

See discussions, stats, and author profiles for this publication at: <https://www.researchgate.net/publication/325654067>

Fishing cat camera trapped in Babai Valley of Bardia National Park, Nepal

Article · June 2018

CITATIONS

0

READS

10

7 authors, including:



Shailendra Kumar Yadav

National Trust for Nature Conservation

4 PUBLICATIONS 2 CITATIONS

[SEE PROFILE](#)



Babu Ram Lamichhane

National Trust for Nature Conservation

47 PUBLICATIONS 129 CITATIONS

[SEE PROFILE](#)



Naresh Subedi

National Trust for Nature Conservation

61 PUBLICATIONS 206 CITATIONS

[SEE PROFILE](#)



Maheshwar Dhakal

Ministry of Forests and Soil Conservation, Nepal

72 PUBLICATIONS 188 CITATIONS

[SEE PROFILE](#)

Some of the authors of this publication are also working on these related projects:



Strengthening Capacities for Implementation of the Nagoya Protocol in Nepal [View project](#)



Tiger Conservation [View project](#)

CAT

N° 67 | Spring 2018

news





CATnews is the newsletter of the Cat Specialist Group, a component of the Species Survival Commission SSC of the International Union for Conservation of Nature (IUCN). It is published twice a year, and is available to members and the Friends of the Cat Group.

For joining the Friends of the Cat Group please contact Christine Breitenmoser at ch.breitenmoser@kora.ch

Original contributions and short notes about wild cats are welcome

Send contributions and observations to ch.breitenmoser@kora.ch.

Guidelines for authors are available at www.catsg.org/catnews

CATnews is produced with financial assistance from the Friends of the Cat Group.

Design: barbara surber, werk'sdesign gmbh
Layout: Christine Breitenmoser and Tabea Lanz
Print: Stämpfli Publikationen AG, Bern, Switzerland

ISSN 1027-2992 © IUCN/SSC Cat Specialist Group

The designation of the geographical entities in this publication, and the representation of the material, do not imply the expression of any opinion whatsoever on the part of the IUCN concerning the legal status of any country, territory, or area, or its authorities, or concerning the delimitation of its frontiers or boundaries.

Editors: Christine & Urs Breitenmoser
Co-chairs IUCN/SSC
Cat Specialist Group
KORA, Thunstrasse 31, 3074 Muri,
Switzerland
Tel ++41(31) 951 90 20
Fax ++41(31) 951 90 40
<urs.breitenmoser@vetsuisse.unibe.ch>
<ch.breitenmoser@kora.ch>

Associate Editors: Keith Richmond
Brian Bertram
Sultana Bashir
Juan Reppucci

Cover Photo: Amur leopard
Photo Emmanuel Rondeau

SHAIENDRA KUMAR YADAV^{1*}, BABU RAM LAMICHHANE¹, NARESH SUBEDI¹, MAHESHWAR DHAKAL², RAMESH KUMAR THAPA³, LAXMAN PRASAD POUDYAL⁴ AND BHAGAWAN RAJ DAHAL⁵

Fishing cat camera trapped in Babai Valley of Bardia National Park, Nepal

Fishing cats *Prionailurus viverrinus* are globally threatened. Recent surveys suggest further decline of their populations throughout their range. In Nepal, their status is poorly known. However, due to increasing intensity of camera trap surveys, fishing cats were recorded in different protected areas in recent years. In Bardia National Park BNP of western Nepal, we recorded 15 photos (10 left and 5 right flanks) of fishing cats during a camera trap survey targeted at tigers in winter 2016/2017. Solitary fishing cats were camera trapped at a single location in Babai valley of Bardia during two events within a week. Fishing cat was supposed to exist in Bardia but this is the first conclusive evidence with photographs.

The fishing cat is globally threatened (Vulnerable, Mukherjee et al. 2016) and nationally Endangered (Jnawali et al. 2011). As

a habitat specialist with high dependency on wetlands, fishing cats have a discontinuous distribution throughout their range.

In Nepal, they occur in the Terai region but their actual distribution is not well understood. They have been reported before from Chitwan National Park NP (Dahal & Dahal 2011) and Koshi Tappu Wildlife Reserve WR in Central and Eastern Terai respectively. In Western Terai, they were recorded from Shuklaphanta NP (DNPWC unpublished data) and Jagdishpur reservoir (a Ramsar site; Dahal et al. 2015). Although fishing cats are believed to exist in BNP, conclusive evidence has not been reported before despite various ecological researches on carnivores and extensive camera trap surveys (Odden & Wegge 2005, Wegge et al. 2009, Dhakal et al. 2014). A naturalist (B. Chaudary, pers. comm.) reported the sighting of fishing cat during 1990s to the first author but without photographic evidence. We present here the first photographic evidence of fishing cat in Babai Valley of BNP during the camera trap survey in 2016-2017.

