

## Department of Wildlife Sciences



કેવિત્ત્વલા ઁધ્ધિ

NAVSARI AGRICULTURAL UNIVERSITY



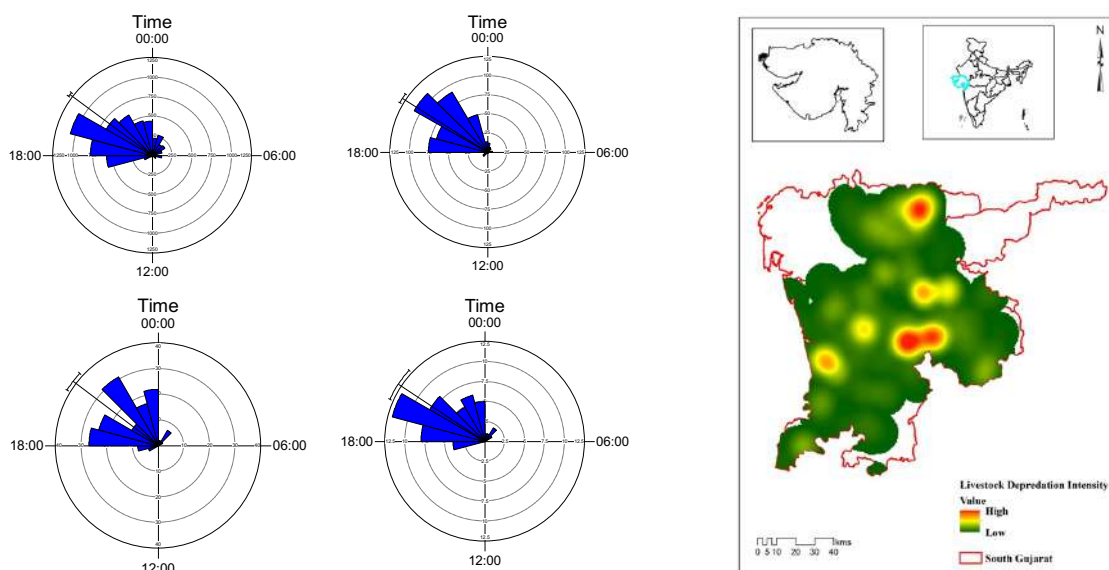
## Research & Development

### Departmental Research Experiments (BH: 352/12071 & 12100)

Sr No	Exp No	Title	Start	Completion
1	WLS/16/2	Biodiversity of Navsari city & its surroundings	2020	2025
2	WLS/16/3	Monitoring human-leopard conflict using Remote Sensing and GIS in South Gujarat	2020	2024
3	WLS/18/1	Monitoring the status of mammalian fauna of NAU campus	2022	2025
4	WLS/18/2	Population assessment of leopard in human dominated landscape of Vansda taluka of Navsari district	2022	2025
5	WLS/18/3	Long term monitoring of roadkill on NH 64 from Eru Char Rasta to Dandi Dist. Navsari	2022	2027
6	WLS/18/4	Bird community structure in Vansda National Park, Navsari, Gujarat	2022	2025
7	WLS/20/1	Assessment of occupancy and habitat use of Large Carnivores in South Gujarat	2024	2027
8	WLS/20/2	Prey availability of Large Carnivore in selected Protected Areas of Gujarat, India	2024	2030
9	WLS/20/3	Movement ecology of Leopards ( <i>Panthera pardus fusca</i> ) using radio-collar in South Gujarat	2024	2027
10	WLS/20/4	Modelling Leopard's suitable habitat using machine learning algorithm	2024	2026
11	WLS/20/5	Niche partitioning between Leopard ( <i>Panthera pardus fusca</i> ) and Asiatic Lion ( <i>Panthera leo leo</i> ) in Gir Protected Area	2024	2026

### WLS16/3

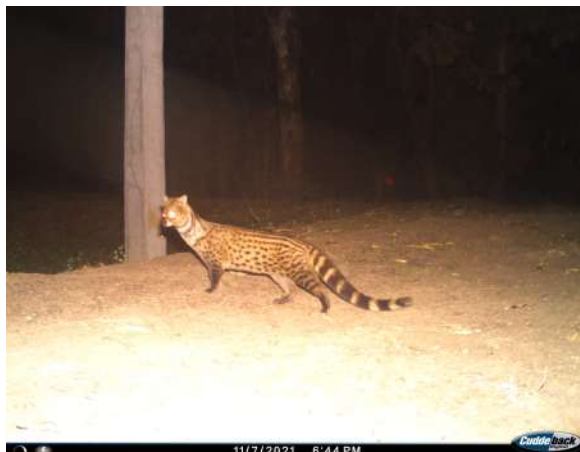
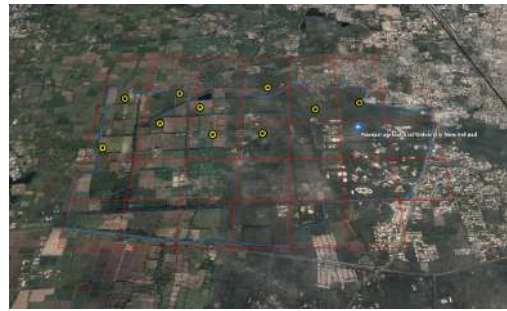
The pattern of human-leopard conflict is analysed using the secondary data collected from the forest department. The pattern is being analysed yearly for human conflict and livestock predation in the selected districts of South Gujarat. We assess yearly frequency of attack through the linear regression while spatial distribution is assessed in relation to villages being the lowest layer of stratification in data.



