SETTING UP SNAKE HELPLINE CLUBS
IN FOUR TOWNS OF ORISSA, INDIA

Final report

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Acknowledgement

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Abbreviations used
SHLC: Snake Helpline clubs
For snake species:
OH: *Ophiophagus hannah* or King cobra, **NN:** *Naja naja* or Spectacled cobra, **NK:** *Naja kaouthia* or Monocled cobra, **DR:** *Daboia russelli* or Russell's viper, **BC:** *Bungarus caeruleus* or Common krait, **BF:** *Bungarus fasciatus* or Banded krait, **PMM:** *Python molurus molurus* or Indian Rock Python, **PM:** *Ptyas mucosus* or Indian Rat snake, **LA:** *Lycodon aulicus* or Common wolf snake, **LS:** *Lycodon striatus* or Barred wolf snake, **AS:** *Amphiesma stolata* or Buff striped keel back, **AN:** *Ahaetulla nasuta* or Common vine snake, **DT:** *Dendrelaphis tristis* or Common bronze-back tree snake, **XP:** *Xenocrophis piscator* or Checkered keel back, **OA:** *Oligodon arnensis* or Common kukri snake, **BT:** *Boiga trigonata* or Common cat snake, **GC:** *Gonglyophis conicus* or Common sand boa

We as a team.....

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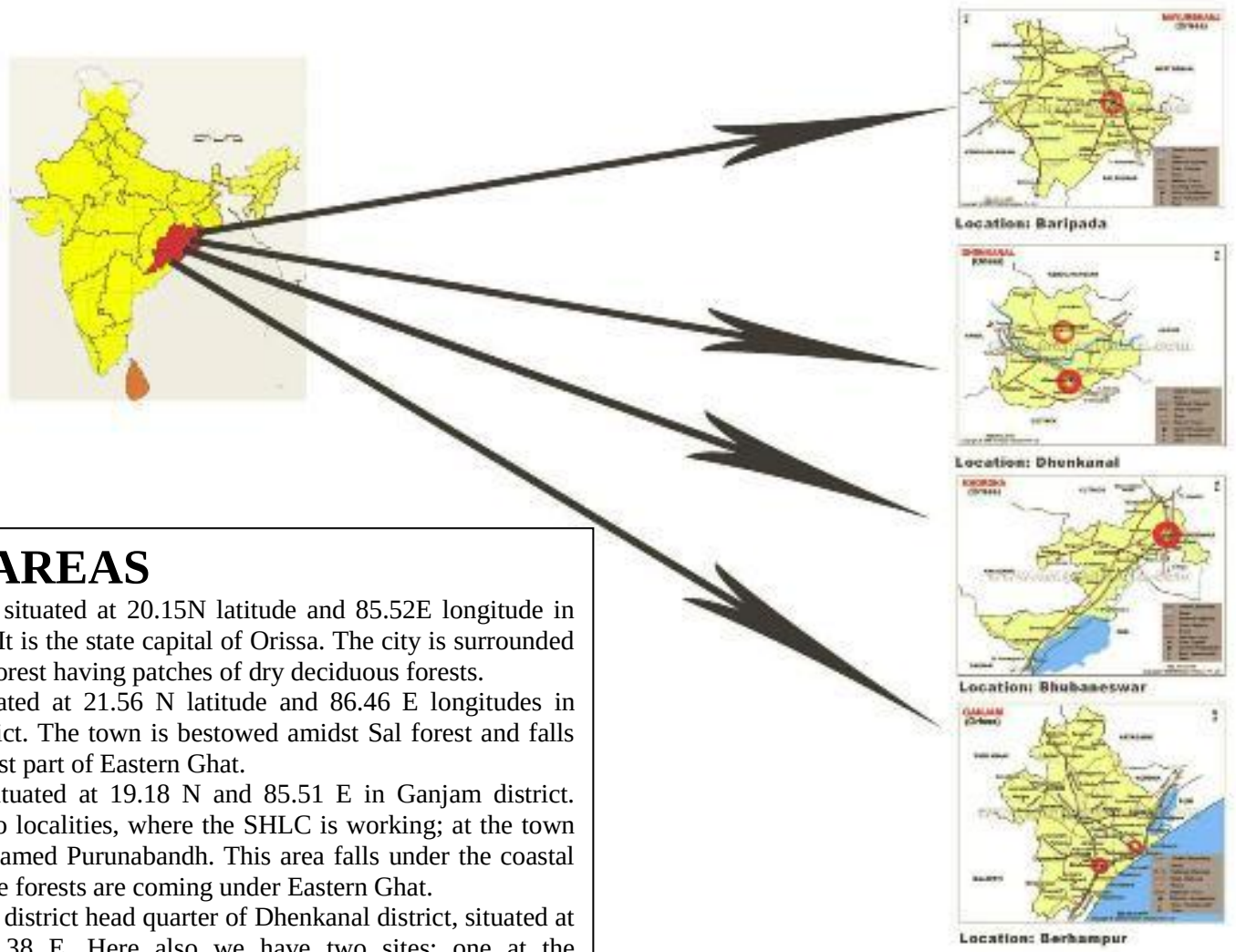
Preface

Snakes, as a part of our ecosystem, maintain the balance in nature by controlling a major portion of the rodent pests. They are associated with mythology and our culture as the symbol of love, fertility; and often linked with Gods and Goddess. The myths associated with snakes make them more dangerous, ferocious and enigmatic than any other creature. Snakes have fascinated human from time immemorial and are utilized by them in various ways. They may be the source of livelihood or the source of life saving drugs; they are part of our life. They live with us, serve us and of course, sometimes harm us. In fact snakes are very shy animals and often avoid human encounter. Snakes follow the three basic principles of animal behaviour- flight, fright and fight. Whatever species of snake it may be it tries to escape at the first sight, if cornered it tries to fright the adversary and if still disturbed it fights (bite). So it is necessary to know more about these reptiles to conserve them and to save them.

Snake-human conflict persists in almost every part of India. To minimize the conflict, for the first time in Orissa, we started the program of snake rescue in a systematic way. The snake rescue operation by our group, earlier named as "Sarpa Surakshya Abhiyan", started during August 2002 from the Utkal University campus and then gradually extended over the whole stretch of Bhubaneswar and nearby areas by 2003. Though snake rescue (catching) in Bhubaneswar is not a new practice, which was initially carried out by the snake charmers of Padmakesharipur, the approach was modified. The Sarpa Surakshya Abhiyan was started with the broader objective of reducing snake-human conflict by snake rescue, relocation of the rescued snakes and public awareness. The activity was then spread over to different parts of Orissa by joining the interested volunteers from different corners of the state. Now the Sarpa Surakhya Abhiyan is running as "Snake Helpline" to minimize the snake-human conflict in the state. We have formed four clubs in Bhubaneswar, Berhampur, Baripada and Dhenkanal, where the members are working on snake rescue and relocation, public awareness and also carrying out research activities on conservation of these reptiles.

Objectives

1. Snake help-line clubs (SHLC) will act as interpretation centres, where interested people and students can visit to learn more about these fascinating reptiles through interactions and pictograms.
2. Round the clock snake rescue will be carried out, which is aimed to be a boost for snake conservation and to minimize snake human conflict leading to snakebite.
3. Pre and post relocation field survey is vital before rehabilitation of any wild animal. This can give an overall idea about habitat suitability and the abundance and survivability of the released snakes in wild.
4. Spot education: After rescuing a snake from a place, people become anxious to know about the snakes and ask many questions relevant to snakes. Clearing their doubts on the spot proves to be most important in changing their superstitious beliefs.
5. Awareness campaigns in snake prone areas prove to be effective in clearing various myths in people's minds and emphasize reasons to conserve these reptiles. Colour leaflets carrying information on the venomous snake species, Dos and Don'ts in case of snakebite, tips to avoid snakebite and explanation of common myths are one way to spread our message.



STUDY AREAS

Bhubaneswar is situated at 20.15N latitude and 85.52E longitude in Khurdha district. It is the state capital of Orissa. The city is surrounded mostly by scrub forest having patches of dry deciduous forests.

Baripada is situated at 21.56 N latitude and 86.46 E longitudes in Mayurbhanj district. The town is bestowed amidst Sal forest and falls at the northernmost part of Eastern Ghat.

Berhampur is situated at 19.18 N and 85.51 E in Ganjam district. Here we have two localities, where the SHLC is working; at the town and at a village named Purunabandh. This area falls under the coastal zone as well as the forests are coming under Eastern Ghat.

Dhenkanal is the district head quarter of Dhenkanal district, situated at 20.40 N and 85.38 E. Here also we have two sites; one at the Dhenkanal and another at Kamakshya Nagar. The area is surrounded by typical dry deciduous forest.

Methods

Snake rescue

Snake rescue by the team is carried out as per accessibility of the rescuers to the nearest place of the rescue site. During attending the rescue call the exact locality of the informer is noted down and he is instructed to keep an eye on the movement of the snake. After getting the rescue call, the rescuers get ready within no time and try to arrive at the spot as soon as possible. Generally two rescuers attend the rescue call. The rescue operation starts after observing the snake and the circumstances. Crowd control is done by one rescuer to avoid any unseen mishap. The snake is brought to an open place with the help of the snake stick and when it starts moving it is caught by tail. With the help of the snake stick the anterior part of the body is supported and is brought near the opening of the specially designed snake bag, so that the snake automatically enters inside the bag. Once the snake enters inside the bag, the opening of the bag is to be tied carefully while rescuing any venomous snake. Utmost care is taken not to tie the body of the snake, which is done by slowly sliding the snake stick from the mouth of the bag towards the position of snake. After separating the bag into two sections with the snake stick as a divider, the opening of the bag is twisted and then tied with the help of a rope. For non-venomous snakes the opening of the bag is twisted slowly to prevent the escape of the snake from the bag and meanwhile the rescuer saves his hand from any accident. This method is one of the safest methods to handle the snakes as it causes minimum risk for the snake and the rescuer.

Maximum precaution is taken while handling injured snakes, gravid female or molting snake. After transferring the snake into the snake bag, utmost care is taken while carrying for relocation. Data sheet is maintained regarding the date, place of rescue, time, species and species detail.

