

## STATUS AND DISTRIBUTION OF LARGER MAMMALS IN CHIMMONY WILDLIFE SANCTUARY

E.A JAYSON

*Division of Wildlife Biology,  
Kerala Forest Research Institute, Peechi, Thrissur (Kerala)*

### Introduction

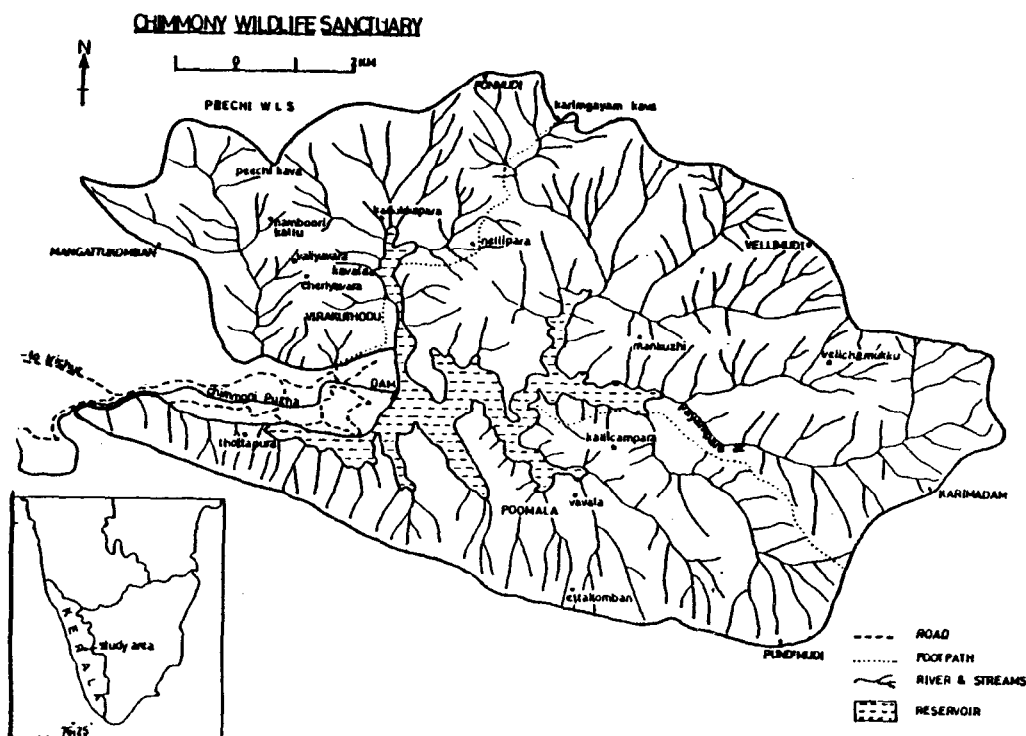
The State of Kerala is very rich in diversity of animals and has a long history of protecting wild animals, the oldest protected area being the Periyar Tiger Reserve. In the year 1984, Government of Kerala established four wildlife sanctuaries namely Chendurny, Chinnar, Aralam and Chimmony. Catchement area of Chimmony river was included in the Chimmony Wildlife Sanctuary. Before declaring as a wildlife sanctuary, it was a part of the Palappilli Forest Range. After a lapse of six years, the first management plan for the sanctuary was prepared in the year 1990 (Kaler, 1990). Not much information is available on the fauna of Chimmony Wildlife Sanctuary other than the data reported in the management plan. Some of the wildlife sanctuaries in Kerala were surveyed in the past for studying the large mammals (Balakrishnan and Easa, 1986; Ramachandran *et al.*, 1986). One of the sanctuaries which has not been studied in detail is the Chimmony Wildlife Sanctuary. Anon. (1992) has published a report on the birds found in the area after a preliminary survey.

Chimmony Wildlife Sanctuary is located in Thrissur District of Kerala State (between 10° 22' and 10° 26' N latitudes and

76° 31' and 76° 39' E longitudes) on the western slopes of Nelliampathi forest. The extent of sanctuary is about 90 km<sup>2</sup> and is contiguous with Parambikulam Wildlife Sanctuary on the East and Peechi-Vazhani Wildlife Sanctuary on the West. Elevation varies from 1126 m to 2500 m above MSL. According to the classification of Rodgers and Panwar (1989), this area comes under Biogeographic zone, Malabar Western Ghats and Biotic Province Western Ghat Mountains (Fig. 1).