Leopard's Livestock depredation timing and Intensity Hotspot in South Gujarat

**WLS/18/1**

Twenty square grids have been laid down on NAU campus each with a size of 20 ha and camera traps are deployed in each grid for one month in all seasons and data is being collected to assess the mammalian fauna with their habitat use. To assess habitat, occupancy-based framework will be used which is based on generalized linear modelling that relates capture probability of individuals to the habitat factors. Entire study period will be divided in sampling occasion of 10 days and species presence absence is recorded in these occasions. Habitat factors around each camera traps is collected. Package Unmarked in programme R is used for the analysis of habitat use.



Mammals sighted in NAU campus

## WLS/18/2

Systematic sampling is used by dividing the whole Vansda taluka in 4 sq km grid. Camera traps are deployed for one month in each block. Prior to deploying the camera traps, a reconnaissance survey was carried out to find suitable places for signs such as scats and pug marks of leopard. Camera traps are being monitored on weekly basis to retreat the data and checking the batteries. Individual leopards are identified from their unique rosette pattern. Data are analysed using the spatially explicit capture recapture framework using the package SECR in program R.



Leopards of Vansda

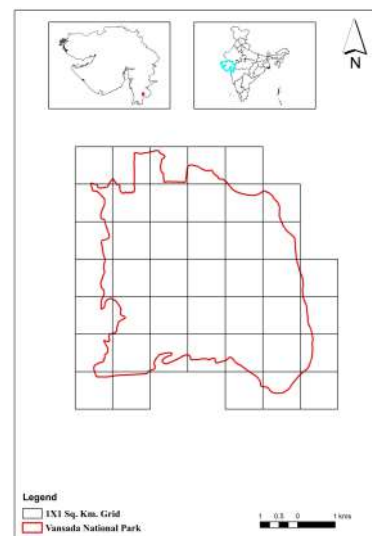
### WLS/18/3

Since roadkill is the direct threat for the wildlife persists around the roads, the experiment is taken up to assess the magnitude of these roadkill. Two observers on both sides of the roads walk with a slow pace and carcasses from roadkill are recorded along with the information such as species, age and sex, date, GPS location and adjacent habitat. Data of the roadkill are recorded on the weekly basis. To assess the spatial distribution and abundance of mammals' direct and indirect approaches are used. In the direct approach six line transect of 2 km length would be laid parallel to the road at a distance of 50, 500 and 1000 meters which results in effort of 14 km on either side of the road. Animal density is calculated using package Distance. Group encounter rate per kilometre could act as index of abundance due to their linear relationship with the density.



### WLS/18/4

Bird community structure is being assessed using distance sampling framework which is one of the widely used framework to assess the abundance of birds. Distance sampling framework using point count method is used for assessing the community structure of birds. Point count will be laid systematically in a square grid system of 1 sq km. Point count is conducted in morning from 0600 to 1100 hours and in evening time 1600 to 1900 hours when birds are most active. Point count is carried out for 10-15 minutes by a single or multiple observers. Data recorded while doing point transect include species name, group size, radial distance from centre of point, GPS location of the point and habitat. Radial distance from the point is measured with the help of the range finder. Each point count is replicated for 2 to 3 times to get minimum count for the estimation of densities. Programme Distance is used for the analysis of bird densities. Multivariate analysis is further performed to assess the bird community structure.



## Ongoing Projects

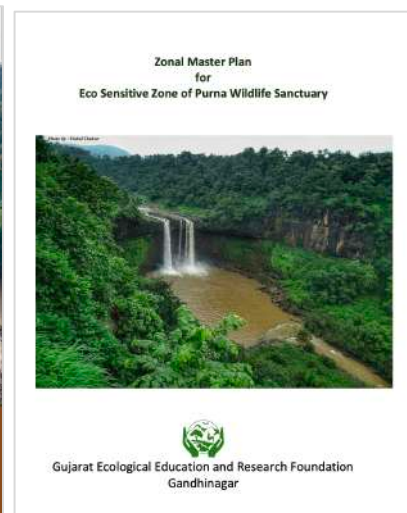
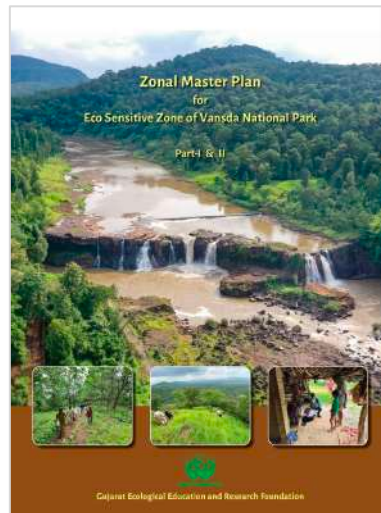
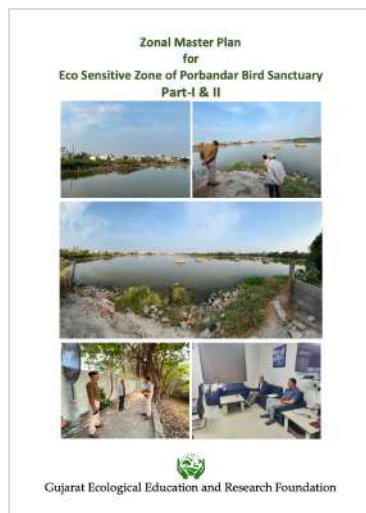
No.	Title of the Project	Budget Head	Funding Agency	Start	Completion
1	Establishment of Department of Wildlife Sciences PI: Dr. Aadil Kazi Co-PIs: Dr. Bimal Desai & Dr. Dileshwar Nayak	352/12071	Govt of Gujarat	2021	Plan Project
2	Conservation of Large Carnivores in Gujarat PI: Dr. Aadil Kazi Co-PI: Dr. Dileshwar Nayak	352/12100	Govt of Gujarat	2023	Plan Project