Methods

A camera trap survey primarily targeting tiger, *Panthera tigris*, was conducted between December 2016 and February 2017, covering the entire BNP (968 km², 28°26'15.96" to 28°32'19.65" N/81°12'7.5" to 81°44'26.56" E) and surrounding forests in south-western Nepal. BNP makes part of transboundary Terai Arc Landscape (Wikramanayake et al. 2004) which stretches east-west along southern Nepal and straddles north-west India. The park is drained by two major rivers (Karnali and Babai) and their tributaries. Karnali river and its floodplains in south-western part of Bardia have highly productive alluvial grasslands and riverine forests which support high density of ungulates (Wegge et al. 2009). Babai River passes through the valley in eastern part of the park and creates floodplain through siltation along both sides of the river. The valley comprises different habitats such as riverine forests, tall grasslands, wooded grasslands, mixed hardwood forest, water bodies, sandy banks, sal forest and short grassland. The park provides habitat for rare and globally threatened species such as greater one-horned rhinoceros *Rhinoceros unicornis*, tiger, elephant *Elephas maximus*, sloth bear *Melursus ursinus*, Asiatic black bear *Ursus thibetanus*, striped hyena *Hyaena hyaena*, dhole *Cuon alpinus* and fishing cat.

A total of 269 grid cells of 2 x 2 km² were superimposed on a map of BNP, 257 of these were surveyed in 4 blocks successively. 12 grid cells were not surveyed due to inaccessibility

of the terrain or because they lay in unsuitable tiger habitat. The camera trap location within each grid cell was selected following an extensive survey of tiger signs. At each location a pair of motion sensor camera traps (Cuddeback Attack, Reconyx 500 and Reconyx 550) was installed at 45-60 cm above ground on either side of a game trail, forest road or stream bed, maximising the possibility of tiger capture. Camera traps were checked every day to observe the capture of tiger and other species during the previous night. Cameras were active for a minimum of 15 continuous day/nights in each grid cell. Camera trap photos were given unique identification names with Re-Namer software and sorted species wise in separate folders manually.

Results and Discussion

A total effort of 4,035 trap nights from 257 camera trap locations resulted in 47,871 photographs of 34 mammal species. We recorded a total of 15 photos (10 left and 5 right flanks) of fishing cat in two events from a single location in Babai Valley (Kalinara) of BNP on 31 December 2016 and 5 January 2017 (Fig. 1; Supporting Online Material SOM Figure F1 and Table 1). We compared the photos (Fig. 2) with fishing cat photos of the IUCN Red List website (Mukherjee et al. 2016) and national Red List of mammals of Nepal (Jnawali et al. 2011) to confirm the species identification. All captures were during night hours between 23:02 h and 23:15 h which supports

previous reports of fishing cats being nocturnal (Mukherjee 1989, Sunquist & Sunquist 2002). We could not confirm whether the photographs of solitary fishing cats captured twice at the same location, belong to two individuals or if a single individual was captured repeatedly. At the location where the fishing cat was photographed, also two tiger individuals were recorded. The location was close (60 m) to Babai river bank. Asian elephant, sloth bear, wild boar *Sus scrofa*, chital *Axis axis* and Indian-crested porcupine *Hystrix indica* were also photographed at the location. The field survey team also reported a scat with remains of fish and crabs close (<100 m) to the camera trap location. This scat is likely from a fishing cat, as their diet is chiefly comprised of fish (Nowell & Jackson 1996).

Fishing cat has been reported from different locations in Nepal, west of Koshi Tappu WR both in protected areas (Chitwan, Parsa, Shuklaphanta NP) and outside (Jagdishpur reservoir; Mishra 2013, Taylor et al. 2016, Dahal 2016, S. Poudel, pers. comm.). Whether these populations are connected with each other remains unknown. Extensive camera trapping surveys for tiger monitoring since 2008 corroborated the presence of fishing cat in Suklaphanta WR in the western Terai of Nepal, but failed to photograph it in BNP before (DNPWC/NTNC unpublished data). However, fishing cat has been reported by Mukherjee et al. (2012) in Katarniaghat WS in India which is connected to BNP through a forest corridor (Khata). Habitat in Babai valley of BNP (grassland, wetland, riverine and sal forest) is similar to other Terai protected area where fishing cats are regularly recorded. The fishing cat camera trap location lies at the edge of forests composed of sal *Shorea robusta*, bot dhairo *Lagrostomia parviflora*, sindure *Malotus philipinensis* and saj *Termelinia tomentosa* in the Babai river floodplain. The location lies at 150 m distance from the river channel (water). The canopy cover of the location was relatively open but there was a good ground cover (ca. 80%) of grass dominated by siru *Imperata cylindrical* with average height of one meter and herbs primarily rudilo *Pogostemon benghalensis*. Trees, shrubs and tree seedlings account for remaining 20% of the ground cover. This opportunistic fishing cat record confirms the presence of the species in BNP. As our focus was on the tiger, the camera trap sites may were not optimally placed to

