

ADVANCES IN WILDLIFE RESEARCH WITH SPECIAL EMPHASIS ON SLOTH BEAR CONSERVATION IN INDIA

IBA Experience and Exchange Grant 2023-24



Dr Nishith Dharaiya
WCB Research Foundation

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FIELD BASED TRAINING ON

ADVANCES IN WILDLIFE RESEARCH WITH SPECIAL EMPHASIS ON SLOTH BEAR CONSERVATION IN INDIA

JOINTLY ORGANISED BY

WCB Research Foundation, India & Department of Wildlife,
Forestry and Environmental Science, Guru Ghasidas
Vishwavidyalaya, Bilaspur, Chhattisgarh

SUPPORTED BY

International Association for Bear Research & Management
(IBA), USA

VENUE

Guru Ghasidas Vishwavidyalaya, Bilaspur & Marwahi Forest
Range, Chhattisgarh

TRAINING DURATION

26th February - 1st March 2024



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ACKNOWLEDGEMENTS

I am grateful to the International Association for Bear Research & Management (IBA), USA for financial assistance to organise this training program under the IBA Experience and Exchange Grant. I sincerely acknowledge the financial and logistic support by Wildlife and Conservation Biology (WCB) Research Foundation- India in making this training successful.

Thanks are due to Prof. Alok Kumar Chakrwal, the Vice Chancellor of Guru Ghasidas Vishwavidyalaya, Bilaspur (Chhattisgarh) for accepting my request to host this training program in the department of Forestry, Wildlife and Environmental Science and extending all the infrastructural facilities during the training.

The field exercises were conducted at the Marwahi Forest area; I sincerely thank the Deputy Conservator of Forests, of Marwahi forest division for necessary permission, lodging and boarding facilities provided by the forest department.

I would like to thank the key resource persons, Dr Ajay Kumar Singh, Mr Pratik Desai, Mr Ashutosh Anand, Ms Sakhi Dabhi and Ms Neelu Soni, who have delivered their talk on different aspects of bear habitats and biology. A special thanks to Ms Akriti Tamrakar for hosting the inauguration and valedictory functions of the training program. A word of thanks to Ms Keren Pereira for helping to draft this report and Mr Mayank Judal for designing this report.

Finally, I am thankful to all the young researchers from different states of India who have participated in the training and shared their experience and knowledge with us.

~Nishith Dharaiya





WCB RESEARCH FOUNDATION

The Wildlife and Conservation Biology (WCB) Research Foundation is a non-profit organisation registered with the Government of India, established in September 2020. The foundation was established with the goal of accelerating action-oriented research and enhancing the capacity of students for research and development in the field of wildlife and conservation biology. We are committed to science-based conservation and outreach activities through research and development.

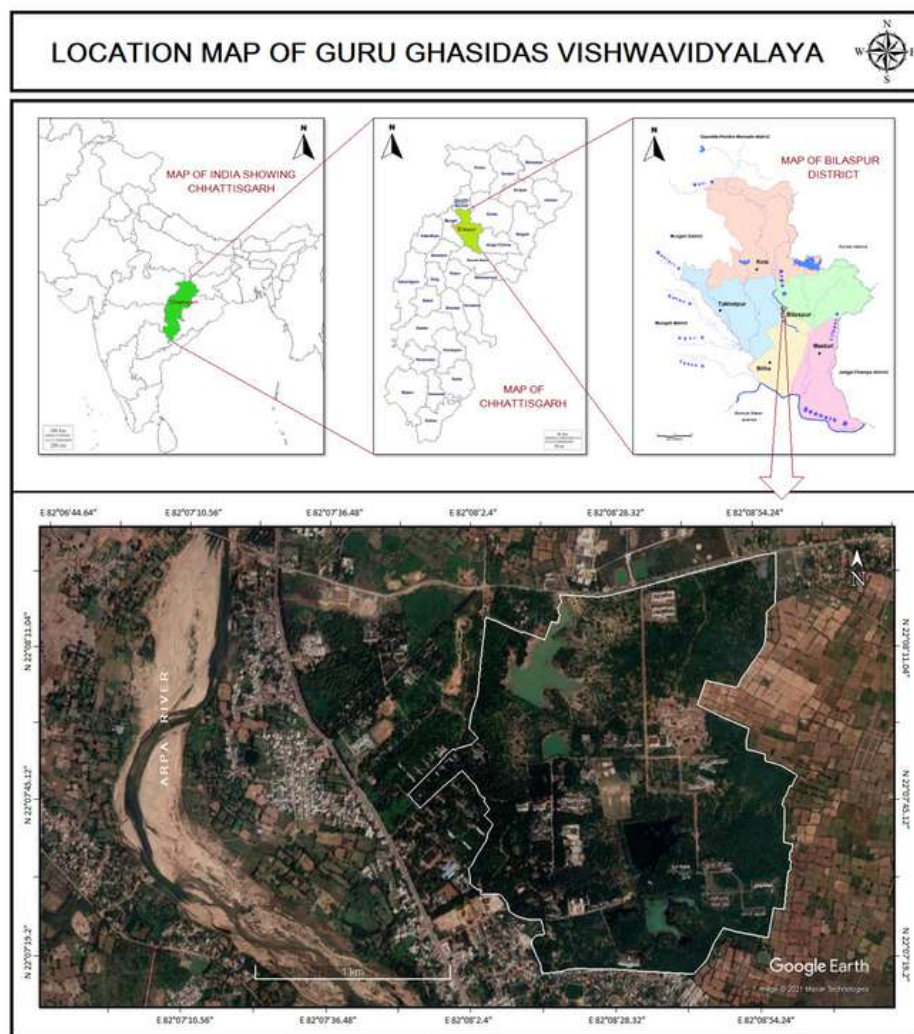
We offer and encourage exchange programmes with organisations and institutes with similar interests and are open to bilateral programmes related to wildlife and conservation biology. Currently, we have four ongoing research and conservation projects in different parts of India.

