



**Assam University  
Silchar - 788011**

**Zoology (Honours)**

**COURSE STRUCTURE:**

**CHOICE BASED CREDIT SYSTEM FOR B.Sc. ZOOLOGY HONOURS**

Semester	Honours core course (HCC)	Core course Name (14)	Ability Enhancement Compulsory Courses AEC (2)	Skill Enhancement Courses SEC (2)	Discipline Specific Elective DSE (4)	Generic Elective GE (4)
Semester I	<b>ZOOHCC - 101</b>	Non-chordates I: Protozoa and Metazoa	English Communication or MIL			GE - I
	<b>ZOOHCC - 102</b>	Principles of Ecology				
Semester II	<b>ZOOHCC - 201</b>	Non-chordates II: Coelomates	Environmental Science			GE - II
	<b>ZOOHCC - 202</b>	Cell Biology				
Semester III	<b>ZOOHCC - 301</b>	Diversity of Chordates		<b>ZOOSSEC-301</b> Apiculture		GE - III
	<b>ZOOHCC - 302</b>	Physiology: Controlling and Coordinating Systems				
	<b>ZOOHCC - 303</b>	Fundamentals of Biochemistry				
Semester IV	<b>ZOOHCC - 401</b>	Comparative Anatomy of Vertebrates		<b>ZOOSSEC-401</b> Medical Diagnostics		GE - IV
	<b>ZOOHCC - 402</b>	Physiology: Life Sustaining Systems				
	<b>ZOOHCC - 403</b>	Biochemistry of Metabolic Processes				
Semester V	<b>ZOOHCC - 501</b>	Molecular Biology			<b>ZOODSE-501</b> Immunology	
	<b>ZOOHCC - 502</b>	Principles of Genetics			<b>ZOODSE-502</b> Fish and Fisheries	
Semester VI	<b>ZOOHCC - 601</b>	Developmental Biology			<b>ZOODSE-601</b> Reproductive Biology	
	<b>ZOOHCC - 602</b>	Evolutionary Biology			<b>ZOODSE-602</b> Animal Behavior and Chronobiology	



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**ZOODSE - 602: Animal Behavior and Chronobiology (Practical)**

Credits 2

Marks 30

1. To study nests and nesting habits of the birds and social insects.
2. To study geotaxis behaviour in earthworm.
3. To study the phototaxis behaviour in insect larvae.
4. Visit to Forest/ Wild life Sanctuary/Biodiversity Park/Zoological Park preferably outside Assam to study behavioural activities of animals and prepare a field report on their observations.
5. Study of circadian functions in humans (daily eating, sleep and temperature patterns).

**Suggested Readings**

- David McFarland, Animal Behaviour, Pitman Publishing Limited, London, UK.
- Manning, A. and Dawkins, M. S, An Introduction to Animal Behaviour, Cambridge, University Press, UK.
- John Alcock, Animal Behaviour, Sinauer Associate Inc., USA. Paul W. Sherman and John Alcock,
- Exploring Animal Behaviour, Sinauer Associate Inc., Massachusetts, USA.
- Chronobiology Biological Timekeeping: Jay. C. Dunlap, Jennifer. J. Loros, Patricia J. DeCoursey (ed). 2004, Sinauer Associates, Inc. Publishers, Sunderland, MA, USA
- Insect Clocks D.S. Saunders, C.G.H. Steel, X., Afopoulou (ed.)R.D. Lewis. (3rdEd) 2002 Barenz and Noble Inc. New York, USA
- Biological Rhythms: Vinod Kumar (2002) Narosa Publishing House, Delhi/ Springer-Verlag, Germany.