Snake rescue other than the proposed study area

Several times we (the snake rescuers) had experienced urgency to attend rescue calls far away from the proposed study areas. In that case we have always attended the call and carried out our activities like spot education and distribution of the materials. Such activities sensitize the public in a positive way towards conservation of these reptiles. In some cases we also came across certain species of snakes, earlier not reported from the state.

Relocation

Relocation of the rescued snakes is rather an important task than the snake rescue. Before the relocation of any snake the relocation site is studied. The study is done to assess the habitat suitability, prey abundance and diversity of the snake species in the area. Studies are made to ascertain the survival of the rescued animals. Though there is no provision for further study on the status of the animals after relocation, it is kept in mind to carry out the study in near future. During the relocation of the rescued snake we are most careful not to release the snake far away from its territory (here territory means the area within 0.5 km from the snake rescue site for bigger snakes like Cobra and rat snakes (personal observation)). In extreme cases the snake is released in a similar kind of habitat, scanned before the release. Sometimes it was also experienced that people rather agree to our proposal for the release of the snake in the nearby area after counselling on the importance of snake in the ecosystem (but only for rat snakes). Mostly cobras were released in agricultural fields at the outskirts of the town.

In some occasion we came across situation for treatment of snakes, where we consulted the veterinarian in the nearby hospital, after getting appropriate permission from the Forest Department. In this connection, we have undertaken five cases of serious injury in case of cobra and one case of skin burning in case of an Indian Rock Python. For the treatment of larger snakes like King cobra and Python the team has got permission to treat them in Nandankanan Biological Park, Bhubaneswar, Orissa.

Public awareness

Snakes are always considered as dangerous and harmful animals, because of their appearance and potential of some snakes to kill human by the effect of their venom. They are the group, associated with maximum number of myths than any other animals. To eradicate the myths associated with the snakes is one of the prime objectives of the team. We carry out public awareness by spot education, seminars and by distributing the leaflets.

In spot education the rescuer devotes some time, after the snake rescue, to explain the gathered public about the snakes and their role in the ecosystem. This basic step is helpful in reducing the snake phobia. In most occasions people are anxious to ask some basic questions like; from where the snake entered into the house, what we can do when we spot a snake, what species of snake this is, or how dangerous the snake is etc.

Awareness campaigns in the form of seminars are held at periodic basis in different villages and institutions with power point presentations and pictograms to aware the public about the snakes. It includes the keys for identification of the snakes, possible snake habitat, first-aid measures after snakebite and explanation of various myths associated with the snakes. These programs are aided with distribution of leaflets. We also demonstrate regarding the first-aid measures in case of snakebite to some volunteers of that area. The group also takes initiative in counselling the snake bitten victims as and when required.

Results and discussions

It is learnt that the numbers and diversity of snakes rescued are arbitrary as it depends on several factors, like availability of the rescuers, presence and absence of the snake at the site, seasonal variation of snake encounter and patchy distribution of snakes. Unlike field studies, most of the time, snakes are rescued in aberrant conditions, for example you may come across a diurnal snake in night time or vice versa. Sometimes the snakes are found in unusual places like inside cars, inside washing machines or in places where it is difficult to take them out without some special technique. Hence in every rescue the rescuer is unaware of what is going to be happened. Though in many cases the snake has already fled from the place, it is useful to give assurance to the informer.

The snake rescue figures given in the report contain only the successful rescues and we have ignored the failure cases like when the snake is not found or could not been rescued due to some technical difficulties.

Description of some of the common snakes encountered during the rescue operation and their habitat are already provided in the dossier "Snakes of Orissa, a brief portrayal". Apart from these common snakes, there were also occasional rescue of King cobra, Python, Common sand boa, Bronze back tree snake, Vine snake, Kukri snake during the operation. There are also instances of rescue or encounter of snakes during field studies, based on which we are adding 8 species to the checklist of snakes of Orissa. During the study period the team members came across an interesting species of Pit viper (*Trimeresurus* sp.), Saw scale viper (*Echis carinatus*), Glossy marsh snake (*Gerardia prevostiana*), Crab eating snake (*Fordonia leucobalia*), St John's keelback (*Xenocrophis sanctijohannis*), a species of Black headed snake (*Sibynophis* sp.), a species of Wolf snake (*Lycodon* sp.) and a species Kukri snake (*Oligodon* sp.) from different parts of Orissa. Mostly theses species of snakes were observed during the field study for relocation of the snakes. Scientific publications are underway in collaboration with experts.

Though funding for the project was reached during 15th September 2006, we had already started our work from June 2006 (after getting confirmation for the grant). During June 2006-December 2007 the team has rescued 2313 snakes from various localities of the four towns in Orissa, namely Bhubaneswar, Baripada, Berhmpur and Dhenkanal. The team has also conducted 140 awareness campaigns in 25 schools, 7 colleges, 2 Universities and 105 villages during this period in different parts of the state. The monthly snake rescue figures as shown in Appendix-2-5, shows (June 2006 to December 2007), a total number of 1785, 180, 233 and 115 snakes have been rescued from Bhubaneswar, Baripada, Berhampur and Baripada respectively. The snake rescues in the individual towns are discussed as follow:

Bhubaneswar: A total of **1785** snakes comprising 13 species were rescued from a radius of 20 km of the city encompassing 869 Spectacled cobras, 755 Rat snakes, 76 Checkered Keel backs, 22 Common wolf snakes, 18 Monocled cobras, 14 Russell's vipers, 11 Common Kukri snakes, 9 vine snakes, 4 Buff striped Keel backs, 3 Common kraits, 2 Pythons, 1 King cobra, and one Common cat snake. The month wise rescue figure is shown in Appendix-2. There were 4 volunteers working in the area. In the year 2006 maximum numbers of snakes were rescued in the month of September (104 nos.) and minimum during the month of July (68 nos.), whereas in 2007 maximum number of snakes were rescued in the month of October (152 nos.) and minimum nos. during July (56 individuals). From the graph it is clear that maximum rescue of snakes was during September and October, with the trend of continuous rise, whereas the trend is decreasing sharply during November and December.

In Bhubaneswar, 40 awareness campaigns were conducted in 13 institutions (5 in schools, 7 in colleges and 1 in Utkal University) and 27 village level campaigns in different areas.

Baripada: A total of **180** snakes of 12 species were rescued from a radius of 10-15 km of the city encompassing 58 Spectacled cobras, 50 Rat snakes, 23 vine snakes, 14 Common wolf snakes, 8 Checkered Keel backs, 7 Striped wolf snakes, 6 Buff striped Keel backs, 6 Common kraits, 3 Russell's vipers, 3 cat snakes, 1 Monocled cobra and 1 Banded krait. The month wise rescue figure is shown in Appendix-3. In the year 2006 maximum numbers of snakes were rescued is in the month of June (17 nos.) and minimum snakes were rescued in July (6 individuals), whereas in 2007 maximum snakes were rescued in September (15 individuals) and minimum in the month of August and December (5 nos.). There were three volunteers working in the area.

Forty-three awareness campaigns were conducted in 10 schools, in North Orissa University and in 32 village level institutions.

Berhampur: A total of **233** snakes of 13 species of snakes were rescued from a radius of 30 km of the city encompassing 111 Spectacled cobras, 46 Rat snakes, 19 Common wolf snakes, 15 Buff striped Keel backs, 14 vine snakes, 7 Common cat snakes, 5 Common bronze back snakes, 4 Common kraits, 3 Banded krait, 3 Russell's vipers, 3 Common sand boas, 2 Checkered Keel backs, and 1 Monocled cobra. The month wise rescue figure is shown in Appendix-4. There were two volunteers working in the area. In the year 2006, maximum snakes were rescued was in the month of June (24 individuals, maximum of Rat snakes), whereas in 2007 maximum snakes were rescued in the month of October (28 individuals, maximum of Spectacled cobra).

Thirty-three awareness campaigns were conducted in 9 schools and 24 villages. In many places we sensitized the fishermen to release back the Dog faced water snakes and other species of snakes regularly caught in the fishing nets.

Dhenkanal: A total of **115** snakes of 11 species were rescued from Baripada encompassing 40 Rat snakes, 27 Spectacled cobras, 14 Checkered Keel backs, 11 Buff striped Keel backs, 9 vine snakes, 5 Common wolf snakes, 3 Common kraits, 3 Indian rock pythons, 1 Russell's viper, 1 Banded kukri and 1 Common cat snake. There were 3 volunteers working in the area, 2 in Dhenkanal town and one in Kamakshya Nagar (nearly 30km from Dhenkanal town). During the study period 12 species of snakes were rescued from a radius of 10-15 km of the city. The month wise rescue figure is shown in Appendix-5. In the year 2006 maximum numbers of snakes were rescued is in the month of August (11 nos.), whereas in 2007 maximum number of snakes were rescued in the month of November.

Twenty-four awareness campaigns were conducted in 2 schools, one in Dhenkanal Government College and in 21 villages.

It is evident that the sighting frequencies of some species of snakes like Spectacled cobra, Rat snake, Checkered keel back and Striped keelback are higher from the pre monsoon (May) to early winter (October). Mean while, some snake species like Russell's viper and Wolf snakes show higher occurrence in winter season. Though during monsoon seasons snake encounters are more but due to certain limitations on the part of rescuers and the informers there is maximum chances of escape of the snake. Rat snake being the most agile snake is 'master in escaping'. Rescue of Spectacled cobras and Rat snakes are always in peak than the other snakes because of adaptation of these snakes near human habitation for easy prey hunt and religious beliefs associated with the species. It is also evident that more numbers of spectacled cobras are rescued during the early winter months, when the snake search for plenty of food and a safe place for hibernation.

Achievements:

1. During the project period the team has succeeded in rescuing more than 2, 400 snakes from different localities of Orissa (including the areas outside the study site).
2. The team has conducted 140 awareness campaigns in schools, colleges and villages.
3. The team has counselled more than 300 snake bitten victims and followed up their health checkups either personally at the hospitals or over telephonic conversation.
4. The team could reach to more than 1, 000 villages across the state spreading the awareness messages, which has benefited at least 10, 00, 000 individuals in the state through our presence by spot education or by distribution of the leaf lets and posters.
5. The team members were interviewed many times in several television channels, All India radio and once in BBC radio news channel regarding the snake awareness, which has probably influenced uncountable number of individuals watching or listening to the media.
6. The team has reached in many places during emergency situation like flood and helped the public and Government in tackling the snake related situations in the state.
7. During the study period the team leader has recorded 8 species of snakes earlier not reported from the State. This is also a great achievement for the field of herpetology and the team is grateful towards the funding agency.
8. This grant is a great source of inspiration for the youngsters and the pro-wildlife persons of the state and we hope it will continue as a trend in the field of wildlife conservation in the state.
9. On 30th October 2007 the team leader was felicitated by Orissa Environmental Society for his service towards the field of snake conservation in the presence of His Excellency Shri Chandrakant Muralidhar Bhandare (the Governor of Orissa, India).