## Projects under Approval

1. Conservation of birds in Gujarat.
2. Ecology of Dhole *Cuon alpinus* in Dangs.
3. Mitigating Farmer-Leopard conflict in tribal areas of South Gujarat.
4. Long-term Monitoring and Conservation of Avifauna in South Gujarat.
5. Mitigating the impact of crop damage by wild animals in agriculture landscape.
6. Assessment of ecological status of Vansda National Park for Critical Wildlife Habitat.
7. Assessment of impact of road widening on roadkill and mammal distribution.
8. Ecology and behaviour of Owls (Strigiformes) in Vansda National Park.
9. Estimation of carrying capacity for sustainable ecotourism in Vansda National Park, Dangs.
10. Population assessment of ungulates in Gir National Park and Sanctuary.

## Completed Projects

1. Management Plan for Purna Wildlife Sanctuary (2024)
2. Preparation of Zonal Master Plan for Eco Sensitive Zone of Purna Wildlife Sanctuary (2023)
3. Monitoring of nursery and plantation works in south Gujarat region (2023)
4. Preparation of Zonal Master Plan for Eco Sensitive Zone of Porbandar Bird Sanctuary (2023)
5. Spatial Ecology of Leopards in multiuse landscape of Saurashtra (2022)
6. Identification of critical wildlife habitat in Vansda National Park (2021)
7. Monitoring of plantation carried out by forest department in various districts of Gujarat (2021)
8. Watershed monitoring in various districts of Gujarat (2021)
9. Preparation of Zonal Master Plan for Eco Sensitive Zone of Vansda National Park (2020)
10. Devising guidelines for reintroduction/translocation of Chital *Axix axis* in wilderness (2020)



## Scientific Outcome in Reputed Journals

1. Biologia
2. Ethology, Ecology and Evolution
3. Frontiers in Ecology and Evolution
4. Indian Forester
5. Indian Journal of Ecology
6. Journal of Threatened Taxa
7. Mammal Research
8. Mammalia
9. PLOS One
10. Wildlife Biology

## Research Papers

1. Dahya, M. I., Chaudhary, R., Kazi, A. A. and Shah, A. I. 2023. Food habits and characteristics of livestock depredation by leopard (*Panthera pardus fusca*) in human dominated landscape of South Gujarat, India, Ethology Ecology & Evolution.
2. Chaudhary, R., Sharma, P., Zehra, N., Musavi, A., Khan, J.A. 2023. Food habits and dietary partitioning between leopard (*Panthera pardus fusca*) and Asiatic lion (*Panthera leo leo*) in Gir protected area, Gujarat, India. Mammal Research. 68, 471-480.
3. Ram, M., Sahu, A., Nityanand, S., Chaudhary, R., Jhala, L. 2023. Diet composition of Asiatic lions in protected areas and multi-use land matrix. Journal of Vertebrate Biology. 72, 1-9.
4. Ram, M., Sahu, A., Srivastava, N., Chaudhary, R., Jhala, L., Zala, Y. 2023. The semi-arid ecosystem of Asiatic Lion Landscape in Saurashtra, Gujarat: Population density, biomass and conservation of nine wild prey species. PLoS ONE 18(9): e0292048.
5. Patel, H., Chaudhary, R. Chaudhari, P. A. and Kazi, A. A. 2023. Status, Characteristics and Factors Affecting Roadkills on NH- 64: The Dandi Path, Navsari, Gujarat, India. Indian Journal of Ecology. 50 (5): 1276-1281.
6. Dahya, M. I., Chaudhary, R., Shah, A. I. and Kazi, A. A. 2023. Assemblage, relative abundance and activity pattern of wild mammals in the human- dominated landscape of Vansda taluka, Gujarat, India. Mammalia. <https://doi.org/10.1515/mammalia-2022-0130>
7. Mahajan, P., Chaudhary, R., Kazi, A. A. and Kandal, D. 2022. Spatial determinants of livestock depredation and human attitude towards wolves in Kailadevi Wildlife Sanctuary, Rajasthan, India. Frontiers in Ecology and Evolution. 10:855084..
8. Chaudhary, R., Zehra, N., Musavi, A. and Khan, J.A. 2022. Estimating density of leopard using spatially explicit capture recapture framework in Gir Protected Area, Gujarat. Submitted in Biologia.
9. Kazi, A. A., Rabari, D.N. , Dahya, M.I. and Lyngdoh, S. 2021. Reappearance of Dhole *Cuon alpinus* (Mammalia: Carnivora: Canidae) in Gujarat after 70 years. Journal of Threatened Taxa 13(6): 18655–18659. <https://doi.org/10.11609/jot.6415.13.6.18655-18659>
10. Dahya, M. I., Kazi, A. A., Shah, A. I. and Nayak, D. 2021. Assessment of human-leopard interaction in Vansda, South Gujarat. International Journal of Zoology and Applied Biosciences 6:186-193.
11. Dahya, M. I., Kazi, A. A., Shah, A. I. and Rajput, K. R. 2021. Livestock depredation by leopard (*Panthera pardus fusca*) in Vansda Taluka, South Gujarat. Journal of Entomology and Zoology Studies. 9(4): 218-226.
12. Chaudhary, R., Zehra, N., Musavi, A. and Khan, J.A. 2020. Spatio-temporal partitioning and coexistence between Asiatic lion and leopard in Gir protected area, Gujarat, India. Plos One 15:1-14.
13. Chaudhary, R., Zehra, N., Musavi, A. and Khan, J.A. 2020. Evaluating the effect of ecological and anthropogenic variables on site use by sympatric large carnivores in Gir protected area, Gujarat, India. Wildlife Biology 4: 1-7.
14. Rizvi, A., Chaudhary, R., Haider, M. and Naseem, I. 2020. How climate change affects parasites: the case of trematode parasite *Clinostomum complanatum* and its fish host *Trichogaster fasciatus*. Journal of Parasitic Disease 44: 476-480.
15. Chaudhary, R., Zehra, N., Sharma, P., Musavi, A. and Khan, JA. 2019. Status and habitat use of large mammals in Gir national park and sanctuary, Gujarat, India. International Journal of Ecology and Environmental Sciences 45: 257-266.