**Marks Distribution**

<b>Internal</b>	<b>: 20 marks</b>
<b>Theory</b>	<b>: 50 marks</b>
<b>Practical</b>	<b>: 30 marks</b>
Experiment	: 7 marks
Field Report	: 14 marks
Regularity	: 5 marks
Laboratory Notebook	: 2 marks
Viva voce	: 2 marks

**A FIELD REPORT  
ON VISIT TO  
SIDEKEONG TULKU BIRD PARK AND HIMALAYAN ZOOLOGICAL PARK,  
SIKKIM**

(A report submitted for the partial fulfilment of the requirement of Zoology Honours Practical Syllabus ZOODSE-604L under Assam University, Silchar)



2023

Submitted by-  
Name: Chijal Roy

Roll: 062320      No.: 200500117

Registration no.: 20200005100

T.D.C. (CBCS) 6<sup>th</sup> Semester Zoology Honours

Department of Zoology

Haflong Govt. College

*Principal*  
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## CERTIFICATE

This is to certify that Miss Chijal Roy bearing Roll. 062320 No. 200500117 to of session 2023 of Haflong Govt. College under Assam University, Silchar, a student of T.D.C. (CBCS) 6th Semester of Zoology (Hons) has participated in the Field trip to Sikkim on 23 May 2023 under my guidance and supervisions for partial fulfilment of his/her TD.C. (CBCS) Honours Practical syllabus under Assam University.

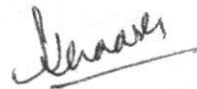
The field study was performed purely in the academic interest keeping in mind the given syllabus of his/her TDC (CBCS) 6th Semester Honours course of Zoology under Assam University, Silchar.

I wish his/her success in the examination.

Date: 26/06/23

Place: Haflong

  
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Dr. Sarbojit Thaosen

Head (i/c) and Associate Professor

Department of Zoology

Haflong Govt. College, Haflong

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## Acknowledgement

I would like to express my sincere gratitude to our honorable Principal Madam Madhumita Daulagupu, Haflong Government College, Haflong have long for providing the fund for conducting the field trip has well has the chance for such a fruitful tool and guidance in the entire trip to Sikkim

I am grateful to Sir (Dr.) Sarbajit Thaosen, HOD(i/c), Associate Professor, Sir Bubul Das, Assistant Professor, Ma'am Anima Das, Assistant Professor, Ma'am (Dr.) Mandira Lohar, Assistant Professor and Miss Rini Kemprai, Assistant Professor, Department of Zoology, Haflong Govt. College, Haflong for their supervision and guidance at every stage of the journey.

I am also thankful to my classmates including Simeom Darnei, Lab bearer for their corporation.

*Chijal Roy*

T.D.C.(CBCS) 6<sup>th</sup> semester Zoology (Hons)  
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# INTRODUCTION

Date:25-05-2023

Place: Sidkeong Tulku Bird Park,


Rabdentse Geyzing, West Sikkim

Sidkeong Tulku Bird Park is one of the popular destination in Sikkim and is a perfect place for the nature lovers to witness and dwell in the beauty of wildlife. Sidkeong Tulku Bird Park is located at Rabdentse in west Sikkim on the road between Pelling and west district headquarter Gyalshing. The Park was established in 2015 and was inaugurated by the then Chief minister of Sikkim Mr. Pawan Chamling on 4<sup>th</sup> December 2017.

The bird park is named after Sidkeong Tulku, the 10<sup>th</sup> Chogyel of Sikkim and founding father of modern forestry in the state. The sanctuary provides a beautiful landscape for tourists to witness an enriching ambiance of wilderness which is adorned by a plethora of bewitching species of flora and fauna. The park is also a breeding shelter to over hundreds of species of birds including Grey Treepies, Green Imperial Pigeons, Turtle Doves, Whiskered Yuhinas and many more.

The Sidkeong Tulku Bird Park is planned as a naturally landscaped and water scaped open concept bird park incorporating the wilderness of the area, resident birds and other fauna with the existing tourist and archaeological attraction of the old palace ruins. The place is a thickly wooded moist temperate oak- chestnut forest in the past abounding in mosses, lichens and many other epiphytes attracting a rich bird life.

Sidkeong Tulku Bird Park is well looked after by the government of of Sikkim and Sikkim's Tourism Industry. It is by far the most ornamented wildlife sanctuaries in the state of Sikkim. An initiative taken by assimilating smaller steps is now embarked to set a benchmark in the history of Northeast.

  
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Date :- 27-05-2023

Place :- Himalayan Zoological Park,  
Bulbuley, Gangtok, East Sikkim.