Future objectives

The team plans to take up the following activities in near future

1. **The Snake Helpline Clubs can be taken as a model for snake conservation by involving the snake charmer community of Orissa**. Snake charmers can better utilize the multidimensional aspect of the work in conservation of the reptiles as well as to solve a major part of their rehabilitation. For developing the idea of institutionalizing the rehabilitation for the snake charmers, the team is now working on the rehabilitation model and is in constant touch with the state Government to solve the issue.
2. **Setting up Snake Rescue Centre;** Rescue centre is a temporary shelter for animals found in distressed condition. In Orissa there is urgent need for a rescue centre, which can be started up as the snake rescue centre, with the State Forest Department.
3. **Setting up Mini Snake Interpretation Centres** in village level; The team has already started operating in various parts of the state and aims at educating the public by providing basic knowledge about snakes through posters and leaf lets. We want to reach most of the village level clubs and in each club volunteers will be trained with the basic skill of snake rescue. The volunteers will also be provided with literature and will be expertise in field studies to have additional knowledge about snakes and they can act as key persons in reaching a larger forum.
4. **Formation of a Rapid action Snake Rescue Team** for controlling snake menace during floods. It is observed that the snakebite casualty increases many folds during floods and monsoon seasons. So the team plans to set up a group of volunteers to counteract the snakebite casualty in the flood affected areas.

5. **Database management on availability of anti snake venom in the hospitals of Orissa**. After snakebite, the victim is often confused in getting proper medical treatment. The database will be prepared for directing the snake bitten victim to the nearest hospital having ASV for treatment after the advocacy of the first aid measures. In the database we planned to have the contact information for all the hospitals and medicine stores having Anti Snake Venom. After getting phone calls from a snake bitten victim (which is a regular case for the Snake helpline), we want to advice them for the nearest hospital for treatment.
6. We want to do **advocacy with the state government for better treatment of the snake bitten victims and also want to highlight on free supply of antivenin for the people Bellow Poverty Line**.
7. **Publication of a book on Snakes of Orissa**; the team leader is currently carrying out higher study on Systematics and Biogeography of Snakes of Eastern Ghat ranges of Orissa, India, under the guidance of Prof. S. K. Dutta at North Orissa University. The endeavour can be published in a form of book, which will be informative for any group of people interested to know about the snakes. The most important objective is publishing the book in English and Oriya (local language) to reach all classes of people. The book can be sold with a nominal price for the sustenance of the Snake Helpline Clubs in a longer run.

Figure 1: Total number of snakes rescued

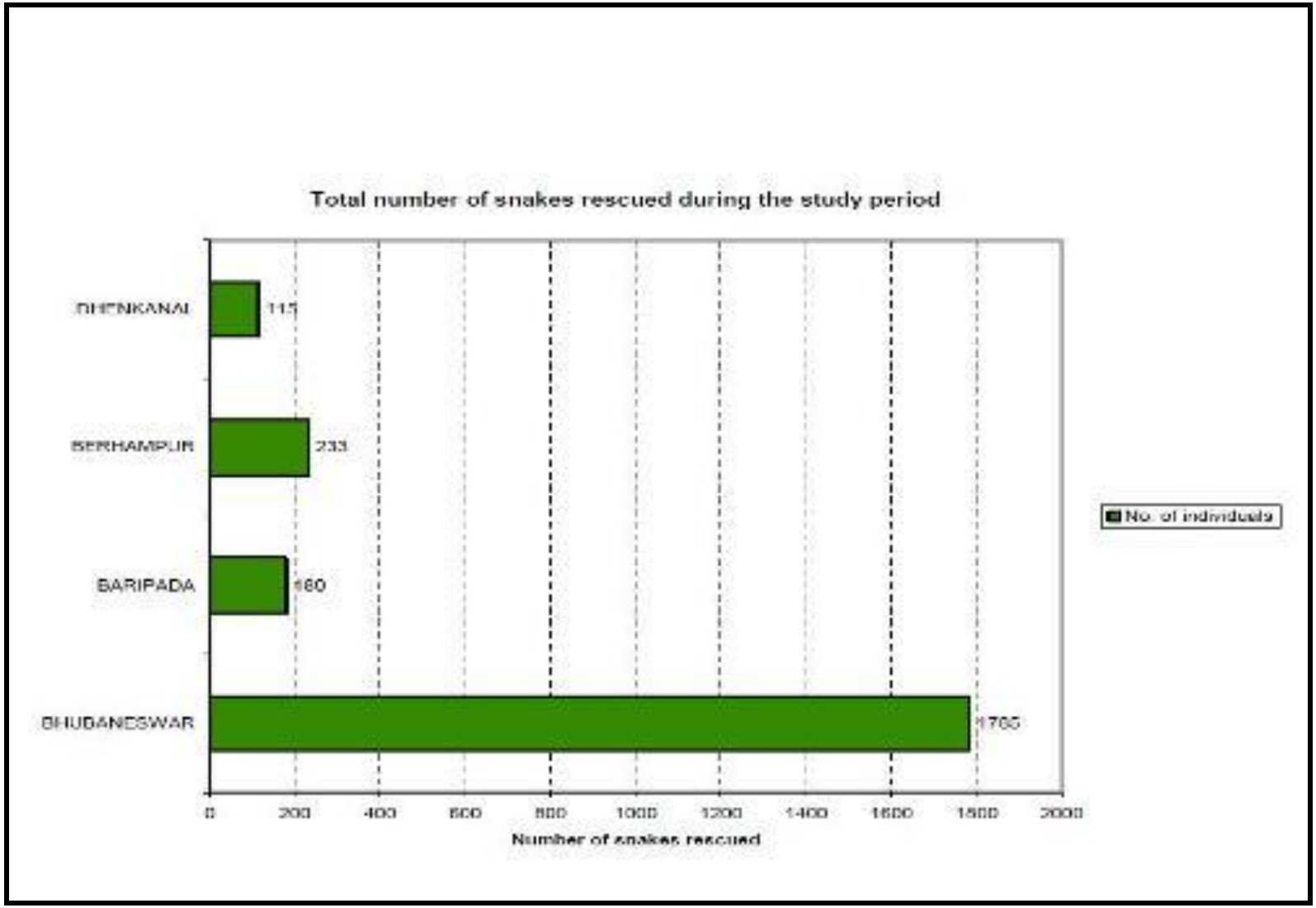
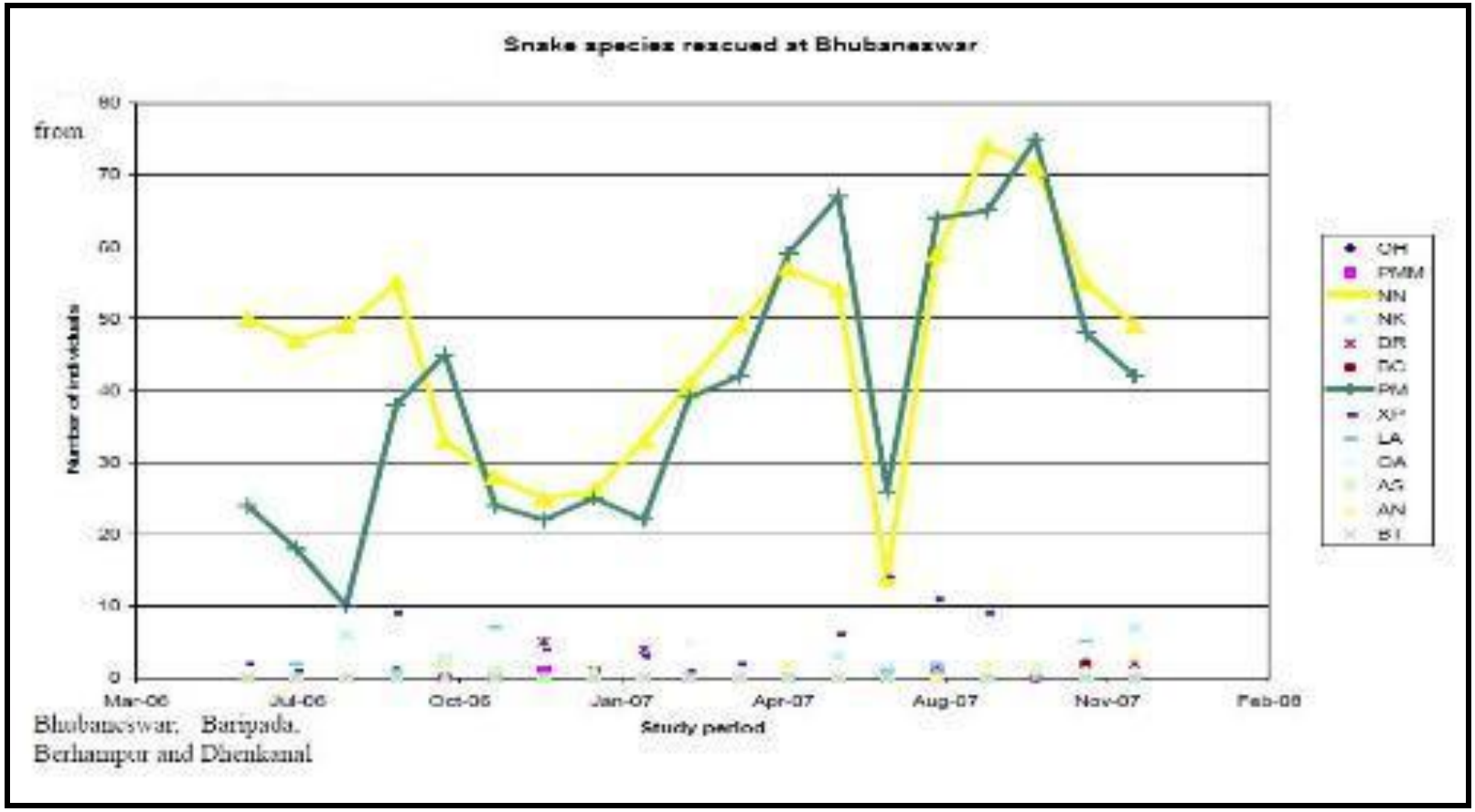


Figure 2: Month wise diversity of snake rescue data at Bhubaneswar



OH: *Ophiophagus hannah* or King cobra, **NN:** *Naja naja* or Spectacled cobra, **NK:** *Naja kaouthia* or Monocled cobra, **DR:** *Daboia russelli* or Russell's viper, **BC:** *Bungarus caeruleus* or Common krait, **BF:** *Bungarus fasciatus* or Banded krait, **PMM:** *Python molurus molurus* or Indian Rock Python, **PM:** *Ptyas mucosus* or Indian Rat snake, **LA:** *Lycodon aulicus* or Common wolf snake, **AS:** *Amphiesma stolata* or Buff striped keel back, **AN:** *Ahaetulla nasuta* or Common vine snake, **XP:** *Xenocrophis piscator* or Checkered keel back, **OA:** *Oligodon arnensis* or Common kukri snake, **BT:** *Boiga trigonata* or Common cat snake. The lines on the graph show maximum abundance of the species.

