view of inhabitants. Most of the people want to save the tigers and jungle and to maintain the ecological balance of that area in spite of their lifelong poverty and misery.

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REFERENCES

- Aldrich, G., Grimsrud, K., Thatcher, J., Kotchen, M., 2007. Relating environmental attitudes and contingent values: how robust are methods for identifying preference heterogeneity? *Environ. Resour. Econ.* 37: 757 – 775.
- Aziz M, A; Tollington, S; Barlow, A; Goodrich, J; Shamsuddoha, M; Islam, A, M; Groombridge, J, J., (2017) Investigating patterns of tiger and prey poaching in the Bangladesh Sunderbans: Implications for Improved Management. *Global Ecology and Conservation* 9: 70 – 81.
- Chouksey, S & Singh, S., 2018. Assessment on the impacts of human-tiger conflict and community-based conservation in Bandhavgarh tiger reserve, Madhya Pradesh, India, *Journal of Threatened Taxa*, 10 (7): 11844 – 11849.

- Chundawat, R. S; Habib,B; Karanth, U; Kawanishi, K; Ahmad Khan, J; Lynam, T; Miquelle, D; Nyhus, P; Sunarto, S; Tilson, R; et al. 2011. *Panthera tigris*, IUCN Red List of Threatened Species, version 2011.2 *International Union for Conservation of Nature*.
- Clark, T. W., Wallace, R. L., 1998. Understanding the human factor in endangered species recovery: an introduction to human social process. *Endanger. Conserv. Biol.* 5: 448 – 454.
- Dinerstein, E., Loucks, C., Wikramanayake, E., Ginsberg, J., Sanderson, E., Seidensticker, J., Forrest, J., Bryja, G., Heydlauff, A., Klenzendorf, S., Leimgruber, P., Mills, J., O'Brien, T.G., Shrestha, M., Simons, R., Songer, M., 2007. *The fate of wild tigers. Bioscience* 57: 508.
- Dube, P. P., 2021. Social factors affecting the conservation of tigers in the Samsher Nagar area of Sunderbans, *Asian Journal of biology*, 12 (2). 12 – 23.
- Frank, B., 2016. Human-Wildlife Conflicts and the Need to Include Tolerance and Co-existence: An Introductory Comment, *Soc. Nat. Resour.*, 29, 738 – 743.
- Frank, B., Glikman, J. A., Marchini, S., 2019. Human-Wildlife Interactions: Turning Conflict into Co-existence, Vol. 23, Cambridge, Cambridge University Press.
- Glikman, J. A., Frank, B., Marchini, S., 2019. Human-Wildlife Interactions, Multifaceted Approaches for Turning Conflict into Co-existence, Chapter 20, P 439 – 452, in Human-Wildlife Interactions: Turning Conflict into Co-existence, Vol. 23, Cambridge, Cambridge University Press.
- Goodrich, J., Lynam, A., Miquelle, D., Wibisono, H., Kawanishi, K., Pattanavibool, A., Htun, S., Tempa, T., Karki, J., Jhala, Y. & Karanth, U. 2015. *Panthera tigris. The IUCN Red List of Threatened Species 2015*: e.T15955A50659951.
- Karanth, U.K., Stith, B.M., 1999. Prey depletion as a critical determinant of tiger population viability. In: Seidensticker, J., Christie, S., Jackson, P. (Eds.), *Riding the Tiger: Tiger Conservation in Human-Dominated Landscapes*. Cambridge University Press, Cambridge, UK: 100–113.
- Kellert, S. R. 1985. Public perceptions of predators, particularly the wolf and coyote. *Biol. Conserv.* 31: 167 – 189.
- Knight, A. J., 2008, “Bats, snakes, and spiders, Oh my!” How aesthetic and negativistic attitudes, and other concepts predict support for species protection. *J. Environ. Psycho.* 28: 94 -103.
- Mcdougal, C. (1987). The man-eating tiger in geographical and historical perspective. In: Tilson, R. L., Seal US, eds. *Tiger of the World: The Biology, Biopolitics, Management, and Conservation of an Endangered Species*, Naves, Park Ridges, NJ, USA: 435 – 8.
- Nyhus, P, J; Tilson, R., (2004) Characterizing human-tiger conflict in Sumatra, Indonesia: Implications for Conservative, *Oryx* 38: 68 – 74.
- Ojea, E., Loureiro, M. L., 2007. Altruistic, Egoistic, and Biospheric Values in Willingness to Pay (WTP) for Wildlife. *Ecol. Econ.*, 63: 807 – 814.
- Pooley, S., Bhatia, S., Vasava, A., 2020. Rethinking the Study of Human-Wildlife Co-existence, *Conserv. Biol.*, 35, 784 – 793.
- Sanderson, E., Forrest, J., Loucks, C., Ginsberg, J., Dinerstein, E., Seidensticker, J., Leimgruber, P., Songer, M., Heydlauff, A., O'Brien, T., Bryja, G., Klenzendorf, S., Wikramanayake, E., 2006. Setting Priorities for the Conservation and Recovery of Wild Tigers: 2005–2015, The Technical Assessment. New York, Washington D.C.
- Seidensticker, J., Jackson, P., Christie, S., 1999. *Riding the Tiger?: Tiger Conservation in Human-Dominated Landscapes*. Zoological Society of London.
- Spash, R. L., Urama, K., Burton, K., Kenyon, W., Shannon, P., Hill, G., 2009. Motives behind willingness to pay for improving biodiversity in a water ecosystem: economics, ethics, and social psychology. *Ecol. Econ.* 68: 955 – 964.
- Wikramanayake, E., Dinerstein, E., Seidensticker, J., Lumpkin, S., Pandav, B., Shrestha, M., Mishra, H., Ballou, J., Johnsingh, A.J.T., Chestin, I., Sunarto, S., Thinley, P., Thapa, K., Jiang, G., Elagupillay, S., Kafley, H., Pradhan, N.M.B., Jigme, K., Teak, S., Cutter,

- P., Aziz, M.A., Than, U., 2011. A landscape-based conservation strategy to double the wild tiger population. *Conserv. Lett.* 4: 219–227.
- Zinn, H. C., Manfredo, M. J., Vaske, J. J., Wittman, K., 1988. Using normative beliefs to determine the acceptability of wildlife management actions. *Soc. Nat. Resource.* 11: 649 – 662.