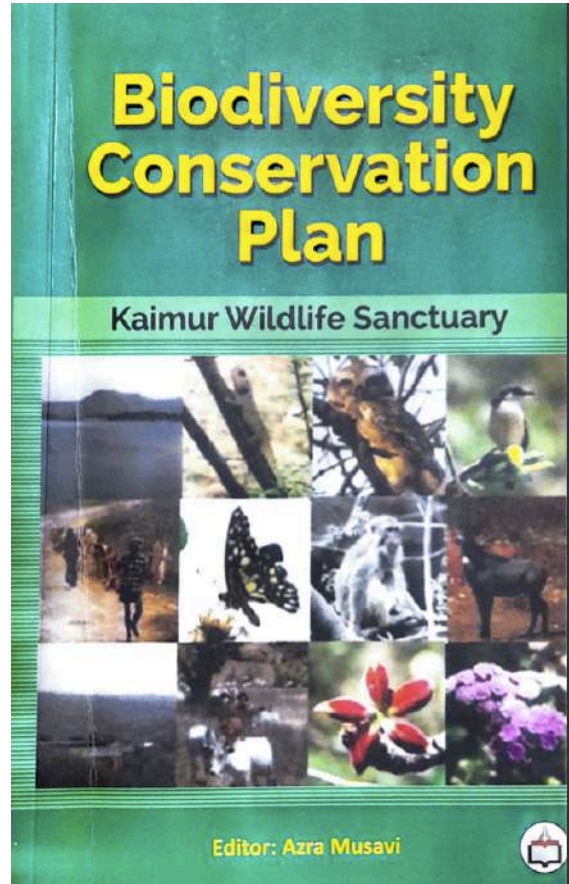
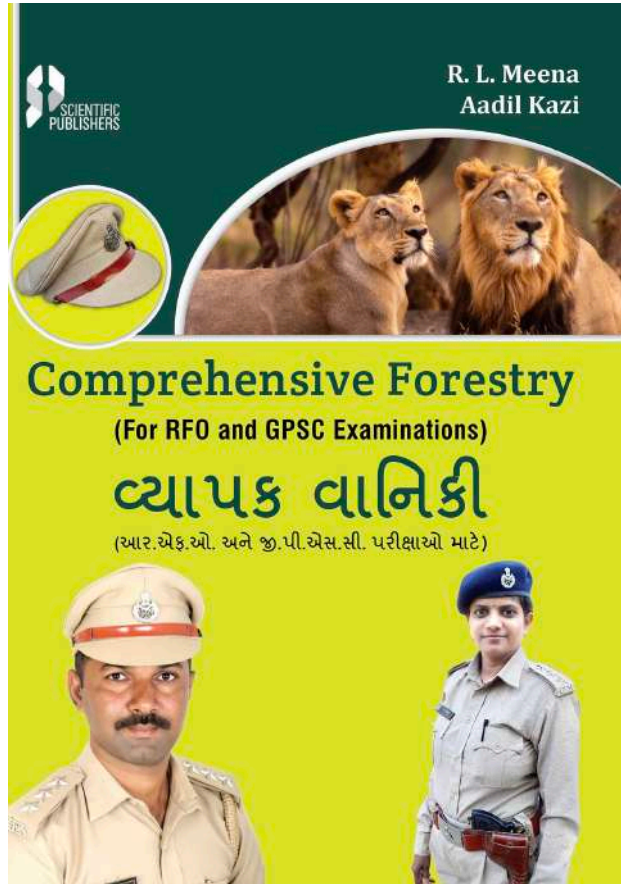


## Manuals

1. Nature and Wildlife Photography 2024 (2023). Aadil Kazi, Nevil Zaveri and Pravin Chaudhari
2. Wildlife Biology (2022). Authored by A. A. Kazi, R. Chaudhary and P. A. Chaudhari.
3. Ornithology and Herpetology (2022). Authored by A. A. Kazi, R. Chaudhary and P. A. Chaudhari.
4. Wildlife Management (2022). Authored by A. A. Kazi, R. Chaudhary and P. A. Chaudhari.
5. First Aid in Avian Health Management (2020). Compiled by A. A. Vagh, G. M. Pandya, A. A. Kazi and J. M. Patel.

## Books

1. Comprehensive Forestry (2021, ISBN 978-9390495917). Pp. 556. R. L. Meena and Aadil Kazi.
2. Biodiversity values of Kaimur Wildlife Sanctuary. Pp. 17-61. In: Musavi, A. (ed.): Biodiversity Conservation Plan: Kaimur Wildlife Sanctuary (2016). Athar, A. A. Musavi, K. Ahmad, S. Alam, A. M. Khan, A. Tahoor, G. Hasanaine, K. A. Khan, M. Shoeb, R. Chaudhary, T.A. Rather, T. Ahmed, J.A. Khan.