Figure 3: Total number of snakes rescued during different months in Bhubaneswar

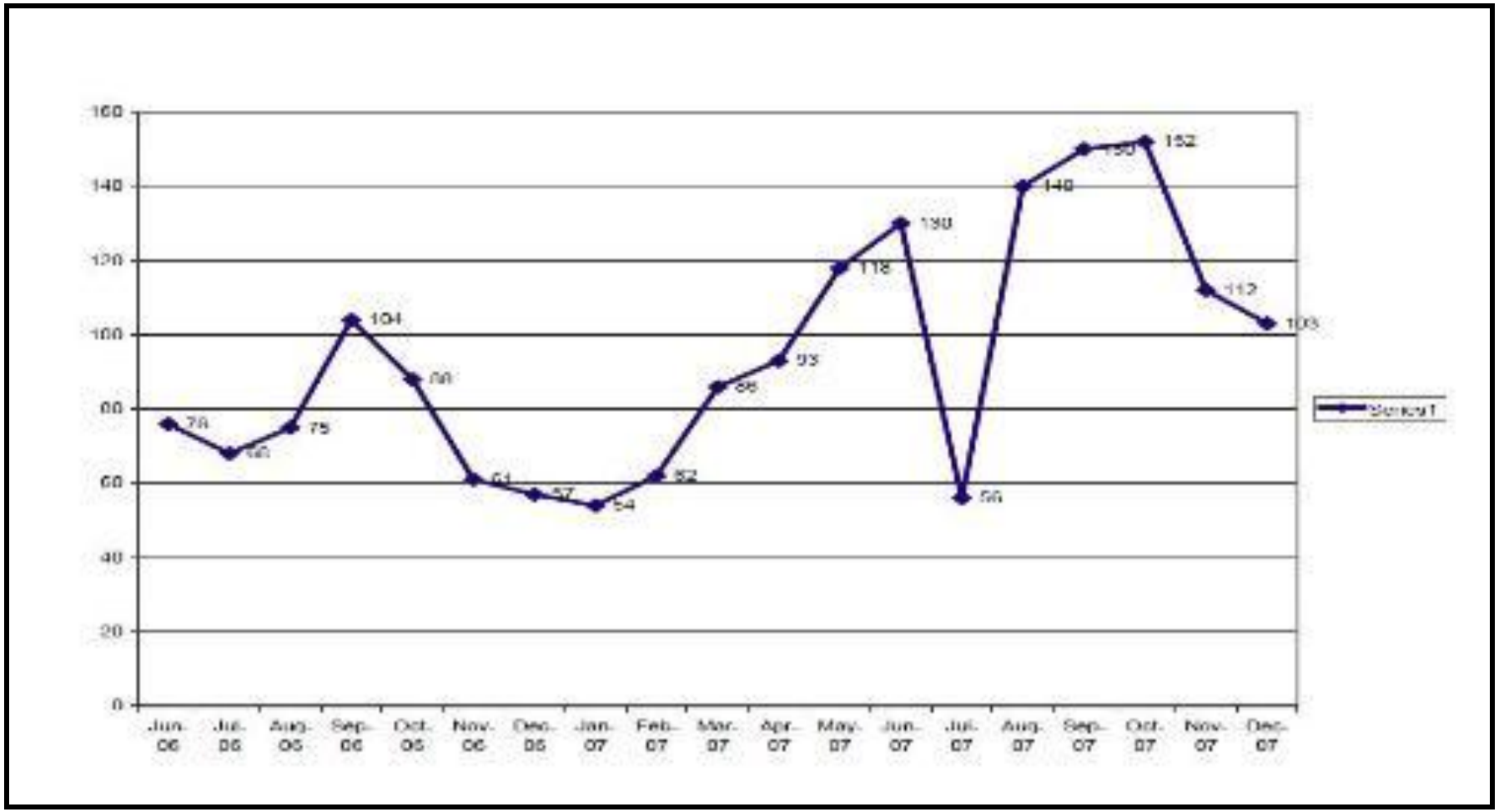
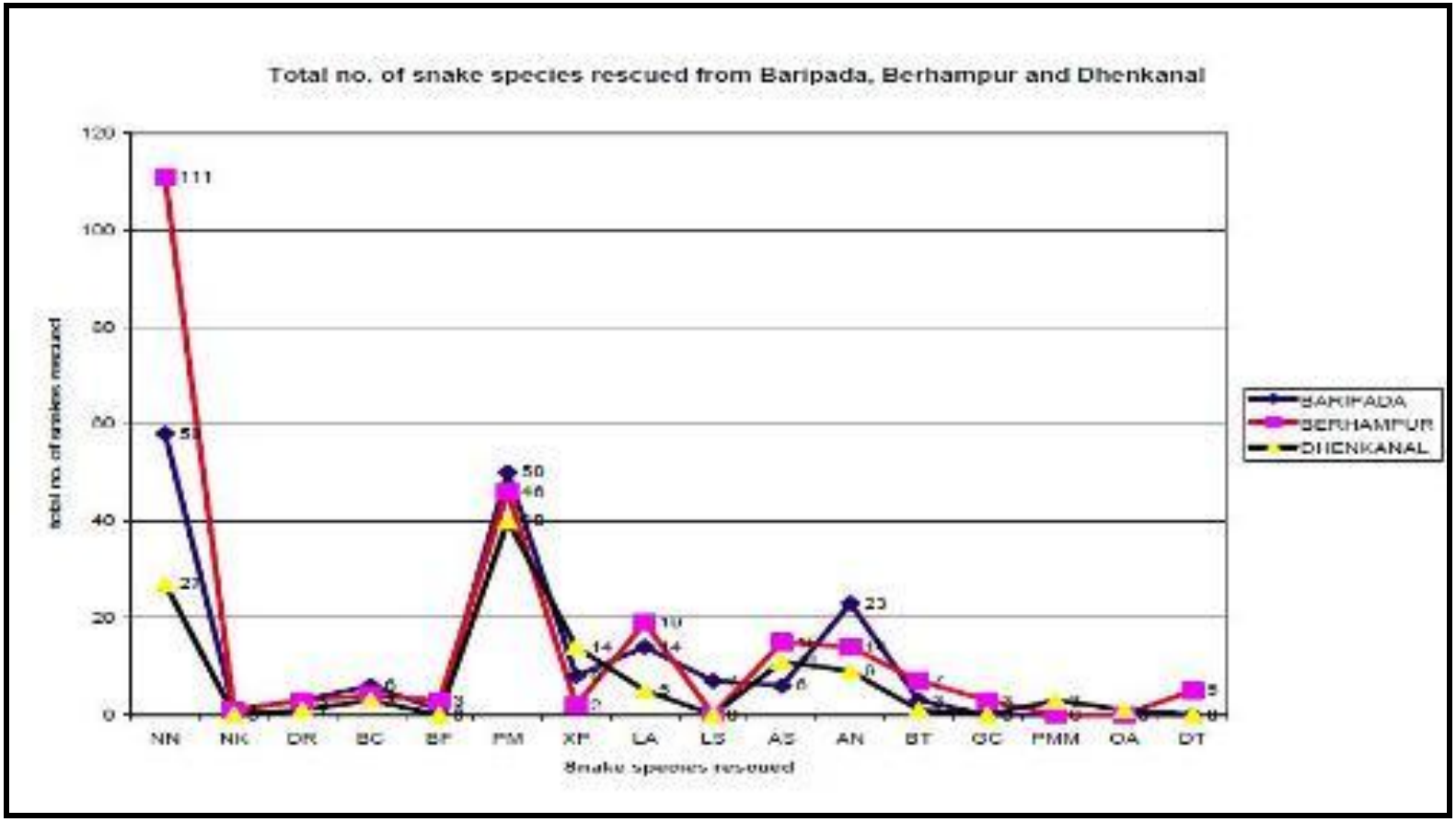


Figure 4: Diversity of snake species rescued during the study period from Baripada, Berhampur and Dhenkanal



NN: *Naja naja* or Spectacled cobra, **NK:** *Naja kaouthia* or Monocled cobra, **DR:** *Daboia russelli* or Russell's viper, **BC:** *Bungarus caeruleus* or Common krait, **BF:** *Bungarus fasciatus* or Banded krait, **PMM:** *Python molurus molurus* or Indian Rock Python, **PM:** *Ptyas mucosus* or Indian Rat snake, **LA:** *Lycodon aulicus* or Common wolf snake, **LS:** *Lycodon striatus* or Barred wolf snake, **AS:** *Amphiesma stolata* or Buff striped keel back, **AN:** *Ahaetulla nasuta* or Common vine snake, **DT:** *Dendrelaphis tristis* or Common bronze-back tree snake, **XP:** *Xenocrophis piscator* or Checkered keel back, **OA:** *Oligodon arnensis* or Common kukri snake, **BT:** *Boiga trigonata* or Common cat snake, **GC:** *Gonglyophis conicus* or Common sand boa

Figure 5: Month wise total number of snake rescued from Baripada, Berhampur and Dhenkanal