Topography of the sanctuary is undulating with low land and high cliffs. The dam site is at 40 m above MSL and the highest peak near the sanctuary is Pundimudi which is about 1116 m above MSL. The mean annual rainfall varies from 2500 mm to 3000 mm. Maximum precipitation is obtained from the South-West monsoon during June to September. Temperature ranges between a maximum of 36°C to a minimum of 24°C. The vegetation of the sanctuary consists of West Coast Tropical Evergreen Forests, West Coast Semi-evergreen Forests, and South Indian Moist Deciduous Forests (Champion and Seth, 1969). The former type of vegetation is found in the higher reaches. This study was initiated in the year 1992 to assess the status and distribution of larger mammals in the sanctuary.

Fig. 1



Study Area showing important places

## Methods

Data was gathered by observational methods by camping at Chimmony dam site. Various parts of the sanctuary were visited on foot or by vehicles and necessary data was collected during October 1992 to June 1995. Initially the whole area was traversed on foot for the reconnaissance survey. Line transects were laid in different vegetation types for census of larger mammals but later it was abandoned as the sightings were very low. Whenever an animal was sighted, its species, herd size, number of male and female, young ones, habitat and its activity were recorded. The location of each animal was plotted on a grid map based on the sightings. Indirect evidences like pugmarks, pellets, dung,

spoor, and footprints were also recorded and identified.

## Results

Twenty two species of larger mammals representing all the major species found in peninsular India, were recorded from the sanctuary during this study (Table 1). Sighting of mammals was poor in the months of South-West monsoon and most of the species were located during the summer months (Table 2).

*Primates* : Among the three species of monkeys recorded from the sanctuary, the Bonnet Macaque was the most common. They were sighted from Poomala, Virakuthodu, Vavala, Payampara,

Kallichampara, Eettakkomban, Thottapura, Nellippara, Valiavara, Kadukkappara and Chimmony Dam area (Fig. 2) and were recorded in all the months. 596 individuals were sighted during the period of study in 62 sightings. Troop size varied from 14 to 27 individuals and the troop composition is given in Table 3. They are highly scared of humans and will move away from the area when approached.

Nilgiri Langur was very rare and only 38 individuals were seen during the study in 11 sightings. They were recorded from places such as Thottapura Virakuthodu, Kallichampara, Vavala, Eettakkomban and Nellippara. Troop composition varied from 5 to 10 individuals. They were located both in the moist deciduous forests and in the semi-evergreen forests. Lion-tailed Macaque was sighted only once near

Table 1

*Larger mammals recorded from the Chimmony Wildlife Sanctuary*

Common name	Scientific name
<b>Primates</b>	
Bonnet Macaque	<i>Macaca radiata</i> (Geoffroy)
Nilgiri Langur	<i>Presbytis johni</i> (Fisher)
Lion-tailed Macaque	<i>Macaca silenus</i> (Linnaeus)
<b>The Cats</b>	
Tiger	<i>Panthera tigris</i> (Linnaeus)
Leopard or Panther	<i>Panthera pardus</i> (Linnaeus)
<b>Civets</b>	
Small Indian Civet	<i>Viverricula indica</i> (Desmarest)
Common Palm Civet or Toddy Cat	<i>Paradoxurus hermaphroditus</i> (Pallas)
<b>Mongoose</b>	
Ruddy Mongoose	<i>Herpestes smithi</i> Gray
<b>Canids</b>	
Wild Dog	<i>Cuon alpinus</i> (Pallas)
<b>Bear</b>	
Sloth Bear	<i>Melursus ursinus</i> (Shaw)
<b>Rodents</b>	
Malabar Giant Squirrel	<i>Ratufa indica</i>
Threestriped Palm Squirrel	<i>Funambulus palmarum</i> (Linnaeus)
Indian Porcupine	<i>Hystrix indica</i> (Kerr)
Blacknaped Hare	<i>Lepus nigricollis</i> (F. Cuvier)
<b>Elephant</b>	
Elephant	<i>Elephas maximus</i> (Linnaeus)
<b>Wild Oxen</b>	
Gaur or Indian Bison	<i>Bos gaurus</i> (H. Smith)
<b>Deer</b>	
Sambar	<i>Cervus unicolor</i> (Kerr)
Mouse Deer	<i>Tragulus meminna</i> (Erxleben)
Barking Deer	<i>Muntiacus muntjak</i> (Zimmermann)
Spotted Deer	<i>Axis axis</i> (Erxleben)
<b>Pig</b>	
Wild Boar	<i>Sus scrofa</i> (Linnaeus)
Pangolin	<i>Manis crassicaudata</i> (Gray)

Vellimudi. They usually inhabit the upper reaches where dense tropical evergreen forest exist.