Our goal is to encourage young students to make their careers in the field of wildlife conservation and enhance their capacity through training and workshops.

TRAINING LOCATIONS

Guru Ghasidas Vishwavidyalaya is a Central University of India, located in Bilaspur, Chhattisgarh State. Guru Ghasidas Vishwavidyalaya campus is a home to rich flora and fauna. The campus is distributed over an area of 650 acres with four ponds and lush green vegetation which makes a perfect habitat for various organisms. It supports more than 300 species of plants, 150 species of birds, 50 species of butterflies, 17 species of snakes, and other diverse flora and fauna. The campus has ample green cover, which can be considered as an example of the co-existence of various types of mini-ecosystems.

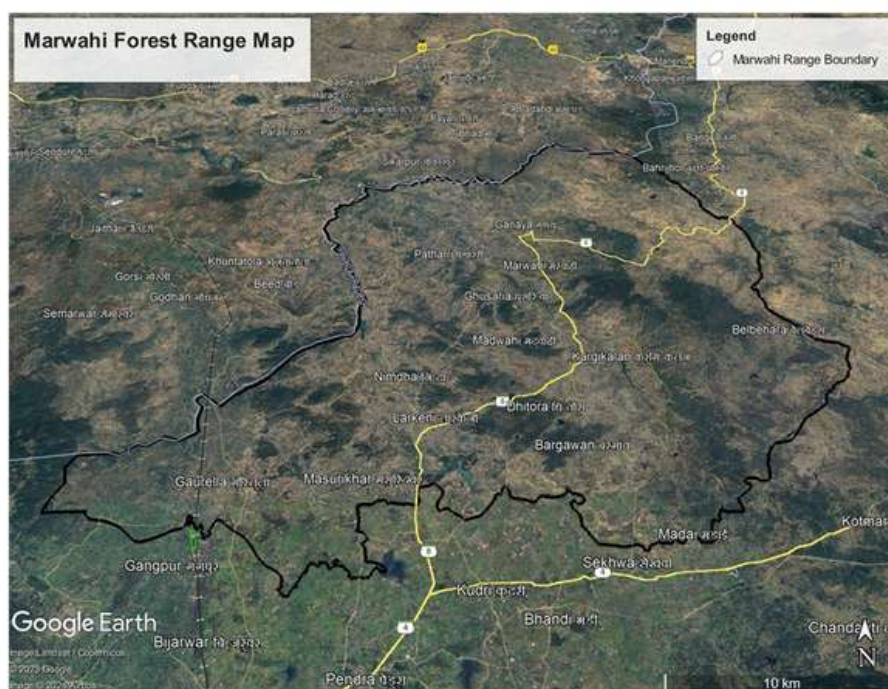
The classroom sessions of the training program were held at the Department of Forestry, Wildlife & Environmental Sciences of Guru Ghasidas University, the department was established in the year 1989 to provide a professional workforce for state forest departments of the country. The Bachelor of Forestry, Masters of Forestry and Environmental Sciences and Ph.D. in Forestry and Environmental Sciences are the main academic programs of the department.