## Awards

1. Institute's Gold Medal for Top Trainee in Wildlife Management was awarded to A. A. Kazi by Wildlife Institute of India, Dehradun.
2. Institute's Silver Medal for Best All Round Wildlifer was awarded to A. A. Kazi by Wildlife Institute of India, Dehradun.
3. Director General's Baton was awarded to A. A. Kazi by Ministry of Defence, Govt of India.
4. The best Teacher Award to A. A. Kazi by South Gujarat Chamber of Commerce and Industry.
5. Best Wildlifer was awarded to A. A. Kazi by Narmada Forest Division, Rajpipla.
6. Young Scientist Award to A. A. Kazi by Gujarat Association for Agricultural Sciences.
7. Significant Contributor Award to Rohit Chaudhary by NCRF, Gandhinagar
8. Young Wildlife Conservationist Award to Pravin Chaudhari by WWFN.



## Trainings

No.	Topic	Organizer	Duration
1	Forest Management for Sustainable use of Natural Resources	Banda University of Agriculture and Technology, Banda	3 to 23.3.2022
2	Natural Resource Management	CSK Himachal Pradesh Krishi Vishwa Vidyalaya, Palampur	3 to 12.12.2018
3	Asian Big Cats Conservation Genetics	Amity University, Noida	21 to 23.3.2018
4	Wildlife Management	Wildlife Institute of India, Dehradun	1.11.2017 to 31.1.2018
5	Disaster Management and Environmental Studies	University of North Bengal, Darjeeling	1 to 21.11.2016
7	Piloting Ecosystem Management Framework in Transboundary Landscapes	International Centre for Integrated Mountain Development, Kathmandu	5 to 7.9.2014
6	Temperate Agroforestry for Sustenance and Climate Moderation	Sher-e-Kashmir University of Agricultural Sciences and Technology of Kashmir, Srinagar	5 to 25.8.2014



## Conference and Workshop

No.	Topic	Organizer	Duration
1	International Conference on Biodiversity	Pandit Deendayal Upadhyaya Adarsh Mahavidyala, Assam	5.1.2022
2	Scientific management of Mangroves	Forest Department, Navsari	6.3.2020
3	COP 13 to CMS	UNEP & Govt of India	17 to 23.2.2020
4	Conservation Science	Indian Institute of Sciences, Bengaluru	15 to 18.10.2019
5	International Conference on Advances in Zoological Research	Aligarh Muslim University, Aligarh	9 to 10.3.2019
6	Behavior of Chital around touristic and non-touristic roads in Gir protected Area	Amity University, Noida	19 to 20.3.2018
7	Landscape Management Approach for Biodiversity Conservation and Human Wellbeing	Wildlife Institute of India, Dehradun	20 to 23.1.2017
8	Asian Waterbird Census	Forest Department, Gandhinagar	29.1.2017
9	Unlocking potential of youth in context of changing climate in Indian Himalayan region	Central Himalayan Environment Association, Nainital	28 to 30.4.2014
10	Global Bird Watchers' Conference	Gujarat Tourism, Gandhinagar	31.1 to 3.2.2014
11	Second International Conference on Indian Ornithology: Ecosystem Services and Functions of Birds	Salim Ali Centre for Ornithology & Natural History, Coimbatore	19 to 23.11.2013
12	Young ecological talk and interact	Wildlife Institute of India, Dehradun	12 to 14.12.2012
13	International Conference on Indian Ornithology: Status of Indian Birds and their Conservation	Salim Ali Centre for Ornithology & Natural History, Coimbatore	19 to 23.11.2011
14	Global Bird Watchers' Conference	Gujarat Tourism, Gandhinagar	25 to 27.11.2010
15	International Conference on global Warming	International School for Public Leadership, Ahmedabad	11 to 13.3.2010



## Departmental Library

### A. Mammalogy

1. Carnivores of the world
2. Indian mammals a field guide
3. Mammals of Gujarat
4. Mammals of India
5. The secret lives of Indian mammals
6. The king of Gir
7. The Leopard in India

### B. Ornithology

8. About Indian Birds
9. Bharat na Pakshiyo
10. Birds of Delhi
11. Birds of Chandbagh
12. Birds of Gujarat
13. Birds of South Asia -I & II
14. Birds of the Himalayas
15. Birds of Indian Subcontinent, a field guide
16. Handbook for bird educators
17. Great Indian Bustard, A pictorial life story
18. Krushi Paryavaran ma Pakshio
19. Our birds
20. Pakshiyo ni bhaibandhi
21. Pakshiyo nu Vigyan
22. The book of Indian birds
23. Threatened Birds of India
24. Uttar Bharat na Pakshiyo