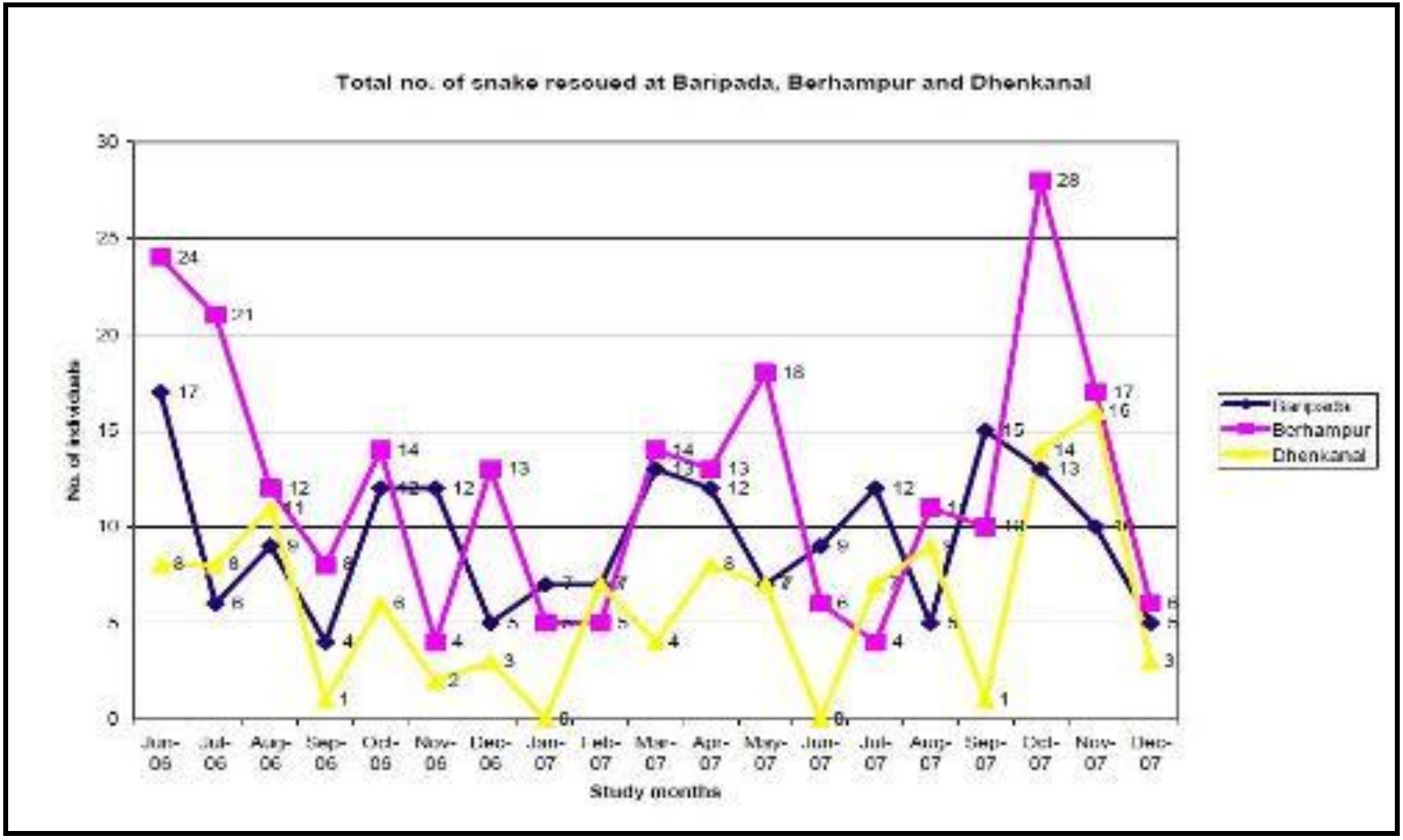


Figure 6: Diversity of snake species rescued from Baripada

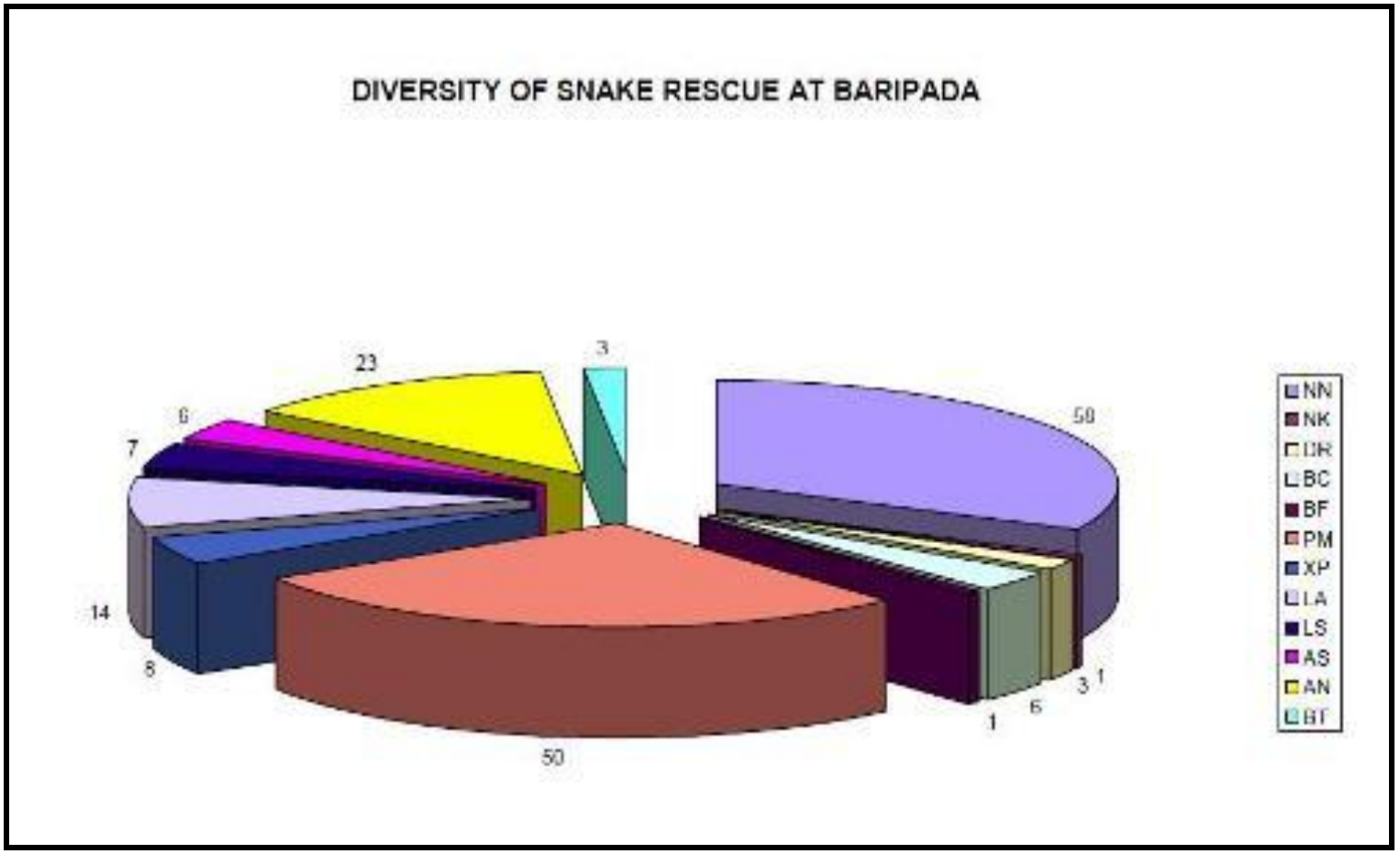


Figure 7: Diversity of snake species rescued from Berhampur

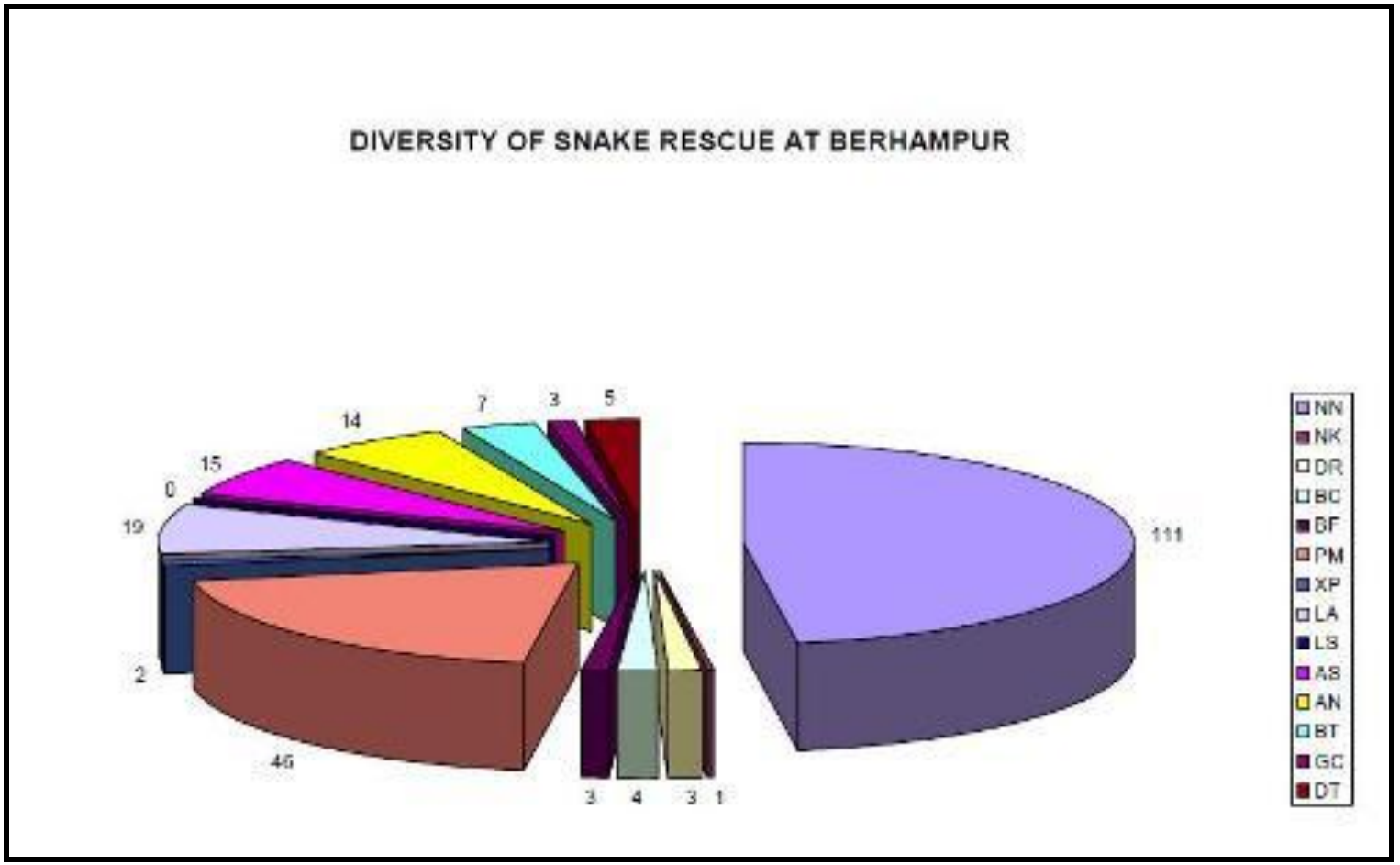
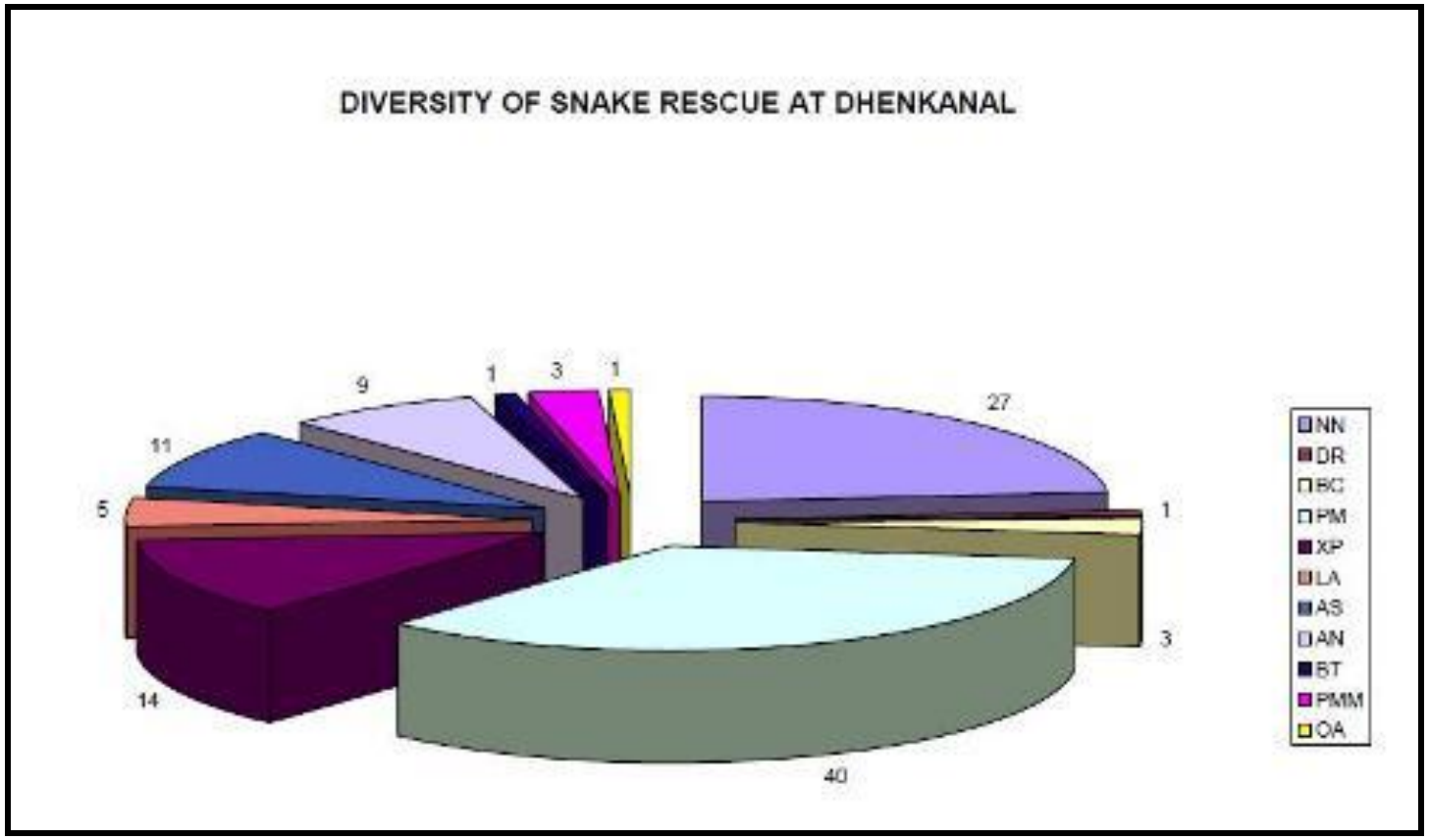


Figure 8: Diversity of snake species rescued from Dhenkanal



Appendix-1

Snake species observed during the project period

Sl No	Snake species	Common English name	Oriya name	Occurrence			
				BBSR	**BPD**	**BRMP**	**DKL**
1	*Python molurus molurus*	Indian Rock Python	*Ajagara*	Y	N	N	Y
2	*Gongylophis conicus*	Common Sand Boa	*Domundia sapa*	Y	Y	Y	Y
3	*Eryx johnii*	Red Sand Boa	*Domundia sapa*	Y	N	N	N
4	*Coelognathus helena*	Trinket snake	*Pahadia chiti*	Y	N	Y	Y
5	*Ptyas mucosa*	Indian Rat snake	*Dhamana sapa*	Y	Y	Y	Y
6	*Oligodon arnensis*	Common kukri snake	*Pahadia chiti*	Y	N	N	N
7	*Dendrelaphis tristis*	Common bronze back tree snake	*Kanal sapa*	Y	Y	Y	Y
8	*Lycodon aulicus*	Common wolf snake	*Kaudia chiti*	Y	Y	Y	Y
9	*Lycodon striatus*			Y	Y	N	Y
10	*Sibynophis saggitarius*	Cantor's black headed snake		Y	N	N	Y
11	*Xenocrophis piscator*	Checkered keel back	*Pani dhanda*	Y	Y	Y	Y
12	*Amphiesma stolatum*	Striped keel back	*Matibiradi sapa*	Y	Y	Y	Y
13	*Boiga trigonata*	Common cat snake	*Katakatia naga*	Y	Y	Y	Y
14	*Ahaetulla nasuta*	Common vine snake	*Laudankia sapa*	Y	Y	Y	Y
15	*Enhydris enhydris*	Smooth scaled water snake	*Dhanda sapa*	Y	N	Y	N