Marwahi Forest Division

The field exercises were performed in Marwahi forest, one of the sloth bear habitats in central India. The Marwahi Forest Division is a part of Bilaspur Circle and comprises four ranges viz. Marwahi, Pendra, Gaurela, Khodri. The forest cover is highly degraded, fragmented and interspersed with agricultural crop fields, human settlements and small townships. The topography of the area is undulating, interspersed with a chain of hillocks and rocks. Some of the hillocks are scattered and surrounded by villages; these hillocks with big boulders provide shelter to wild animals including sloth bears. The elevation of hillocks varies between 450-1050 MSL. Besides the Son river, there are seasonal streams and nullahs. The area experiences three distinct seasons i.e. winter (November-February), summer (March-June) and monsoon (July-October). Temperature fluctuation in this area is significant during nighttime. Rainfall and temperature vary with changes in altitude and topography.

The vegetation type of this forest division is categorised under the Eastern Deccan biogeographical zone (Rodgers and Panwar, 1988). Champion and Seth (1968) classified the forest types of the area as Dry Deciduous Peninsular Sal forest (5B/C1, C), Northern Tropical Dry Mixed Deciduous forest (5B/C2), and Northern Tropical Secondary Moist Mixed Deciduous forest (3C/C3). Important tree species are *Shorea robusta*, *Tectona grandis*, *Diospyros melanoxylon*, *Madhuca longifolia*, etc. Wild animals found here include Sloth bear (*Melursus ursinus*), Leopard (*Panthera pardus*), Spotted deer (*Axis axis*), Hyena (*Hyaena hyaena*), Indian fox (*Vulpes bengalensis*), Wild Pig (*Sus scrofa*), Common langur (*Semnopithecus entellus*), Rhesus macaque (*Macaca mulatta*), and Indian porcupine (*Hystrix indica*).



ABOUT THE TRAINING PROGRAMME

The field-based training on “Advances in Wildlife Research with special emphasis on Sloth bear Conservation in India” was organised in association with the Department of Forestry, IBA and WCB Research Foundation to enhance the capacity of young researchers to conduct research and monitoring of bears and their habitat in India. This field-based training was designed to introduce the contemporary field techniques used in bear research and monitoring and provide a hands-on experience so that the participants can employ these techniques in their respective areas of interest, and aid the conservation of the four species of bears in India.

WCB has been organising such training programmes since 2015 through HNG University of Gujarat to encourage researchers to study different aspects of bear ecology. Previous training was conducted for both forest field staff and students with a wildlife background. This time, we exclusively selected young researchers in the field of wildlife conservation to participate as we aimed to motivate as many individuals as we could to work towards sloth bear conservation in India through this training. We are grateful to IBA, the global bear research and conservation organisation for supporting this training programme through the ‘Experience and Exchange’ grant.

Participants were able to build their problem-solving and communication skills and link to a strong community of practice created by the WCB and International Association for Bear Research and Management since 2010.

The main objectives of this training course are...

- To encourage science-based monitoring and assessment of bears and bear habitats.
- Identifying the research problems and designing effective methodology whilst using the recent techniques available, especially for bears.
- To generate a community of practitioners who can conduct effective research on bears that help in the conservation of bears and their habitats.

INAUGURATION SESSION

The training programme was inaugurated on 26th February, 2024 by the Dean of the Department of Forestry and Wildlife in the presence of Dr. Nishith Dharaiya, the Course Coordinator and the founder of the WCB Research Foundation, Dr. Ajay Singh, Assistant Professor at the Department of Forestry, Wildlife and Environmental Sciences, Guru Ghasidas Vishwavidyalaya, Chhattisgarh, and the other resource persons and faculty members of the university.

During the inaugural ceremony, Dr. Nishith Dharaiya provided the participants and guests with brief information about the training course, venue, and activities organised during the training period. Dr. Dharaiya also explained the significance of conducting this training for young and aspiring people in the field of wildlife conservation. He emphasised the importance of managing sloth bears and associated wildlife through recent scientific techniques.

After all the guests addressed the participants, everyone visited the in-house flora museum for a guided tour, which contained specimens of the floral species found within the GGU campus and the various products made by local people using the plant parts of the species found in the region. Following this visit, the participants were gathered in a smart classroom where they were divided into pairs and were asked to give brief introductions of the person they were paired with, serving as an interactive ice-breaker to get the training started.

