

Snake Diversity Conservation Through Herp-Tourism Model

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ABSTRACT

Snakes play an important role in sustaining ecological balance by controlling pest populations by eating and supporting biodiversity. But their is an increasing threats to their survival due to destruction of their habitat, changing climate, and extreme fear in people. This study focuses on the concept of herp-tourism also known as a snake tourism as an innovative strategy for snake diversity conservation. Responsible herp-tourism can increases awareness, can add another vertical to marine tourism, can change negative perceptions among people about snakes, and generate income sources for local communities through tourism and also by encouraging them to protect natural habitats. The study proposes a practical herp-tourism model including a snake rescue centre, herpetology museum, and research laboratory for snake venom. This model aims to encourage conservation, promote education, and sustainable economic development while reducing human–snake conflict and encouraging long-term conservation of snake species.

Keywords

Snake diversity, Herp-tourism, Conservation, Eco-tourism, Awareness, Human-snake conflict, Sustainable development.

1. INTRODUCTION

Snake tourism is still not well organized in Sindhudurg district. The districts have rich snake diversity including venomous species as well as non-venomous species. Due to lack of awareness and myths, people often fear snakes and kill them, which leads to ecological imbalance. Snakes play an important role in controlling populations of rodent and maintaining stability of ecosystem.

Herp-tourism, a branch of eco-tourism is mainly focused on reptiles, has great potential in this district. If planned responsibly, it can encourage wildlife conservation, provide livelihood opportunities, and promote scientific understanding. Herp-tourism can help people to connect safely with wildlife; education will reduce fear, and support biodiversity conservation.

2. HYPOTHESIS

The formation of a structured model for snake-tourism in Sindhudurg, including a rescue centre, herpetology museum, and laboratory for research on Venom, will significantly encourage awareness among people, reduce human–snake conflict, enhance community participation in such activity, and improve conservation of snake species.

3. OBJECTIVES

1. To investigate the potential for developing herp-tourism as a new vertical or new eco-tourism sector.
2. To propose a sustainable herp-tourism model for snake species conservation.
3. To decrease human–snake conflict through snake rescue operations and awareness programs.
4. To set up a operative snake rescue centre, venom research laboratory, and Serpent Museum.
5. To increase public awareness and eradicate myths about snake.

4. SNAKE HABITATE



The given fig. shows the habitat in Sindhudurg district, here mainly eight habitat were selected and Amboli is our main project centre which includes snake museum, venom collection lab, snake rescue and rehabilitation centre.

5. RESEARCH METHODOLOGY

The study is based on qualitative and descriptive research methods:

1. Data Collection: Field observations, surveys among local people, interaction with snake rescuers, and review of existing literature and handling of snake under the guidance of snake rescuers. Data collection period 01 September 2025 to 07 February 2026
2. Data Analysis: Identification of snake diversity, human attitudes, and tourism potential.
3. Justification: Evaluation of ecological, educational, and economic benefits of herp-tourism.
4. Data Consideration: Analysis of conservation needs, local participation, and sustainability factors.

Table 1: Total number of most common species of snake rescued in Sindhudurg from September 2025 to January 2026.

TYPE OF SNAKE	NAME	SEPT	OCT	NOV	DEC	JAN	TOTAL
Venomous	Spectacled Cobra	85	64	56	55	55	315
Venomous	Common Krait	57	50	49	36	37	229
Venomous	Russell's Viper	73	70	106	108	93	450
Venomous	Saw Scaled Viper	49	43	34	30	40	196
Mild Venomous	Green Vine Snake	80	59	54	52	39	284
Mild Venomous	Common Cat Snake	48	30	21	27	22	148
Non Venomous	Indian Rock Python	84	57	41	46	48	276
Non Venomous	Indian Rat Snake	85	63	61	40	41	290
Non Venomous	Checkered Keel Back	86	69	61	47	62	325
Non Venomous	Common Wolf Snake	89	69	52	40	48	298
Total	-	736	574	535	481	485	2811

(The given data is collected from the snake rescuers team from each taluka of Sindhudurg.), The given collected data shows that there is vast variety and number of snakes viz. venomous, non-venomous and mild venomous are found in different regions of Sindhudurg which ultimately shows that the region is favorable for snake tourism or Herp-tourism model.

6. PROPOSED HERP-TOURISM MODEL

The hypothetically proposed Herp-Tourism Model is designed as an integrated approach combining snakes species conservation, scientific research, education, tourism development, and community participation. The model focuses mainly on snake conservation while encouraging sustainable eco-tourism and decreasing human-snake clashes. The major components of the proposed model are described below:

1. Snake Rescue Centre.

A snake rescue centre is a facility for the rescue, handling, treatment of injured snakes, and rehabilitation of snakes found in human-activity areas. Trained Snake rescuers assure handling techniques that lower stress and injury to snakes. The centre helps to avoid unnecessary killing of snakes and encourage their safe relocation into

favorable, ecological habitats. For management of emergency snake bites and conservation programme, rescue centre act as training centre for local community, students and forest staff.

2. Museum for Education and Awareness

The organization of a herpetology museum leads to environmental education and awareness. The museum can display preserved specimens, models, interactive panels, life-cycle exhibits, and information on venomous and non-venomous snake species.

3. Venom Research Laboratory

A laboratory helps snake's scientific research about their venom composition, toxicology, and pharmaceutical applications. Snake venom is used for development of life-saving drugs for treating cardiovascular disorders, blood clotting abnormalities, neurological diseases. The laboratory also helps to antivenom research and improvement, can be helpful to reduce snakebite mortality rates.