### C. Herpetology

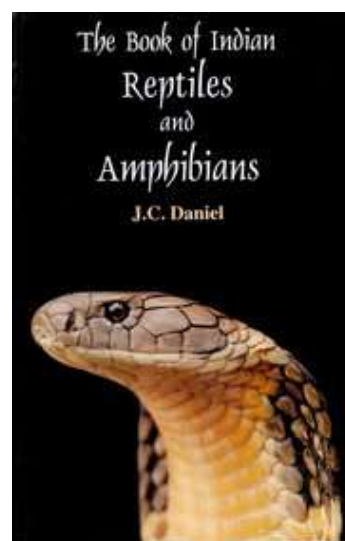
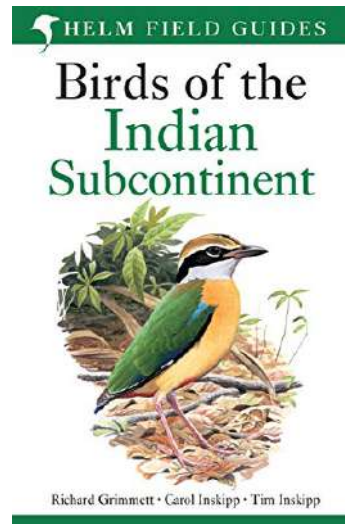
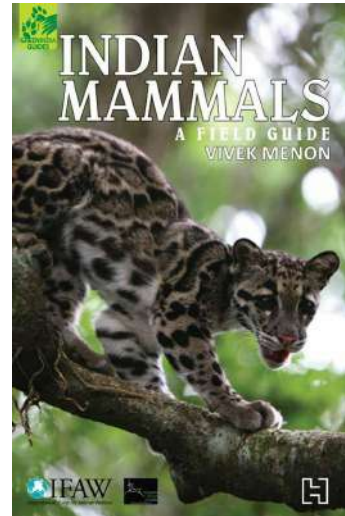
25. Diversity and Ecology of Amphibians of India
26. Common snakes of Delhi
27. Indian Snakes: A Field Guide
28. Reptiles of India
29. Sarpsandarbh
30. Snakes
31. Snakes and other reptiles and amphibians
32. Snakes of India: The Field Guide
33. The book of Indian Reptiles and Amphibians
34. The book of Snakes
35. Venomous Snakes of the World

### D. Lepidopterology

36. Butterflies of India
37. Butterflies on the roof of the world
38. The life story of a butterfly

### E. Ecology

39. Potential and Existing Ramsar Sites in India
40. Ecological and Environmental Reporting in India
41. Ecology and Environment
42. Jungle Trees of Central India
43. Natural Heritage of Gujarat
44. Trees of Delhi
45. Magical Biodiversity of India
46. Ecological Census techniques
47. Indian Forestry
48. The Biological Diversity Act



**F. Natural History**

- 49. Indica
- 50. Man Eater of Kumaon
- 51. The Origin of Species
- 52. The Sixth Extinction

**G. Wildlife Science**

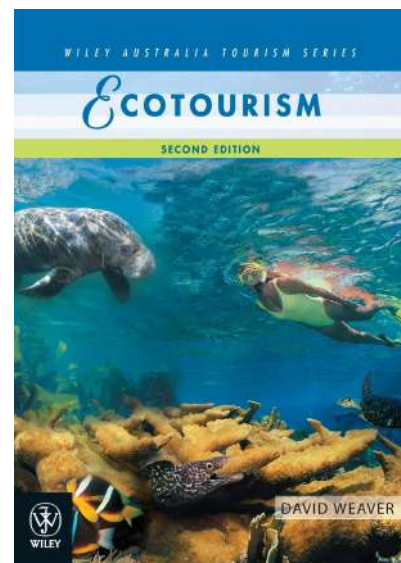
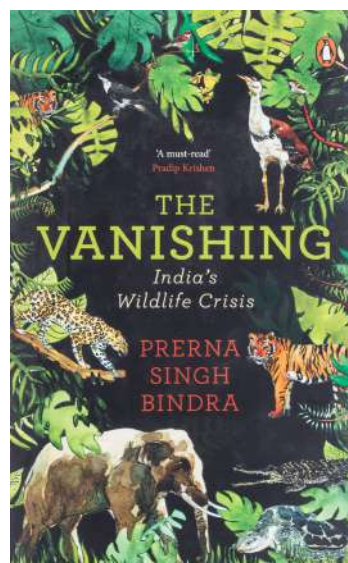
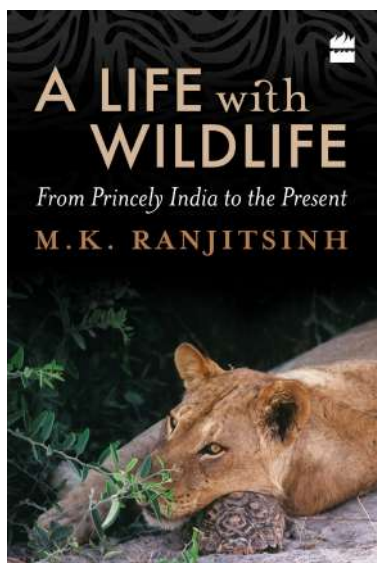
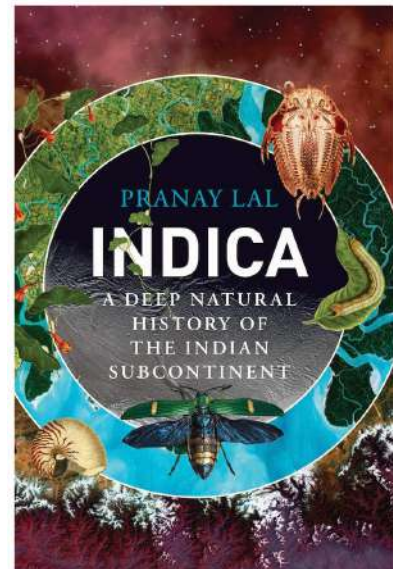
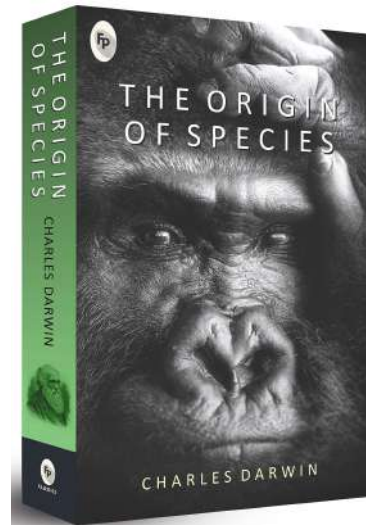
- 53. A life with Wildlife
- 54. Birds, Wild animals and Agriculture
- 55. Chordate Zoology
- 56. Fundamental of Wildlife Management
- 57. Handbook on Wildlife Law Enforcement in India
- 58. Indian Wildlife History
- 59. Management Plans for Gir Protected Area
- 60. Practical Zoology Vertebrate
- 61. Textbook of Wildlife Management
- 62. The Vanishing
- 63. The Wildlife Protection Act 1972
- 64. Wild Fauna of Gujarat
- 65. Wildlife Biology
- 66. Wild Wisdom Quiz
- 67. Wildlife and Forest Conservation
- 68. Wildlife Crime an Enforcement Guide
- 69. Wildlife Law for Rangers