Dr Nishith Dharaiya addressing the participants in inaugural function



Table 1: Different topics covered in the training program

Topic	Resource person	Classroom/Field
Bears of the world and their conservation status	Dr Nishith Dharaiya	Classroom
Conventional methods of studying mammals and their habitats	Dr Nishith Dharaiya	Classroom
An overview of the forest and biological diversity of northern Chhattisgarh	Dr Ajaykumar Singh	Classroom
Camera trapping theory, applications, and demonstration	Pratikkumar Desai	Classroom, Field
Field data collection	Pratikkumar Desai	Field
Preparation of field datasheet	Pratikkumar Desai, Ashutosh Anand, Sakhi Dabhi	Classroom
Field work for deploying camera traps	Pratikkumar Desai, Ashutosh Anand, Sakhi Dabhi	Field
Compilation of field data	Pratikkumar Desai, Ashutosh Anand	Classroom
Presentation of field data	Sakhi Dabhi	Classroom
Human-sloth bear conflicts and their mitigation	Dr Nishith Dharaiya	Classroom
GIS and ecological modelling	Pratikkumar Desai	Classroom and Field
GIS Practice	Pratikkumar Desai	Classroom
Opportunities in bear research in India	Dr Nishith Dharaiya	Classroom
Grant writing protocols	Dr Nishith Dharaiya	Classroom
Participants develop their projects with mentors		Classroom
Genetic and microbiological analysis of non-invasive samples	Neelu Soni, Sakhi Dabhi	Classroom
Participant project presentation	Sakhi Dabhi	Classroom
Valedictory function		Classroom

CLASSROOM SESSIONS

The classroom sessions were conducted in a smart classroom in GGU. The participants were asked to continue working with their pairs to ensure maximum opportunity for interaction and exchange of knowledge. During the five-day programme, 15 offline classroom sessions were held. The sessions were conducted by the experts from the WCB Research Foundation (Table 1). An online call was organised with Dr Jennapher Teunissen van Manen, the Director of the International Association for Bear Research & Management (IBA), USA. She spoke about the work carried out by the IBA, how crucial it is to conserve the vulnerable sloth bear and its habitats, and encouraged questions from the participants. After all the sessions were done for the day, an Open Forum was conducted where participants were asked to provide honest feedback on the training sessions for that day and provide suggestions, if any.

Though optional, participants were encouraged to prepare their own project proposals and work with assigned mentors. Five participants presented their proposals on the final day of the training and were evaluated by the WCB Research Foundation team and other participants by posing various questions on their topics. This gave them much-needed insights into drafting project proposals, defending their project ideas, and presenting their work. Two of the five project proposals were selected as in-house projects of WCB Research Foundation which would receive mentorship and funding support from the WCB Research Foundation itself.

Participants interacting with Dr Jennapher Teunissen van Manen (Director of Operations, IBA)



Classroom session by Dr Nishith Dharaiya



Organisers of the Training



Field Based Training on Sloth bear
2024

**Session on Sloth bear Microbiology
by Ms Sakhi Dabhi**



**Open forum
by Neelu and Sakhi**



**Session on Sloth bear Genetics
by Neelu Soni**



FIELD SESSIONS

Based on the classroom sessions, several field sessions were conducted in the forests of the Marwahi Forest Division. Prior to heading out to the field, the participants were trained to prepare their own datasheets and use GPS devices as well as using mobile applications. Upon reaching the field station, the participants had the special opportunity to meet and interact with the frontline field staff, Forest Rangers and Officers from the Marwahi Forest Division; the Deputy conservator of forests has answered questions posed by the participants and shared their instances of sloth bear sightings, interactions and more, from their jobs in the forest.