The Himalayan Zoological Park in Sikkim is one of the best attractions of the North East Himalayas and is the first Zoological park of Sikkim. The park is located in Bulbuley, 3 km away from Gangtok and is the place for all the wildlife lovers. It was established in 1991, Himalayan Zoological Park is also the first one of its kind in North Eastern part of India.

The park has been established to preserve the wildlife without disturbing the creatures and keeping them in their natural habitat. At an altitude of 1,780 metres, the Zoological park also tenders the splendid view of the Mount Kanchenjunga from here. The park fulfills all the requirements of a zoo where the creatures are kept under regular conditions and safeguard as well as tamed without irritating them and ensuring that they live in their normal habitat. Spread over 205 hectares of land in the mountainous terrain, the park is home to a variety of fauna including the Snow Leopard Cat, Goral, Himalayan Red Panda, Himalayan Black Bear, Crimson-horned Pheasant.

The Zoo covers diverse vegetation, from gentle grassy land to dense jungles and is home to many rare and endangered species of animals. Barking Deers, Indian Civets, Kalij, Lady Amherst Pheasant, Yaks, Porcupines, etc., can easily be spotted. The entrance to the Zoo is located at the end of a short pathway opposite Ganesh Tok which is another must-visit attraction in the mountain town.

The Forests, Environment and Wildlife Management Department, Government of Sikkim maintains this first ever Zoological park of the state providing such amazing natural views and a variety of species surrounding the place.

  
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## ABOUT SIDEKEONG TULKU PARK AND HIMALAYAN ZOOLOGICAL PARK

**Sidkeong Tulku Bird Park** is one perfect destination for nature lovers to witness and dwell in the beauty of wildlife. Located at Rabdentse in West Sikkim on the road between Pelling and West District Headquarter Gyalshing about 10 kilometers away lies an existing tourist archaeological site which incorporates a diverse landmass where the botanical luxuriance provides an affluent sanctuary to over 200 species of birds. The Bird Park is named after Sidkeong Tulku, the 10th Chogyel of Sikkim and founding father of Modern Forestry in the state. The sanctuary provides a beautiful landscape for tourists to witness an enriching ambiance of wilderness which is adorned by a plethora of bewitching species of flora and fauna.

**LOCATION-** Sidkeong Tulku Bird Park is located at Rabdentse in West Sikkim on the road between Pelling and West District Headquarter Gyalsing about 10 km away. The famous Perayangtse Monastery is situated north of the Bird Park site whereas the nearest large town Gyalsing is to its south. The famous archaeological ruins of the ancient second capital of Sikkim are located adjacent to the site with present access through the site. A thickly wooded moist temperate Oak-Chestnut forest in the past abounding in mosses, lichens and many other epiphytes it attracts a rich bird life, both resident and migratory. The region provides breathtaking views of the Singalila range, our international border with Nepal.

**FLORA-** Sikkim is very rich in floristic diversity. The Bird Park has undulating slopes with wild undergrowth and dense tree cover, The region falls within the transitional zone of Sub Tropical Mixed Broad Leaved Hill Forests (900 m to 1800 m) and Himalayan Wet Temperate Forests (1800 m to 2700 m). The Bird Park site is dominated with trees, wild herbs and shrubs. The forests include various tree species like Castanopsis, Engelhardia, Michelia, Quercus, and Acer, The secondary growth consists of Girardinia, Boehmeria, Maesa, Ardisia, Melastora, Edgeworthia. Existing vegetation includes a top canopy of Chestnut trees interspersed with Michelia and Quercus, Open forest patches have been invaded by Eupatorium and Tridax. Shrubs like Rubus, Daphne, Berberis and ferns, epiphytic plants provide a distinctive character to the forest. It also has climbers like Pathos, Vitis, Rhipidophora, Smilax etc.

**BIRDS-** Sikkim is very rich in avifauna. Among over 8000 species of birds found worldwide, over 1200 species are found in the Indian Subcontinent. Eastern Himalayas shelter rich biodiversity and Sikkim is known to have over 550 species of colourful and rare birds using different habitats like temperate forests to alpine meadows.