*Cats* : Indirect evidences of Tiger and Leopard were recorded from many places inside the sanctuary but these big cats were never sighted. Pugmark and scat of Tiger

have been recorded from Vavala, Vellichamuku and Kallichampara. Similarly scat and pugmark of Leopard were also located from Payampara, Kallichampara, Namboorikallu, Virakuthodu and Poomala.

*Wild Dogs* : Wild dogs were recorded from

**Table 2**

*Sighting of larger mammals in different months at Chimmony Wildlife Sanctuary (November 1992 to June 1995).*

Animals	J	F	M	A	M	J	J	A	S	O	N	D
Bonnet Macaque	P	P	P	P	P	P	P	P	P	P	P	P
Nilgiri Langur	P	P	P	P	-	-	P	P	P	-	-	-
Lion-tailed Macaque	-	P	-	-	-	-	-	-	-	-	-	-
Small Indian Civet	P	-	P	-	P	-	-	-	-	-	-	-
Common Mongoose	-	-	-	P	-	P	-	-	-	-	-	-
Ruddy Mongoose	-	-	P	-	-	-	-	-	-	-	-	-
Wild Dog	-	P	P	-	-	-	-	-	-	-	-	-
Malabar Giant Squirrel	P	P	P	P	P	-	P	P	P	P	P	P
Threestriped Palm Squirrel	P	P	P	-	P	P	-	-	-	P	P	P
Indian Porcupine	-	-	-	-	-	-	-	-	P	P	-	-
Blacknaped Hare	P	P	P	-	P	-	P	-	P	-	-	P
Elephant	-	P	P	-	-	-	P	-	-	-	P	-
Gaur	-	-	-	-	P	-	P	-	-	-	P	-
Sambar	P	P	P	-	-	-	P	-	-	-	P	P
Spotted Deer	-	-	-	P	-	-	-	-	-	-	-	-
Mouse Deer	-	P	P	-	P	-	P	P	-	-	-	-
Barking Deer	-	P	-	P	P	-	-	P	-	-	-	-
Wild Boar	P	P	P	P	P	P	P	-	P	P	P	P
Pangolin	-	-	-	-	-	-	-	-	-	-	P	P

P = Present, - = Not seen.

**Table 3**

*Troop composition of Bonnet Macaque at Chimmony*

Area	Total No.	Adult	Juvenile	Young	Sample (n)
Virakuthodu troop	15	7	3	5	18
Poomala troop	18	9	5	4	23

semi-evergreen and moist deciduous forests, but were absent in teak plantations. The species was sighted twice during the study and both were from Virakuthodu at dawn. Droppings of Wild Dogs were recorded from Virakuthodu, Poomala, Vavala, Payampara, Ponmudi, Nellippara and Karimgayam Kava. They mainly feed on Sambar and most of the scat samples analysed ( $n = 20$ ) showed the presence of Sambar hair.

*Civets* : The small Indian Civet has been sighted thrice during the study. Indirect evidence of the Common Palm Civet was also found in the sanctuary.

*Mongoose* : Common Mongoose and Rudy Mongoose were seen in the sanctuary. Rudy Mongoose was sighted twice at Poomala.

*Bears* : Sighting of Sloth Bear was very rare, but many indirect evidences were seen during the survey.