4. Guided Tours and Awareness Programs

Organized guided tours provide visitors with controlled and safe exposure to Snake habitats under expert supervision. These trails include field observations, snake identification training, habitat locations, and conservation education programs. Awareness workshops, school visits, and Night trail activities increase ecological literacy and support responsible wildlife behavior. Eco-guided tourism generates income while minimize the disturbance to natural ecology.

5. Social Media Promotion and Educational Campaigns

Digital platforms and social media such as Instagram, face book, Twitter play an important role in spreading conservation awareness to a vast audience. Educational videos, rescue documentation, species information posts, and myth-busting posts or campaigns help improve public understanding of snakes and their ecological importance. Online engagement promotes participation of people, snake sighting and reporting, and support for conservation activities. Social media also enhance tourism promotion and attract educators and eco-tourists. The Herp-Tourism Model includes conservation programs with sustainable tourism and scientific and educational research with local people involvement. Local Community participation in such model can creates employment opportunities such as guides, educators, rescue volunteers, and tourism service providers. This integrated system ensures protection of biodiversity, development of economy, environmental education, and long-term sustainability.



Fig : Hypothetically Proposed model

7. BENEFITS OF THE STUDY

A) Environmental Benefits

1. Snake diversity and natural habitats conservation: Snake tourism encourages protection of snake species and their natural habitat, helping to preserve biodiversity and maintain healthy ecology. Increased awareness will lead to reduction in snake killing; Educational activities increase public and student understanding about snakes, and prevent unnecessary killing of snakes due to awareness.
2. Improved ecological balance: Snakes control pest populations by eating such as rodents and frogs, which helps maintain food chain stability and overall balance of ecology.

B) Economic Benefits

1. Employment opportunities for local people: Snake tourism creates jobs for local communities such as snake guides, conservation workers, researchers, and support staff.
2. Strengthen eco-tourism and local economy: Herp-tourism attracts visitors, supporting local businesses like hotels, transport, and handcrafts.
3. Increased tourist visits and revenue generation: Unique species attractions increase tourist inflow, creating income for conservation program and local development. Medical and Scientific Benefits

3. Snake venom as a valuable resource in the drug manufacturing: Snake venom is used in creating drugs for treating illness such as hypertension, pain disorders, and blood-related conditions, supporting medical research and drug development.
4. Development of life-saving medicines for heart diseases, blood pressure, clotting disorders: Snake venom has bioactive compounds in it which can be used in the manufacturing of medicines that will help to treat cardiovascular diseases, regulate blood pressure, and prevent blood clot formation.

8. SOCIAL RELEVANCE

1. Tourism Development and Job Creation

Snake tourism is a type of eco-tourism and can attract researchers, scholars, herpetology enthusiasts, students, and nature and wildlife lovers. Development of snake parks, rescue centers, and guided herpetological tours can encourage employment opportunities such as tourist guides, conservation workers, researchers, local transporter, and hospitality services. This will support conservation of wildlife as well as strengthen local economy

2. Community Participation in Conservation

Local communities play a crucial role in snake conservation. Through snake tourism, conservation and rescue program, villagers and local experienced people can actively participate in rescue operations, protection of habitat, and awareness programs. Involvement of local people will reduce fear and killing of snakes and motivates people to protect biodiversity as contributors in conservation efforts.

3. Educational Awareness and Scientific Learning

Herp- Tourism can be an educational platform where tourist/students/visitors can learn detail about snake species diversity, their importance, details about venom, and first-aid protocol after snakebite. People has so much misconceptions and myth about snakes; to eradicate that school and colleges can organize educational visit that encourage herpetology-based learning, scientific thinking, and environment responsibility among people

4. Contribution to Medical Advancements

Snake venom has crucial importance in research and drugs development.

Snake species conservation assures sustainable availability of venom used in producing antivenoms and medicines for neurological and cardiovascular diseases. Snake tourism vertical can support venom research, thereby contributing to public health and scientific advancement.

Photograph of snake rescues, surveys, awareness camp and data collection:



1. Awareness camp at Devgad, Study of geography of area available species and their study.



2. Awareness camp among students, giving information about snakes pattern, behavior and similarities at malvan



3. Observation of Rescued and the very Rare species- Green Pit Viper found at Phondaghat.



4. Observation of Shed snake skin and their scale structure at Amboli during night trail.



5. Observation of Saw Scaled Viper on the plateau of Dodamarg.

6. Survey in Vaibhavvadi taluka.



7. Observation of Rescued Bronze Back snake, and Study of its structure and Behavior at Devbag, Malvan.

9. RESULTS

1. High snake diversity recorded in the region: The study documented a wide variety of snake species, showing vast biodiversity and indicating the ecological importance of the region for snake conservation.
2. Positive approach in native's attitudes toward snake awareness: Awareness programs helped decrease fear and myth about snakes, initiate communities to support conservation efforts.
3. Strong potential for sustainable tourism development: The presence of diverse snake species generates opportunities to create eco-friendly tourism that benefits both ecological conservation and local livelihoods.
4. Expected reduction in human–snake clashes: Detailed knowledge about snake and rescue practices can decrease accidental death and reduce conflicts between humans and snakes. Increased educational and economic opportunities: Snake tourism encourages environmental education while generating income and employment opportunities for local communities.

10. CONCLUSION

The Herp-tourism model in Sindhudurg indicates comprehensive and sustainable activities to snake conservation. By adding rescue operations, research on venom, local community involvement, and educating people, it support both environmental protection and local area development. This model has strengthened to become a frontline conservation strategy for biodiversity-rich regions in India. Responsible Tourism can change fear of snakes into educating, understanding and respect for snake, ensuring long-term conservation and balance of ecology.

11. REFERENCES

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