16	*Bungarus caeruleus*	Common krait	*Chiti sapa*	Y	Y	Y	Y
17	*Bungarus fasciatus*	Banded krait	*Rana sapa*	Y	Y	Y	Y
18	*Naja naja*	Spectacled cobra	*Gokhar sapa*	Y	Y	Y	Y
19	*Naja kaouthia*	Monocled cobra	*Tampa sapa*	Y	Y	N	N
20	*Ophiophagus hannah*	King cobra	*Ahiraj sapa*	Y	N	N	N
21	*Daboia russelii*	Russell's viper	*Chandan boda*	Y	Y	Y	N

Appendix-2

Monthly data of snake rescue during June2006 to December 2007 from Bhubaneswar

Year and Month	**SNAKE SPECIES RESCUED FROM THE AREA**													Total numbers
	OH	**PMM**	**NN**	**NK**	**DR**	**BC**	**PM**	**XP**	**LA**	**OA**	**AS**	**AN**	**BT**	
JUN-2006	0	0	50	0	0	0	24	2	0	0	0	0	0	76
JULY-2006	0	0	47	0	0	0	18	1	2	0	0	0	0	68
AUG-2006	0	0	49	6	0	0	10	10	0	0	0	0	0	75
SEP-2006	1	0	55	0	0	0	38	9	1	0	0	0	0	104
OCT-2006	0	0	33	0	0	0	45	2	3	3	2	0	0	88
NOV-2006	0	0	28	0	0	0	24	1	7	0	1	0	0	61
DEC-2006	0	1	25	0	5	0	22	4	0	0	0	0	0	57
JAN-2007	0	0	26	0	1	0	25	1	0	0	0	1	0	54
FEB-2007	0	0	33	0	4	0	22	3	0	0	0	0	0	62
MAR-2007	0	0	41	0	0	0	39	1	0	5	0	0	0	86
APR-2007	0	0	49	0	0	0	42	2	0	0	0	0	0	93
MAY-2007	0	0	57	0	0	0	59	0	0	0	0	2	0	118
JUN-2007	0	0	54	3	0	0	67	6	0	0	0	0	0	130
JULY-2007	0	0	14	1	0	0	26	14	1	0	0	0	0	56
AUG-2007	0	1	59	1	1	0	64	11	2	0	0	0	1	140
SEP-2007	0	0	74	0	0	0	65	9	0	0	0	2	0	150
OCT-2007	0	0	71	0	0	1	75	0	1	2	1	1	0	152
NOV-2007	0	0	55	0	1	2	48	0	5	1	0	0	0	112
DEC-2007	0	0	49	7	2	0	42	0	0	0	0	3	0	103
TOTAL	1	2	869	18	14	3	755	76	22	11	4	9	1	178