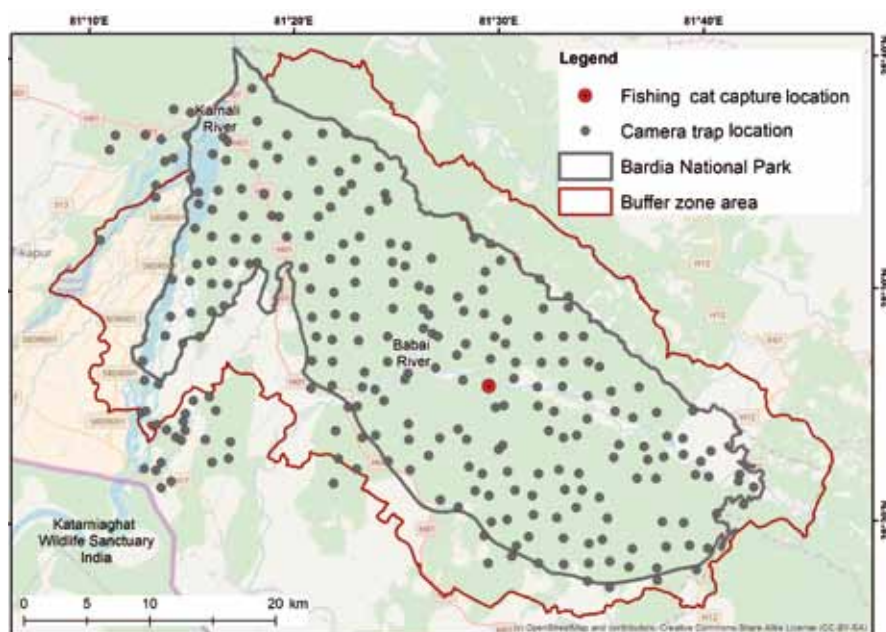


Fig. 1. Camera trap locations and fishing cat capture location in Bardia National Park, Nepal.

Table 1. Details of the camera trap location where fishing cats were photo captured in Bardia National Park.

Particulars	Camera trap grid ID 167
GPS Coordinates	28°25'52.5"N / 81°29'27.384"E
Elevation (m)	224
No. of photo & events	15 photos (10 left, five right flank), two events
Duration of camera trap	27 Dec 2016 – 10 Jan 2017
Photo capture date and time	31 Dec 2016, 23:15 and 05 Jan 2017, 23:02
Terrain /habitat	Flat / Mixed forest
Nearest distance to village	12 km
Other mammal species captured at the same station	tiger, Asian wild elephant, chital, Indian crested porcupine and red muntjac <i>Muntiacus muntjac</i>

capture fishing cats. We did not obtain fishing cat photographs from Karnali floodplain in south-west corner where a naturalist (B. Chaudhary, pers. comm.) has reported the sighting of fishing cat during 1990s. As the Babai and Karnali River system along with oxbow lakes consists of high fish diversity (>70 species) and abundance (WWF Nepal 2006), BNP could support a good population of fishing cat. Thus, a targeted study is necessary to understand the distribution, threat level and population status of fishing cats in the region.

Acknowledgements

The camera trap survey was a collaborative effort of the Government of Nepal, Ministry of Forest and Soil Conservation, Department of National Parks and Wildlife Conservation, Department of Forests, National Trust for Nature Conservation and Zoological Society of London ZSL, Nepal. We would like to acknowledge all field technicians and team members involved in the survey.

References

Dahal S. & Dahal D. R. 2011. Trapping of fishing cat in Chitwan National Park, Nepal. *Cat News* 55,10-11.

Dahal S., Baral S., Nepal M. Neupane K. R. & Dahal B. V. 2015. Status of fishing cat in Jagdishpur Reservoir and Ghodaghodi Lake and assessment of threat. A report submitted to Mohamed bin Zayed Species Conservation Fund.

Dahal S. 2016. fishing cats outside protected areas in Nepal Terai. In Proceedings of the First International fishing cat Conservation Symposium. Appel A. & Duckworth J. W. (Eds), 25–29 November 2015, Nepal. fishing cat Working Group, Bad Marienberg, Germany and Saltford, Bristol, United Kingdom. pp. 27-28.