The Bird Park region has been occupied by typical avifauna of Middle Hills Forests of Eastern Himalayas. The families of Timalinae and Turdinae seem to be abundant in the region. They include Owls, Eagles, Pheasant, Barbets, Treepies, Minivets, Bulbuls, Flycatchers, Babblers, Thrushes and Warblers etc. These birds are resident as well as migratory. Out of over 550 bird species recorded in Sikkim over 200 species have been recorded in this area in different seasons.

The moist forests of Rabdentse hold birds like Rufous-breasted Accentors, Green-tailed Sunbirds, Rufous-gorgeted Flycatchers, Blue-fronted Redstarts, Brownish-flanked Bush Warblers, Scarlet and Long-tailed Minivets, Coal, Green-backed and Black-throated Tits, various Yuhinas, Fulvettas, Shrike Babblers, Scimitar Babblers, Laughingthrushes and Babblers. The rare and spectacular Fire-tailed Myzornis can easily be sighted here.


Overhead, the resident Crested Serpent Eagle, migrating Steppe Eagles, Greater Spotted Eagles and Oriental Honey Buzzards add raptor diversity in cold November.

Buzzards add raptor diversity in Rabdentse has a heterogenous habitat with a diversity of microhabitats, quality of vegetation, availability of food shelter plants and suitability of the location for growing more such plants. The Park has a variety of nature trails awaiting discovery from dense bushy undergrowth to green-lit patches dense with trees.

**Himalayan Zoological Park** is certainly a place for wildlife lovers in Sikkim. The Park has been established, to preserve the wildlife, without disturbing the creatures and keeping them in their natural habitat. Himalayan Zoological Park is the first Zoological park of Sikkim. The Park accomplishes the perception of modern zoo, where the animals are kept in replicated natural conditions. The best time to visit the area is during mid- February to May and Mid-September to December. The Park is maintained by the Forests, Environment & Wildlife Management Department, Government of Sikkim.

**LOCATION-** Located in Bulbuley, Himalayan Zoological Park is at a distance of 3 km from Gangtok. At an altitude of 1,780 mtrs, the Zoological Park also tenders a splendid view of Mt. Khangchendzonga. This Park sprawls in an area of 205 hectares in the mountainous terrain. The Park houses a variety of fauna species found in the Himalayas.

**FAUNA**-Himalayan Zoological Park is the first park of its kind in the North-Eastern part of India. The Park accomplishes the perception of modern zoo, where the animals are kept in replicated natural conditions. Most of the part of the Park is covered with forests that house Musk Deer, Blue Sheep, Himalayan Black Bear and Barking Deer and Red Panda. A pavement has been made that passes by hedged open-air enclosures. These enclosures cuddle Red Pandas, Barking Deer, Panther, Himalayan Palm civet, Leopard Cat, Tibetan Wolf, Barking deer, Common Langur, Goral Spotted Deer and Bears in a partly natural habitat.

  
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## **DESCRIPTION OF THE JOURNEY**

During our field trip to Sikkim from 23<sup>rd</sup> May to 28<sup>th</sup> May we did a lot of things and the detail description about our experiences is enumerated in detail as:


**Day 1:** On 23<sup>rd</sup> May, 2023 at 10:30 pm we all gathered in New Haflong Railway Station to start our journey at around 11:15 pm from station by train. There were 26 students, along with Principal Madam family and one college staff member, who undertook the journey, and we were guided by the teachers of the Department of Zoology, namely, Sir (Dr.) Sarbojit Thaoson, Sir Bubul Das and also our lab bearer Mr. Semion Darnei.

The next day 24<sup>th</sup> May 2023, reaching Guwahati around 6:30 am we get freshened up and then had our breakfast and lunch around 9 am and 1:30 pm respectively. We were supposed to reach NJP at 2 pm but unfortunately the train was late so we reached at 6 pm. From there we again travelled by hiring 5 Bolero to reach our first destination 'Sikkim Pelling district', we took almost 6 hours and finally we reach there.