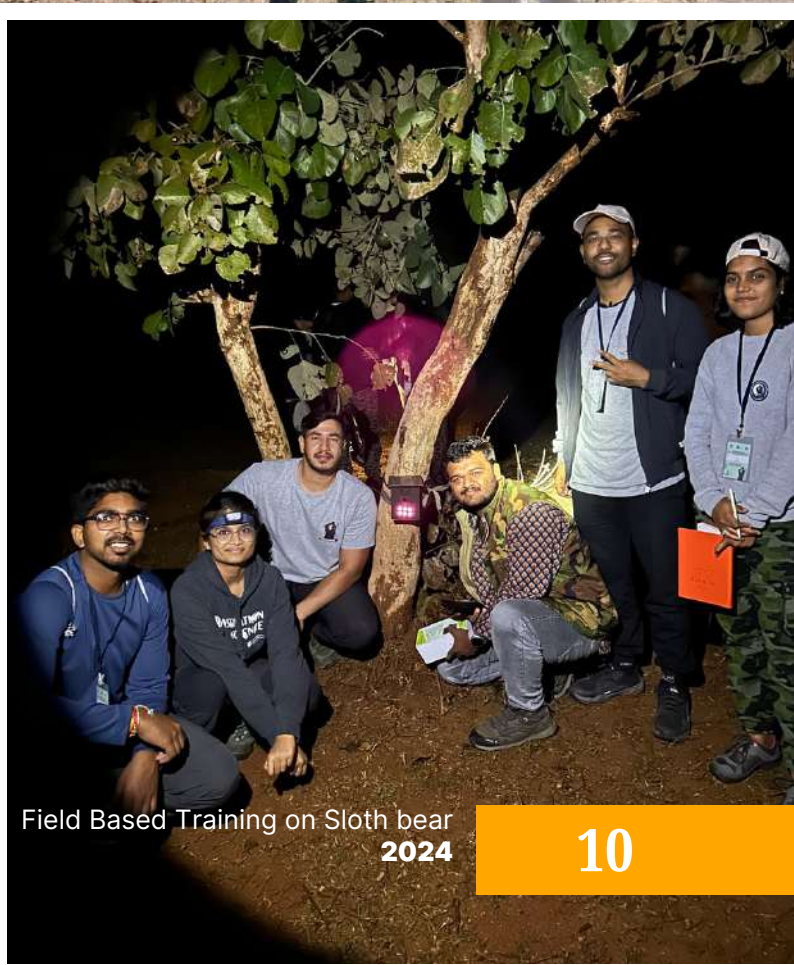
For the first field session, the participants were divided into small groups of 4-5 individuals and assigned a team leader. Each group was dropped off at different locations with the Forest Division where they then conducted field surveys to identify sloth bear signs such as scats, scratch marks, destroyed termite mounds, and holes in the ground.

The second field session involved the deployment of camera traps by the groups to different sites around the field station. The survey data and the camera trap footage were later analysed after returning to the classroom in Bilaspur.





**Demonstration of Camera Trapping
by Mr Pratikkumar Desai**



**Field Based Training on Sloth bear
2024**

Training Outcomes

- Capacity building of young researchers in the field of wildlife conservation focusing on sloth bear research
- Increased awareness about sloth bears and other Indian bear species.
- Learning of advanced research techniques such as genetic analysis, bear microbiology, GIS mapping



VALEDICTORY SESSION

The training programme culminated in a valedictory session hosted by Miss. Aakriti Tamrakar from GGU, Bilaspur. The function was presided by Prof Alok Chakrawal, the Vice Chancellor of Guru Ghasidas University. The other dignitaries from the university were invited as special guests for this session. Participant feedback was sought out during this time where they highlighted the most important learnings they received from the training. All the trainees received certificates proving they had successfully completed the training programme. Two of the participants who presented their project proposals were rewarded for the best work and granted the special opportunity to carry out their projects as WCB Research Foundation's in-house projects. These participants were also awarded by the hon'ble Vice Chancellor for being the best trainee (Miss. Keren Pereira) and the best trainee in the field (Mr. Pankaj Bhure) among the participants for the training.

Valedictory function presided
by Dr Alok Kumar Chakrawal





**Best Trainee
(Keren Pereira)**

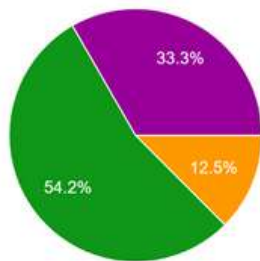


**Best Trainee in the field
(Pankaj Bhure)**

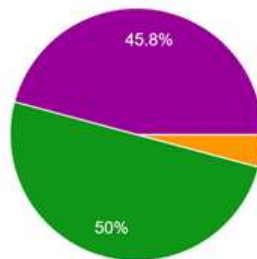


PARTICIPANT FEEDBACK

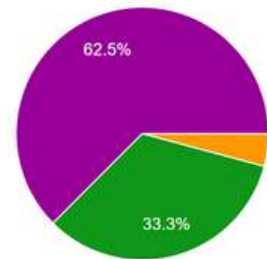
● Need Improvements ● Not bad ● Average ● Good ● Excellent