Appendix-3

Monthly data of snake rescue during June2006 to December 2007 from Baripada

PERIODS													TOTAL
	NN	**NK**	**DR**	**BC**	**BF**	**PM**	**XP**	**LA**	**LS**	**AS**	**AN**	**BT**	
JUN-2006	4	0	0	0	0	7	1	0	0	3	1	0	17
JULY-2006	2	0	0	0	0	1	2	0	0	1	0	0	6
AUG-2006	5	1	0	0	1	2	0	0	0	0	0	0	9
SEP-2006	1	0	0	0	0	0	0	1	0	0	0	0	4
OCT-2006	2	0	0	2	0	3	0	2	0	0	3	0	12
NOV-2006	0	0	0	1	0	5	1	0	0	0	5	0	12
DEC-2006	1	0	0	0	0	2	0	1	0	0	1	0	5
JAN-2007	0	0	2	0	0	1	0	4	0	0	0	0	7
FEB-2007	0	0	1	0	0	5	0	1	0	0	0	0	7
MAR-2007	7	0	0	0	0	4	2	0	0	0	0	0	13
APR-2007	5	0	0	3	0	0	1	0	0	0	0	0	12
MAY-2007	3	0	0	0	0	4	0	0	0	0	0	0	7
JUN-2007	5	0	0	0	0	1	0	1	0	0	0	2	9
JULY-2007	3	0	0	0	0	2	0	0	0	2	3	1	12
AUG-2007	1	0	0	0	0	1	1	2	0	0	0	0	5
SEP-2007	11	0	0	0	0	2	0	0	0	0	2	0	15
OCT-2007	4	0	0	0	0	4	0	1	0	0	4	0	13
NOV-2007	3	0	0	0	0	4	0	0	0	0	3	0	10
DEC-2007	1	0	0	0	0	2	0	1	0	0	1	0	5
TOTAL	58	1	3	6	1	50	8	14	7	6	23	3	180

Appendix-4

Monthly data of snake rescue during June2006 to December 2007 from Berhampur

PERIODS	**SNAKE SPECIES RESCUED**													TOTAL
	NN	**NK**	**DR**	**BC**	**BF**	**DT**	**PM**	**XP**	**LA**	**GC**	**AS**	**AN**	**BT**	
JUN-2006	3	0	0	1	0	3	5	0	1	0	8	2	1	24
JULY-2006	12	0	0	0	0	1	2	0	2	0	2	0	2	21
AUG-2006	7	0	0	0	2	0	1	1	0	1	0	0	0	12
SEP-2006	3	0	0	0	0	0	2	1	0	0	0	2	0	8
OCT-2006	6	0	0	0	0	0	3	0	4	0	0	1	0	14
NOV-2006	1	0	0	0	0	0	1	0	1	0	0	1	0	4
DEC-2006	4	0	1	0	0	0	5	0	3	0	0	0	0	13
JAN-2007	1	0	0	0	0	0	4	0	0	0	0	0	0	5
FEB-2007	0	0	0	0	0	0	5	0	0	0	0	0	0	5
MAR-2007	4	1	0	2	0	1	2	0	0	0	0	0	4	14
APR-2007	10	0	2	0	0	0	1	0	0	0	0	0	0	13
MAY-2007	17	0	0	1	0	0	0	0	0	0	0	0	0	18
JUN-2007	0	0	0	0	0	0	0	0	0	2	4	0	0	6
JULY-2007	1	0	0	0	0	0	1	0	0	0	1	1	0	4
AUG-2007	3	0	0	0	1	0	2	0	0	0	0	5	0	11
SEP-2007	8	0	0	0	0	0	2	0	0	0	0	0	0	10
OCT-2007	16	0	0	0	0	0	9	0	3	0	0	0	0	28
NOV-2007	10	0	0	0	0	0	1	0	4	0	0	2	0	17
DEC-2007	5	0	0	0	0	0	0	0	1	0	0	0	0	6
TOTAL	111	1	3	4	3	5	46	2	19	3	15	14	7	233

Appendix-5

Monthly data of snake rescue during June2006 to December 2007 from Dhenkanal

PERIODS	SNAKE SPECIES RESCUED											TOTAL
	PMM	**NN**	**DR**	**BC**	**PM**	**XP**	**LA**	**OA**	**AS**	**AN**	**BT**	
JUN-2006	0	1	0	0	3	2	1	1	0	0	0	8
JULY-2006	0	0	0	0	2	1	0	0	0	5	0	8
AUG-2006	0	1	0	0	4	0	0	0	6	0	0	11
SEP-2006	1	0	0	0	0	0	0	0	0	0	0	1
OCT-2006	0	4	0	1	1	0	0	0	0	0	0	6
NOV-2006	0	1	0	0	0	0	0	0	0	1	0	2
DEC-2006	0	1	1	0	0	0	0	0	1	0	0	3
JAN-2007	0	0	0	0	0	0	0	0	0	0	0	0
FEB-2007	0	1	0	0	6	0	0	0	0	0	0	7
MAR-2007	0	3	0	0	1	0	0	0	0	0	0	4
APR-2007	0	2	0	2	0	0	1	0	0	3	0	8
MAY-2007	0	0	0	0	3	4	0	0	0	0	0	7
JUN-2007	0	0	0	0	0	0	0	0	0	0	0	0
JULY-2007	1	0	0	0	0	6	0	0	0	0	0	7
AUG-2007	0	4	0	0	1	0	0	0	4	0	0	9
SEP-2007	0	1	0	0	0	0	0	0	0	0	0	1
OCT-2007	1	2	0	0	8	0	3	0	0	0	0	14
NOV-2007	0	6	0	0	9	1	0	0	0	0	0	16
DEC-2007	0	0	0	0	2	0	0	0	0	0	1	3
TOTAL	3	27	1	3	40	14	5	1	11	9	1	115