**Day 2:** The next day, 25<sup>th</sup> May 2023 it was around 7:00 am when we woke up and started getting ready to explore many new exciting and interesting things of the bird park. We all gathered at one place where we stayed and had our breakfast and then, quickly, settled ourselves the hired vehicles to explore. Before visiting the park we also visited 'sky walk & Chenrezig statue'. Reaching the 'Sidkeong Tulku Bird Park' at first we gathered towards the gate of the park and had a photo session with our banner there. There we saw many beautiful rare and extinct species of birds inside the park. It was so fascinating to watch all those birds present there.

Thereafter on completing the site seeing we also got to see the beauty of 'Orange garden and Kanchenjunga Waterfall's. On the way heading back towards our staying place we were mesmerized by the beauty of the hills, road and houses of Sikkim which took away all our tiredness.

This trip of us will always be cherished as it was both educative and fun trip for our semester. Our heartiest thanks to the Department of Zoology and our Principal Madam Madhumita Daulagupu for providing us such a wonderful trip.

  
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## DISCUSSION

**Sidkeong Tulku Bird Park**, Sikkim is the Breeding Hub & Home To The Exotic Species Of Birds. It is located remotely in the foothills of the Himalayas, the enchanting and tiny state of Sikkim owes its popularity as "The Land of Mystique Splendor". Enriched with scenic beauty and the verdant wilderness. The region of Sikkim is not only known for its pristine charm and mesmerizing landscapes but also its gamut of rich and exotic wildlife. Sikkim is blessed with a natural bounty of flora and fauna. With over 4,000 species of exotic flowering plants and 600 species of birds, this tiny state is no less than a paradise for botanists and bird watchers around the world. The Bird Park is named after Sidkeong Tulku, the 10th Chogyel of Sikkim and founding father of Modern Forestry in the state. Visitors can also experience the thrills of close encounters with some of the rarest feathered species. Sidkeong Tulku is a breeding shelter to over hundreds of species of birds including Grey Treepies, Green Imperial Pigeons, Turtle Doves, Whiskered Yuhinas and many more.

Walkways throughout the park are created for easy access along with elevated over bridges over the water bodies for aquatic bird sighting. Give bird watching a chance and you may find yourself becoming one amongst the thousands to get enchanted by the sweetest melody and the variety.

**Himalayan Zoological Park** is certainly a place for wildlife lovers in Sikkim. The Park has been established, to preserve the wildlife, without disturbing the creatures and keeping them in their natural habitat. Located in Bulbuley, Himalayan Zoological Park is at a distance of 3 kms from Gangtok. Established in 1991, Himalayan Zoological Park is the first park of its kind in the North-Eastern part of India. The Park accomplishes the perception of modern zoo, where the animals are kept in replicated natural conditions. A pavement has been made that passes by hedged open-air enclosures. These enclosures cuddle Red Pandas, Barking Deer, Panther, Himalayan Palm civet, Leopard Cat, Tibetan Wolf, Barking deer, Common Langur, Goral Spotted Deer and Bears in a partly natural habitat. Many a times, it is possible that you could not see these animals since the enclosures are spread over a huge area. The objectives behind the promotion of this park are to spread awareness amongst people regarding wildlife, promote education, research and eco-tourism for employment.

  
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## List of Birds seen during our visit to Sidekeong Tulku

### Bird Park

Sl. no	Common name	Scientific name
1	Kaliz Pheasant	<i>Lophure leucomelanos</i>
2	Silver Pheasant	<i>Lophura nycthemera</i>
3	Yellow Golden Pheasant	<i>Phasianus pictus</i>
4	Melanistic Pheasant	<i>Phasianus spp</i>
5	Ring Necked Pheasant	<i>Phasianus colchinus</i>
6	Golden Pheasant	<i>Chrysolophus pictus</i>
7	Java Finch	<i>Padda oryzivora</i>
8	Parrots	<i>Melopsittacus Spp.</i>
9	Reeves Pheasant	<i>Syrmaticus reevesii</i>
10	Lady Armhersts Pheasant	<i>Chrysolophus amherstiae</i>
11	Cockatiel	<i>Nymphicus hollandicus</i>
12	Californian Quail	<i>Callipepla californica</i>
13	Budgies	<i>Melopsittacus undulatus</i>
14	Canaries	<i>Serinus canaria</i>
15	Fancy Pigeon	<i>Columba spp.</i>
16	Love Bird	<i>Agapornis sp.</i>
17	Zebra Finches	<i>Teaniopygia guttala</i>