Dhakal M., Karki Thapa M., Jnawali S.R., Subedi N., Pradhan N.M.B., Malla S., Lamichhane B. R., Pokheral C. P., Thapa G. J., Oglethorpe J., Subba S. A., Bajracharya P. R. & Yadav H. 2014. Status of tigers and prey in Nepal. Department of National Parks and Wildlife Conservation, Kathmandu, Nepal. 74 pp.

Jnawali S. R., Baral H. S., Lee S., Subedi N., Acharya K. P., Upadhyay G. P., Pandey M., Shrestha R., Joshi D., Lamichhane B. R., Griffith J., Khatriwada A. & Amin R. (compilers) 2011. The Status of Nepal's Mammals: The National Red List Series. DNPWC. 266 pp.

Mishra R. 2013. Conservation status of the fishing cat in Chitwan National Park, Nepal. MSc thesis, Central Department of Zoology, Tribhuvan University, Kathmandu.

Mukherjee S., Appel A., Duckworth J. W., Sanderson J., Dahal S., Willcox D. H. A., Herranz Muñoz V., Malla G., Ratnayaka A., Kantimahanti M., Thudugala A., Thaug R. & Rahman H. 2016. *Prionailurus viverrinus*. The IUCN Red List of Threatened Species 2016: e.T18150A50662615. Downloaded on 14 June 2017.

Mukherjee S., Adhya T., Thatte P. & Ramakrishnan U. 2012. Survey of the fishing cat *Prionailurus viverrinus* Bennett, 1833 (Carnivora: Felidae) and some aspects impacting its conservation in India. *Journal of Threatened Taxa*, 4, 3355-3361.

Mukherjee S. 1989. Ecological separation of four sympatric carnivores in Keoladeo National Park, Bharatpur, Rajasthan, India. Dissertation submitted to the Saurashtra University, Rajkot, India, in partial fulfillment of Master's degree in wildlife science.

Nowell K. & Jackson P. 1996. Wild Cats. Status Survey and Conservation Action Plan, IUCN/SSC Cat Specialist Group, Gland, Switzerland. 382 pp.

**Fig. 2.** Camera trap photograph of fishing cat (2016–2017; Photo DNPWC/NTNC).

Odden M. & Wegge P. 2005. Spacing and activity patterns of leopards *Panthera pardus* in the Royal Bardia National Park, Nepal. *Wildlife Biology* 11, 145-152.

Sunquist M. & Sunquist F. 2002. Wild cats of the world. Chicago University Press, Chicago. 462 pp.

Taylor I. R., Baral H. S., Pandey P., & Kaspal P. 2016. The conservation status of the fishing cat *Prionailurus viverrinus* Bennett, 1833 (Carnivora: Felidae) In Koshi Tappu Wildlife Reserve, Nepal. *Journal of Threatened Taxa* 8, 8323-8332.

Wegge P., Odden M., Pokheral C. P. & Storaas T. 2009. Predator-prey relationships and responses of ungulates and their predators to the establishment of protected areas: a case study of tigers, leopards and their prey in Bardia National Park, Nepal. *Biological Conservation* 142, 189-202.

Wikramanayake E., McKnight M., Dinerstein E., Joshi A. R., Gurung B. & Smith D. 2004. Designing a conservation landscape for tigers in human-dominated environments. *Conservation Biology* 18, 839-844.

WWF Nepal 2006. Status, Distribution and Conservation Threats of Ganges River Dolphin in Karnali River, Nepal. WWF Nepal, Kathmandu. 44 pp.

Supporting Online Material Figure F1 is available at www.catsg.org.

- ¹ National Trust for Nature Conservation NTNC, POB 3712, Kathmandu, Nepal
*shailendrayadav69@gmail.com
- ² Ministry of Forest and Soil Conservation MoFSC, Kathmandu, Nepal
- ³ Bardia National Park BNP, Thakurdwara, Bardia
- ⁴ Department of National Parks and Wildlife Conservation DNPWC
- ⁵ Zoological Society of London ZSL Nepal

Yadav S. K., Lamichhane B. R., Subedi N., Dhakal M., Thapa R. K., Poudyal L. and Dahal B. R. 2018. Fishing cat camera trapped in Babai Valley of Bardia National Park, Nepal. *Cat News* 67, 31-33. Supporting Online Material.



SOM F1. Camera trap photograph of fishing cat (2016-2017) a) right and b) left flank (Photos DNPWC/NTNC/ZSL Nepal).