**H. Ecotourism**

- 70. Ecotourism
- 71. Ecotoursim- a guide for planners and managers I & II
- 72. Gujarat Naa Vanya Mukamo
- 73. Heritage Gems of Gujarat

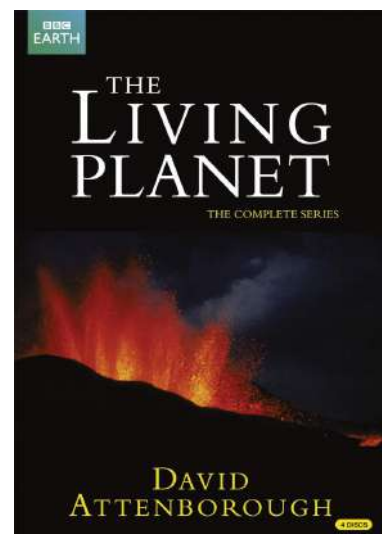
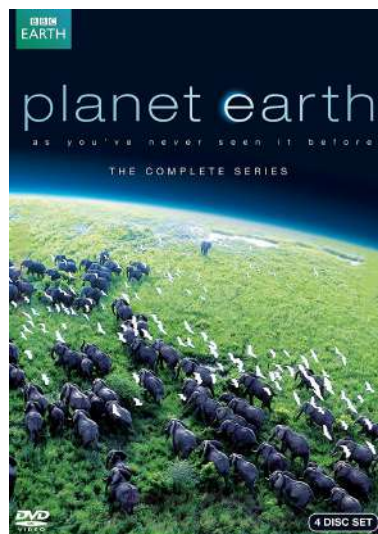
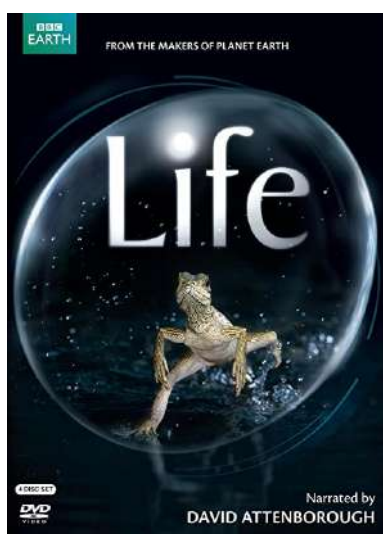
**I. Wildlife Photography**

- 74. Art of Seeing: Creative Nature Photography
- 75. Color
- 76. Photographing Nature
- 77. Practical Photography
- 78. The Art of Color Photography
- 79. The Camera
- 80. The Complete Photographer
- 81. The Encyclopedia of Photography
- 82. Visual Poetries