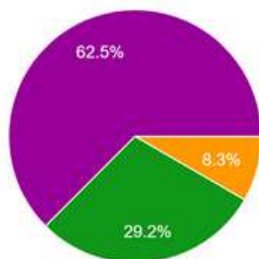
Registration Process



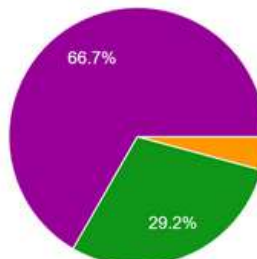
Pre-training communication



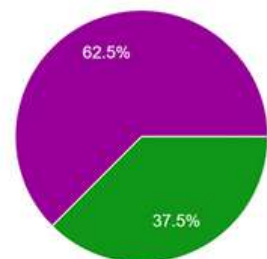
Accommodation



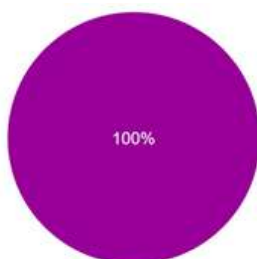
Food



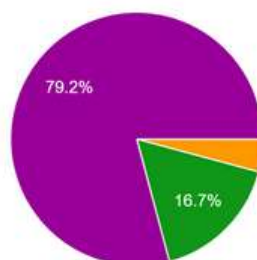
Training kit and reading material



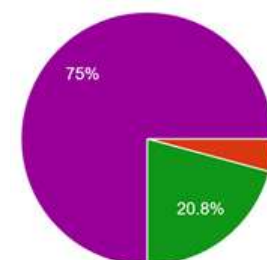
Course Curriculum



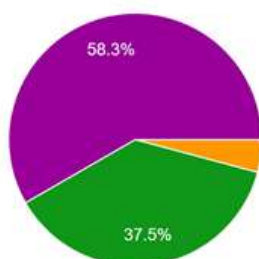
Course Instructors



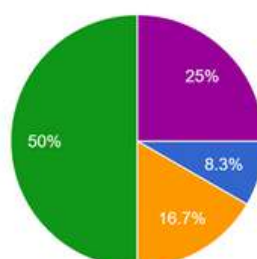
Session 1
(Bears of the world and
their conservation status)



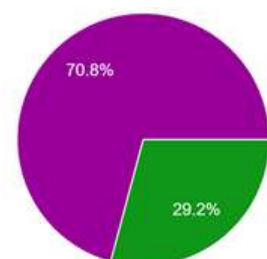
Session 2
(Conventional methods
for mammals)



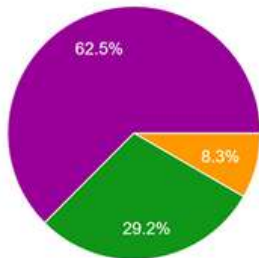
Session 3
(Camera trapping)



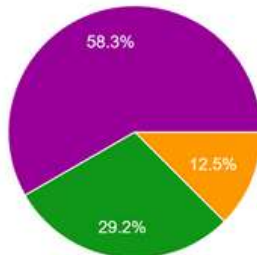
Field work



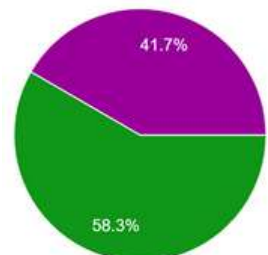
Session 4
(Human-sloth bear conflict)



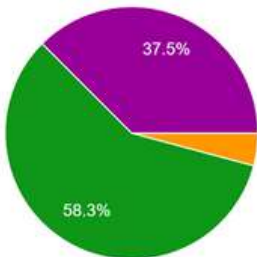
**Session 5
(GIS)**



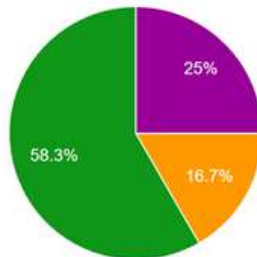
**Session 6
(Opportunities in
bear research)**