*Rodents* : Among Rodents, the Malabar Giant Squirrel was the most common. It was seen in all the habitats, including the Teak plantations. A total of 223 individuals were seen in 92 sightings. They were sighted from Virakuthodu, Poomala, Kallichampara, Thottapura, Kavala, Payampara, Nellippara, Cheriavara, Vavala, Vellichamuku, Ettakkomban, Kadukkappara, Mankuzhi and Namboorikallu. Squirrels were sighted on 63 occasions as solitary individuals and in pairs at 26 sightings. Another Squirrel which was commonly found in the area is Three Striped Palm Squirrel. Ninety Squirrels were found in 97 sightings from all the vegetation types during the period of study. They were recorded from Virakuthodu, Poomala, Kavala, Payampara, Kallichampara, Vavala, Chimmony Dam site, Kadukkappara, Ponmudi and

Namboorikallu area.

Indian Porcupine was common in the sanctuary and recorded from all the places. Sighting of this species was very rare but faecal pellets were collected from most of the places. Porcupines caused heavy damage to the tuber crops in the surrounding areas. Blacknaped hare has been recorded from Virakuthodu, Poomala, Valiavara, Payampara and Peechikava.

*Elephant* : Elephants were common in the sanctuary, but direct sighting was very rare. This was prominently due to low density of the population and because of the lack of open areas. Elephants were sighted 6 times during the study and altogether 27 Elephants were seen in herds. Even though no lone tuskiers were sighted, a single adult bull was observed along with the herds. Herd composition varied from 4 to 6 animals. They were sighted at Payampara, Virakuthodu, Poomala and Nellippara (Fig. 3). Elephants at Chimmony mainly fed on bamboo. One of the prominent trees in the moist deciduous forest was the *Baccaurea courtallensis* and its fruit were heavily consumed by Elephants during May, June and July.

*Gaur* : The Gaur or Indian Bison was recorded from the Sanctuary, but the density was very low. The species was concentrated at places where there was plenty of grass and water. Gaur was sighted 5 times during the survey and most of them were as loners, and only once a herd with 17 individuals were seen at Virakuthodu. Indirect evidences like presence of dung or hoof marks were located from Poomala, Payampara, Kallichampara, Valiavara, Virakuthodu and Mankuzhi (Fig. 4).

*Sambar* : This is the most common deer found in the area and was recorded in all the

months. Fourteen individuals were sighted during the study and the male to female ratio was 1 : 2 ( $n = 14$ ). Ramachandran *et al.* (1986) reported a slightly lower male to female ratio of 1 : 3 ( $n = 104$ ) from Periyar Tiger Reserve. Herd composition varied from 1 to 3 animals.

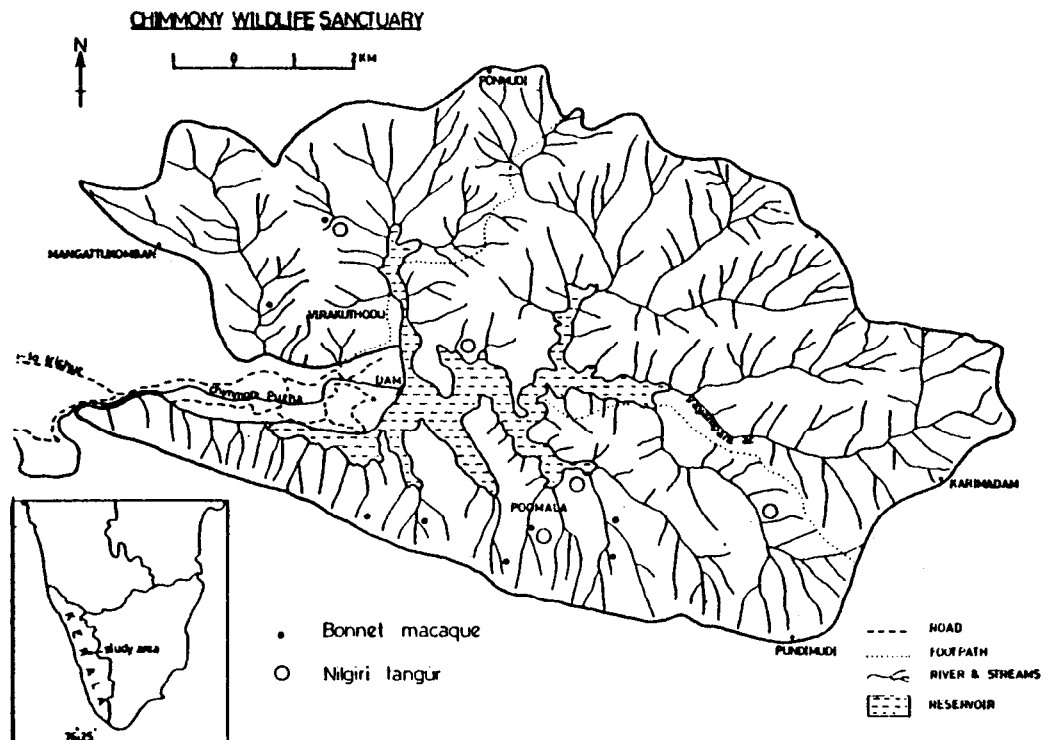
**Spotted Deer :** Spotted Deer was seen in the drier parts of the sanctuary lying adjacent to the Peechi-Vazhani Wildlife Sanctuary. A total of 38 Spotted Deer were sighted and the male to female ratio was 1 : 2 ( $n = 38$ ). This is comparable to the male to female ratio of 1 : 2 reported from the Satpura National Park (Jayson, 1990) in Madhya Pradesh. As the plain areas are limited, herd composition varied from 1 to 20