  
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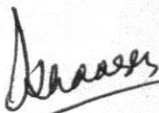
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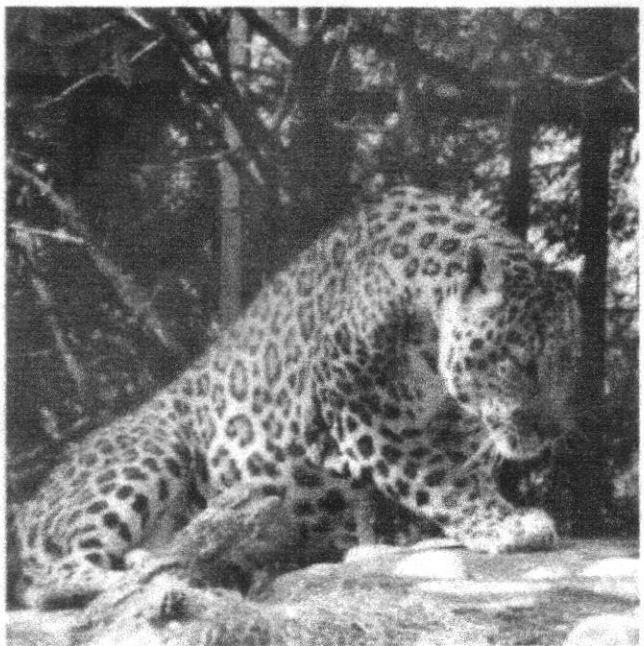
**List of animals seen during our visit to Sikkim Himalayan**

**Zoological Park:**

Sl no.	Common name	Scientific name
1.	Himalayan Black Bear	<i>Ursus thibetanus</i>
2.	Barking Deer	<i>Muntiacus</i>
3.	Blue Sheep	<i>Pseudois nayaur</i>
4.	Common Leopard	<i>Panthera pardus</i>
5.	Leopard Cat	<i>Prionailurus bengalensis</i>
6.	Red Panda	<i>Ailurus fulgens</i>
7.	Ghoral	<i>Naemorhedus goral</i>
8.	Yak	<i>Bos grunniens</i>
9.	Palm Civet	<i>Paradoxurus hermaphroditus</i>
10.	Porcupine	<i>Hystrix hodgsoni</i>

  
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# Photographs




## CONCLUSION

Thus, the field study module provides us a first-hand experience of ecological research in the forest environment and gives us a foundation in a range of topics, including biodiversity, community ecology, ecosystem process and conversation.

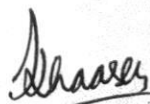
Before going to this trip, we knew nothing about the existence of such a beautiful interrelationship between the flora and fauna present in the part. We only thought that the park contains merely some plants and animal species and it is as ordinary as other places shedding animals and plants together in it. Of course, there was no presumption about the impending complete change on the way. We were completely mesmerized by the beauty and such kind of amazing relationship share by everyone inside the park. There is everything that can convince us to give our contribution towards the conservation of the wildlife today so that our future generation will be able to enjoy such a mesmerizing and enchanting view of nature. The moment we entered the park, we started feeling as if we were paying a visit to somewhat dreamland as one was required to enjoy the beauty of nature inside the park. Frankly speaking, one didn't one to come out from the park leaving that kind of awesome view.

So this education tour to Sidkeong Tulku Bird and Himalayan Zoological Park must have contributed alot in broadening our entire mental outlook for the conversation of our national habitat and also for the conversation of endangered species of certain animals.

  
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## REFERENCE

1. [https://www.tripadvisor.in/attraction\\_review-g659796-d1903809-reviews-Himalayan\\_Zoological\\_Park\\_Gangtok\\_Sikkim.html](https://www.tripadvisor.in/attraction_review-g659796-d1903809-reviews-Himalayan_Zoological_Park_Gangtok_Sikkim.html)
2. <https://www.esikkimtourism.in/attraction/gangtok-zoo/>
3. <https://www.sikkimstdc.com/GeneralPages/Details/himalayan-Zoological-park/199/details.aspx>

  
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