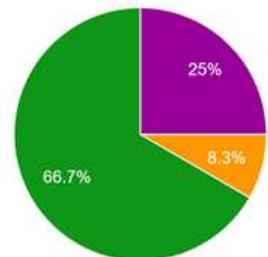
**Session 7
(Grant writing protocols)**



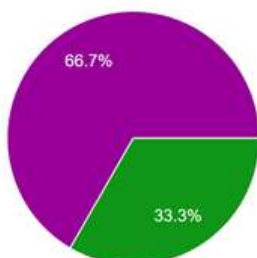
**Mentoring for
writing projects**



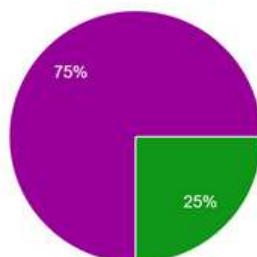
**Session 8
(Genetics)**



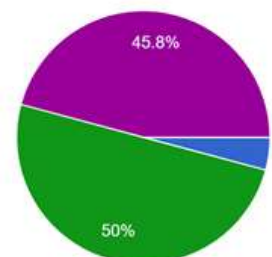
**Session 9
(Wildlife Microbiology)**



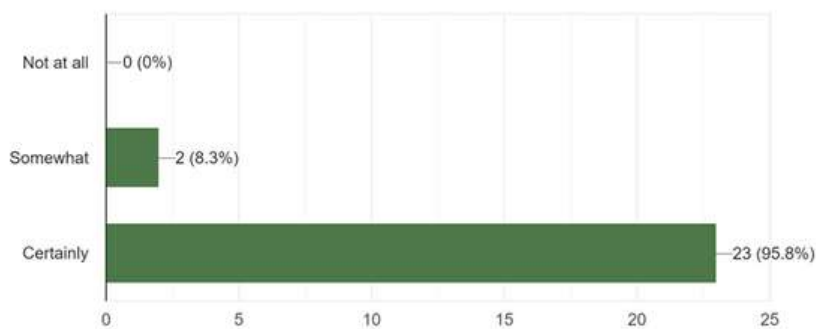
Open forums



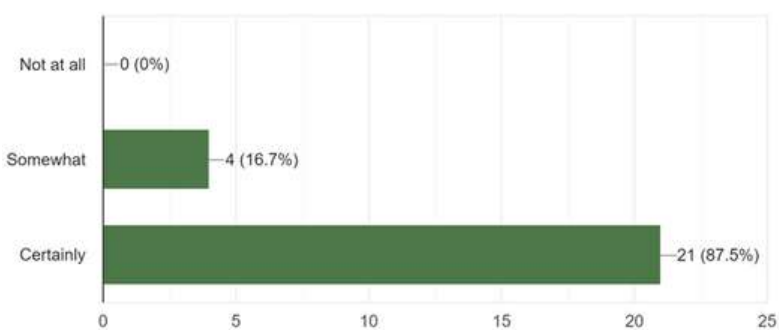
Course Coordination



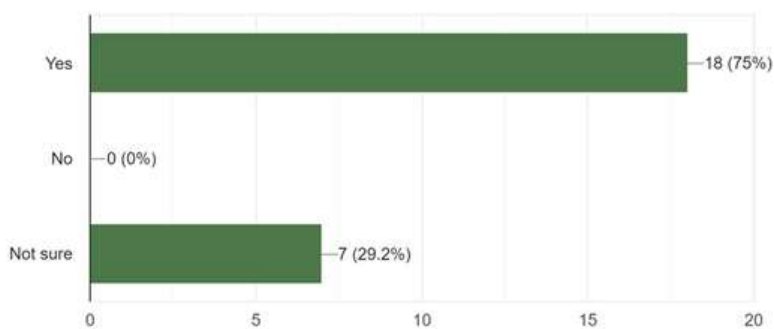
Time Management



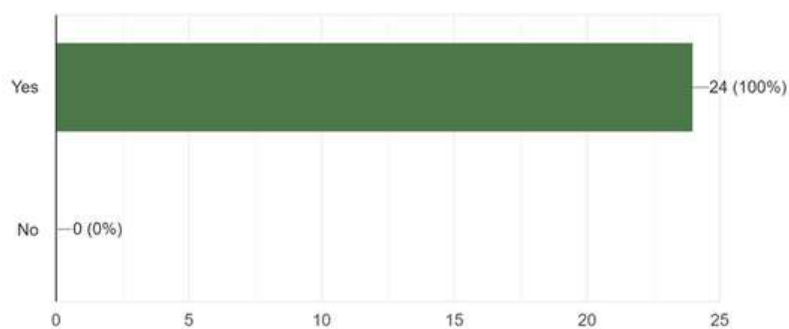
Has the training improved your skills?



Do you think this training would be helpful in your career?



Would you like to continue or involve in Bear Conservation and Research?



Do you think that we should continue organizing such training in future?

Annexure 1

List of Participants

Sr. No.	Name of Participants	Locations
1	Kaushalika Dharmadhikari	Goa
2	Mithesh Deorao Ninave	Karnataka
3	Arshdeep Singh	Punjab
4	Dattatreya Srinivas	Karnataka
5	Pankaj Bhure	Maharashtra
6	Swabha Soni	Chhattisgarh
7	Pratik Chitroda	Gujarat
8	Giridaran S	Tamil Nadu
9	Yosita Laha	West Bengal
10	Taniya Talwar	Assam
11	Nisha Prajapati	Gujarat
12	Suraj Kumar Singha Deo	West Bengal
13	Asmita Shukla	Uttar Pradesh
14	Keren Sophia Pereira	Maharashtra
15	Mridumalay Das	Arunachal Pradesh
16	Tadar Lama	Assam
17	Nivedita Singh	Chhattisgarh
18	Satyendra Singh	Bihar
19	Prasanta Nath	Assam
20	Vivek Sahu	Bihar
21	Dinesh Baijiya	Rajasthan
22	Prasad Malik	Maharashtra
23	Shudhanshu Kumar	Bihar
24	Tarun Nai	Gujarat