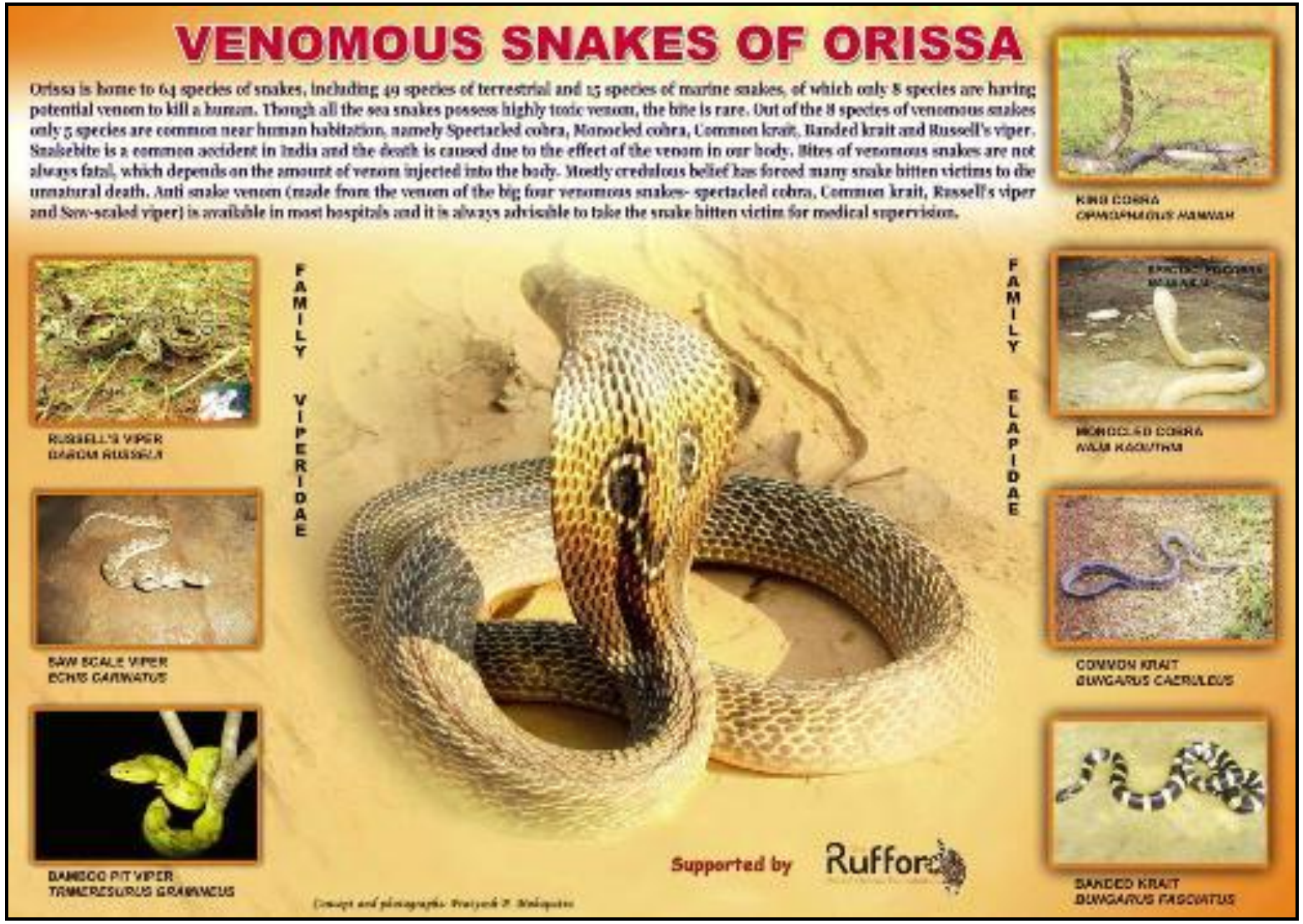


Photo: Poster on Venomous snakes of Orissa

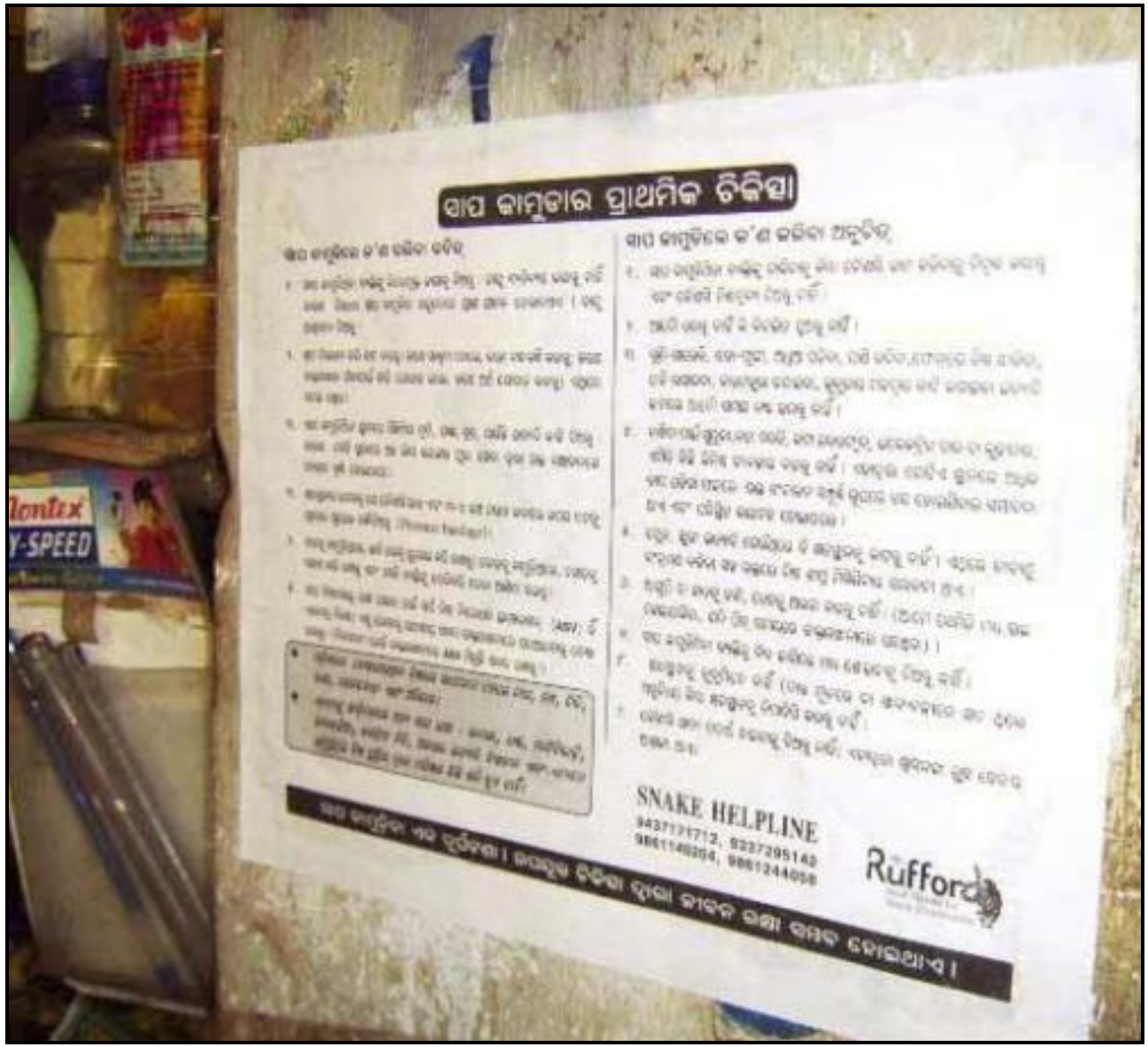


Photo: Handouts on Do's and Don'ts in case of snakebite (in English and Oriya) was distributed among general public

SNAKES OF ORISSA
A Brief Portrayal

Snakes have fascinated human from time immemorial and are utilized by them in various ways. It may be the source of livelihood or the source of life saving drugs; snakes are part of our life. They live with us, serve us and of course, sometimes harm us. Snakes, as a part of our ecosystem, maintain the balance in nature by controlling a major portion of the rodent pests. They are also associated with mythology and our Hindu culture as the symbol of love, keenness; and are often linked with the Gods and Goddess. They are very shy animals and often avoid human encounter. As a rule, snakes follow the three basic principles of animal behavior- flight, fright and fight. Whatever species of snake it may be it tries to escape at the first sight, if cornered it tries to fright the adversary and if still disturbed it fights (bite). So it is necessary to know more about these reptiles to conserve them and to save them.

The snakes are limbless reptiles and can be distinguished from other reptiles by absence of movable eyelids and external ear openings. In general, the body is longer than the tail and is covered by rows of scales. The composition and arrangement of body scales are the important characters to identify the snake species. Snakes have been adapted to various specialized habitats like on trees, in burrows, in water and in sea. The snakes basically feed on all kinds of vertebrates and some snakes also feed on invertebrates. They locate their prey either by sight, by sensing the temperature of the prey or by chemical cues through their bifid tongue. The chemical signs from the tongue is transmitted to Jacobson's organ; a special sensory organ located in the roof of the mouth. They kill the prey either by suffocating it or by the use of the specialized venom gland and needle like fangs. The venom functions a dual role, to kill the prey and also helps in digestion.

Out of 216 species of snakes in India, Orissa is home for more than 30 species of snakes, including 20 species of marine snakes. Among the terrestrial snakes only eight species are having potential venom to kill a human and the rest species are harmless or in common sense their bite is not fatal for human. Though all the species of sea snakes possess highly toxic venom, the bite is very rare. Out of the eight species of venomous snakes found in Orissa only five species are common near human habitation namely, Spectacled cobra, Monocled cobra, Common krait, Banded krait and Russell's viper. They are well adopted with the human presence. Snakebite is a common accident in India and the death is not only caused due to the effect of venom in our body but also many people die because of fear. Bites of venomous snake are not always fatal, which depends on the amount of venom injected into the body. Mostly creatural belief has forced many snake bitten victims to die unnatural death, by wasting time in unnecessary things. Anti snake venom (made from the venom of the big four venomous snakes- Spectacled cobra, Common krait, Russell's viper and Saw-scaled viper) is available in most hospitals and it is always advisable to take the snake bitten victim immediately to the nearest hospital where there is availability of Anti Snake Venom.

About Snake Helpline

Snake helpline is a team of volunteers, especially students and professionals, working in Orissa to reorganize the snake-human conflict. We create awareness among the common man regarding the snakes, rescue and relocate the distressed snakes and also guide the snake bitten victims for a better first aid. We use the snakes as a socio-eco model for the community associated with these reptiles. The team also works on biodiversity conservation, scientific conservation and documentation of snakes in the state.

King Cobra (*Ophiophagus hannah*)

HARMLESS SNAKES

Dhamana/ Rat snake

Rat snakes are one of the common non-venomous snakes of India, popularly known as 'friend of farmers' for their efficient rat hunting skill. They are characterized by long slender body and small head, of brown, yellowish brown or black colour with prominent dark cross bars on lip scales and hinder part of the body, mostly found near human habitation inside rat holes, grasslands, degraded farmland mounds and paddy fields, they enter houses in search of rats in rear.

Kaudia chiti/ Wolf snake

Often confused as krait, the Wolf snake is one of the common snakes in Orissa. Their body colour varies from brown to chocolate brown with distinct yellow bars starting behind the neck (not found in krait) and either faint or absent towards the rear body. They are nocturnal in habit and mostly found in cracks and crevices in walls, roofs, stone piles and can easily climb any rough vertical walls of the houses for food hunt.

Pani dhonda/Checkered keelback

It is one of the most common snake found in and around the fresh water bodies, ponds, and paddy fields. Colour varies from glossy olive green, olive brown, yellow, gray or black and usually with a checkered pattern on back. Feeds on fishes, frogs, frog eggs, tadpoles and occasionally scavenges on dead fishes.

Loudonkia sapa/Common vine snake

The snake looks like a whip and is very often encountered in the forests or gardens. The arboreal snake is fast moving and camouflages very well with the twigs and branches of trees. The snake is characterized by its long and pointed snout and green colour body. When disturbed it opens its mouth and strikes repeatedly. In folklore, this species of snake is well known as "Dog poker".

Apart from these common species of harmless snakes, Python, Sand boa, Buff striped keelback, Cat snakes, Ramaswami's vine snakes, and many other species apart from the listed venomous snakes are harmless to human. They are sometimes encountered near human habitation and create havoc due to their dreadful appearance. Some species of harmless snakes also mimic some of the venomous snakes in appearance and behavior.

"Ajagara Sapa" Indian rock python

"Bada Sapa" Rock Boa

"Hatibisuli Sapa" Buff striped keelback

Snakes of Medical Importance

Cobra

Krait

Viper

OTHER VENOMOUS SNAKES OF ORISSA

SNAKE MANAGEMENT

KEEP YOUR HOUSE FREE FROM SNAKES

DO'S IN CASE OF SNAKEBITE

DON'TS IN CASE OF SNAKE BITE


1


2


3


4


5


6

PLATE-3

1. King cobra rescue from Bhubaneswar **2.** Volunteers rescuing a pair of Russell's viper from abandon fishing net at Berhampur **3.** Rescue of a cobra from Utkal University, Bhubaneswar **4.** An amateur rescuer trapped the cobra inside a container, before the rescuer reached the spot at Dehnkanal **5.** Rescue of a cobra from an abandon well at Bhubaneswar **6.** Rescue of a Common sand boa from cattle shed.

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PLATE-4

1. A Rat snake on the top of the roof. There are many instances of such rescue while the Rat snake chasing behind the rats inside human habitats. 2. A baby cobra inside a wishing machine. It was very difficult to rescue the baby hiding somewhere deep inside the machine. 3. Rescue of Checkered keelback from a fishing net. 4. Public gathering at a rescue site. 5. Rat snake rescue at Baripada. 6. Rescue of a Russell's viper at Berhampur. 7. An unusual rescue of a cobra from bellow a toilet pan. We have to remove the complete floor to rescue the cobra (near the flush pipe); insight: the hole (arrow marked) through which the snake had entered inside, when approached by a person to the toilet. The cobra was living below the toilet floor for many months.


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PLATE-5

1. A python inside a well at Choudwar, rescued by the Bhubaneswar SHLteam. 2. Rescue of a young Python from the store house of a factory at Dhenkanal 3. A relocation site for snakes at Dhenkanal 4. Micro-surgery in case of an injured Spectacled cobra by a veterinarian at Orissa University of Agriculture and Technology, Bhubaneswar. 5. Cobra rescue site. Unnecessary dumping of fire wood near the house often becomes shelter for toads and rats, which attracts their predator-the snakes. Insight- the rescued cobra 6. The reason behind why snakes are mostly found near human habitation.

PLATE 6:
1. Release of the dossier on "Snakes of Orissa, a brief portrayal" by Mrs. Madhu Sarani, Vasundhara, Bhubaneswar 2. Display of the poster (4'x8') on Venomous snakes of Orissa, with the distribution maps 3. Awareness campaign on "Snakes Myths and Realities" at Nandankanan Biological Park, Bhubaneswar 4. Awareness campaign on the first-aid treatment after snakebite to the National Cadet Cops 5. A general discourse on Snakes of Orissa at D.A.V. Public school 6. A village level awareness campaign at Baripada

Photo: A visitor watching the poster on "Common snakes of Orissa"