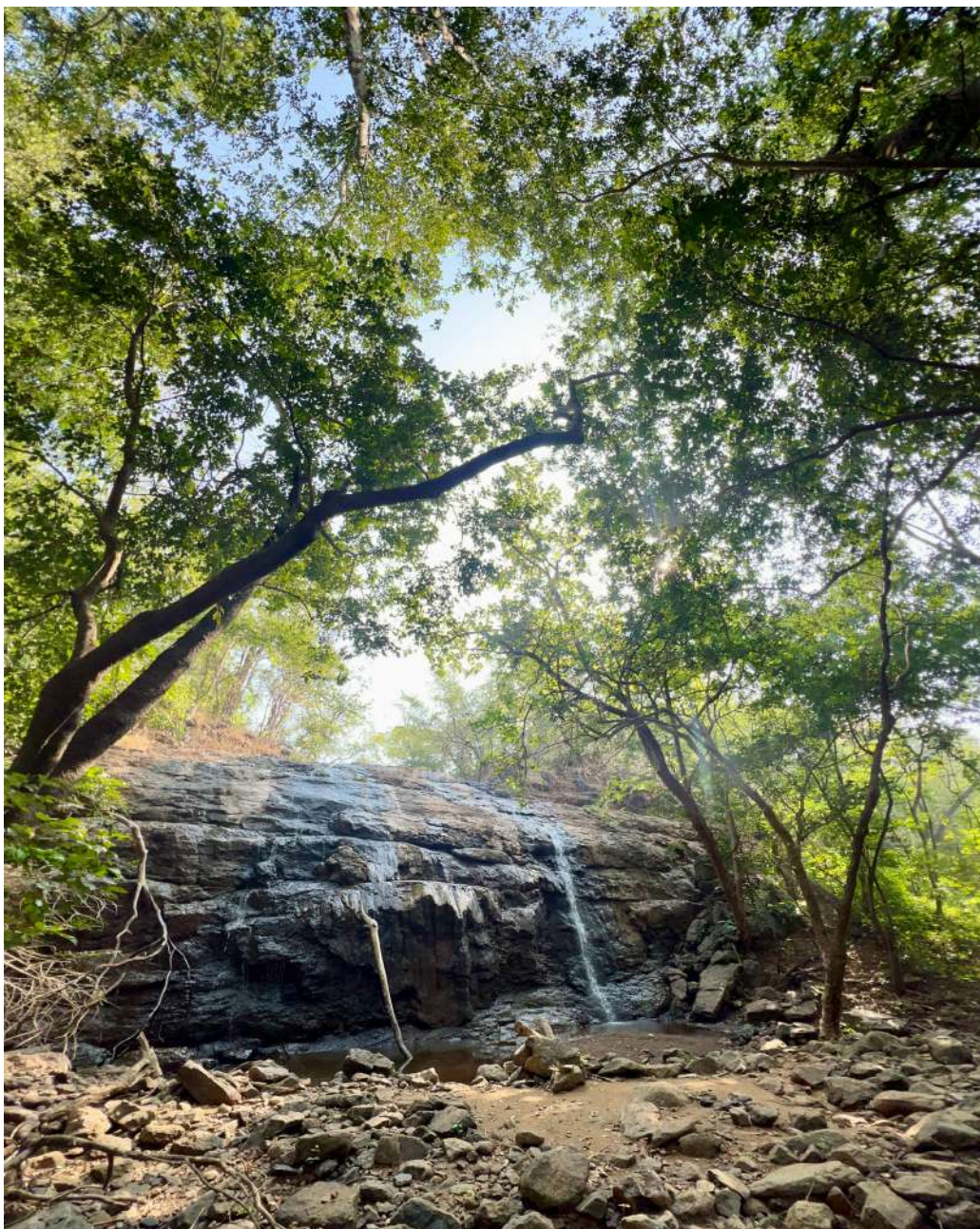
## Departmental Cybrary

- |     |   |                               |
|-----|---|-------------------------------|
| 1.  | 100 Greatest Discoveries                                      | Discovery Channel             |
| 2.  | BBC Life & Planet Earth                                       | BBC                           |
| 3.  | Birds Video Guide of Vansada National Park                    | Gujarat Forest Department     |
| 4.  | Black Drongo  | GEER Foundation               |
| 5.  | Born to Fly   | GEER Foundation               |
| 6.  | Call of Indian Bird   | Nature Club Surat             |
| 7.  | Dariyai Jeevshrushti  | Geer Foundation               |
| 8.  | Destination Khadija   | Tourism Department of Gujarat |
| 9.  | Earth: Power of the Planet                                    | BBC                           |
| 10. | Envis: Wildlife and Protected Area 1997-2015                  | WII                           |
| 11. | Gidh- Sangarsmay Udan   | GEER Foundation               |
| 12. | Great Indian Bustard  | BNHS                          |
| 13. | Great Wonders of the World                                    | Reader Digest                 |
| 14. | Indian Ornithology  | SACON                         |
| 15. | Marine Biodiversity of Marine National Park and Gulf of Kutch | GEER Foundation               |
| 16. | Natural Heritage of Gujarat                                   | GEER Foundation               |
| 17. | Natural History Collection                                    | BBC                           |
| 18. | Preserve the Future: Conserving India's Wild Heritage         | British Council               |
| 19. | Rann no Vaibhav   | Tourism Department of Gujarat |
| 20. | Savaj Hatu Sabda  | GEER Foundation               |
| 21. | Sinh Samarajya  | Gujarat Forest Department     |
| 22. | The Living Planet   | BBC                           |
| 23. | Van no Vaibhav  | Tourism Department of Gujarat |
| 24. | Video Guide to Common Birds of India                          | Nature Club Surat             |
| 25. | Wild Periyar  | Periyar Foundation            |
| 26. | Wings of Nature   | GEER Foundation               |



## Memberships

- IUCN Commission on Education and Communication, Switzerland
- International Conservation and Biodiversity Team, France
- Global Community Tourism Network, Toronto, Canada
- The International Ecotourism Society, Australia
- Ecological Society of America, Washington DC
- Indian Bird Conservation Network, Mumbai
- Bombay Natural History Society, Mumbai
- Beauty Without Cruelty, Pune
- Nature Conservation and Research Foundation, Gandhinagar
- Bird Conservation Society of Gujarat, Ahmedabad
- Snake Research Institute, Dharampur





### Equipments and Amenities



Camera Trap



Spotting Scope



Binoculars



Range Finder



GPS



Night Vision Binoculars



Walkie Talkie



Focus Torch



Head Torch



Microscopes



DSLR Camera with Lens



Densiometer



Velocity Radar Gun



Body Armour & Catch all Pole



Safety Shoes



Bird Feeders



Bird Nests



Rescue Bag



Snake Catchers and Tongs



Tent



Sleeping Bag



Field Track Suit



Rucksack

### Equipments under purchase

1.	100mm-45 Spotting Scope	To study behavioural ecology of water birds
2.	3.5 X 7 Night Vision Binocular	To study nocturnal wildlife
3.	Acoustic Detector & Recorder set	To conduct acoustic study of wild fauna
4.	High end Computer & Printer	For data storage, spatial and statistical analysis
5.	IR Camera Traps	To study mammalian fauna
6.	Dan Inject Dart Gun Package	To sedate wild animals
7.	EF 800 mm f/5.6L IS USM	For wildlife photography
8.	Military Compass	To use in different sampling techniques
9.	Monitoring Drone	To characterize landscape and monitor wild fauna
10.	Radio Telemetry Equipments	To assess spatial ecology of wildlife species
11.	Rubber Jaw Trap	To catch wild canids for radio-collaring
12.	Sherman Traps	To study small mammals
13.	Compound Microscope	To study food habits of mammals
14.	Universal Survival Snaring Kit	For field studies
15.	Softwares- Arc Map, Erda, SPSS, etc	For various studies of wildlife