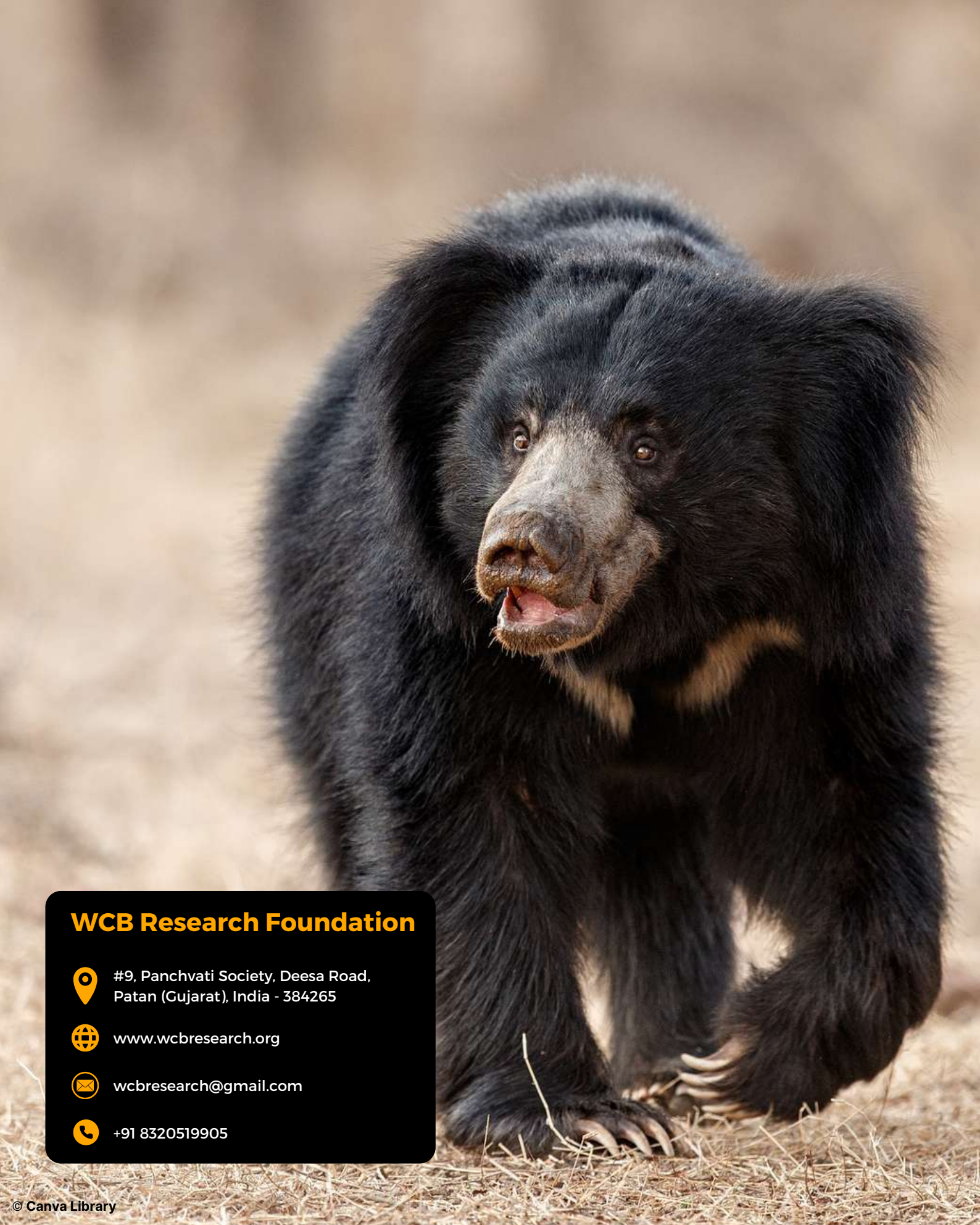




पानिकी, वन्यजीव एवं पर्यावरण विभाग DEPARTMENT OF FORESTRY, WILDLIFE & ENVIRONMENT "ICFRE A++"



Field Based Training on Sloth bear
 2024



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#9, Panchvati Society, Deesa Road,
Patan (Gujarat), India - 384265



www.wcbresearch.org



wcbresearch@gmail.com



+91 8320519905

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