individuals only. Spotted Deer was mostly observed in the sanctuary during the summer months.

**Other Deer :** Mouse Deer and Barking Deer occur in the Sanctuary in very low density. Five Mouse Deer and four Barking Deer were sighted in the sanctuary during the period of study. Mouse Deer was recorded from Payampara, Virakuthodu and Valiavara. Barking Deer were sighted from Virakuthodu and also Thottapura. Most of them were sighted as loners. Indirect evidences of Barking Deer were reported mainly from semi-evergreen forests followed by Teak plantations.

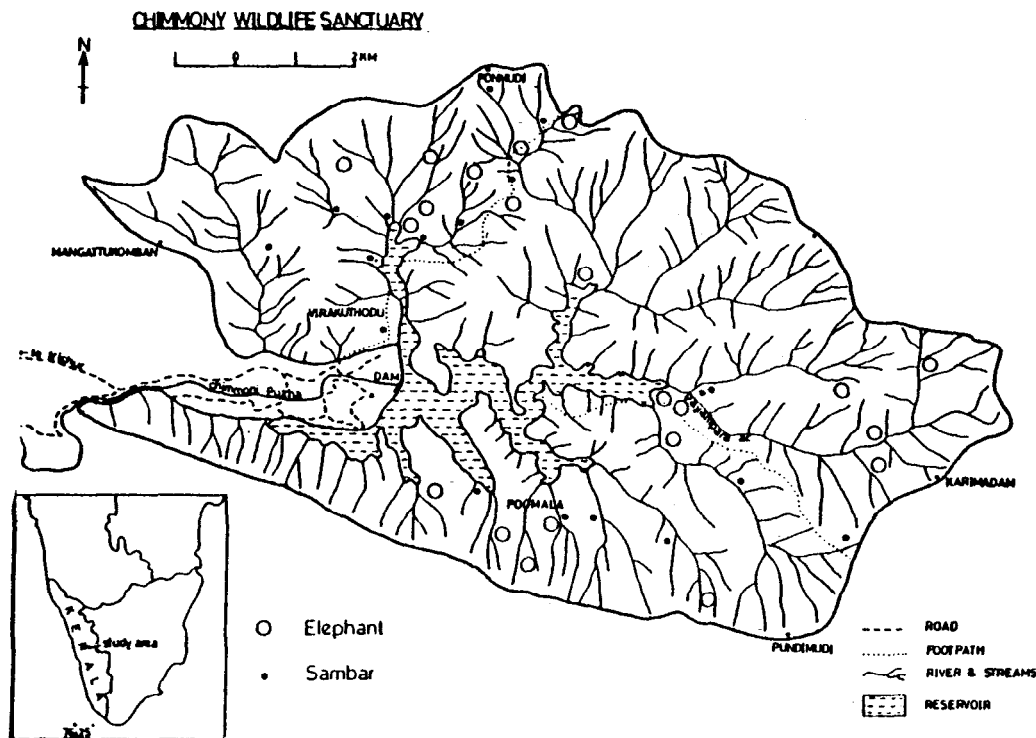
**Wild Boar :** As in many other forests in

Fig. 2



Distribution of primates in Chimmony Wildlife Sanctuary

Fig. 3



Distribution of Elephant and Sambar in Chimmony Wildlife Sanctuary

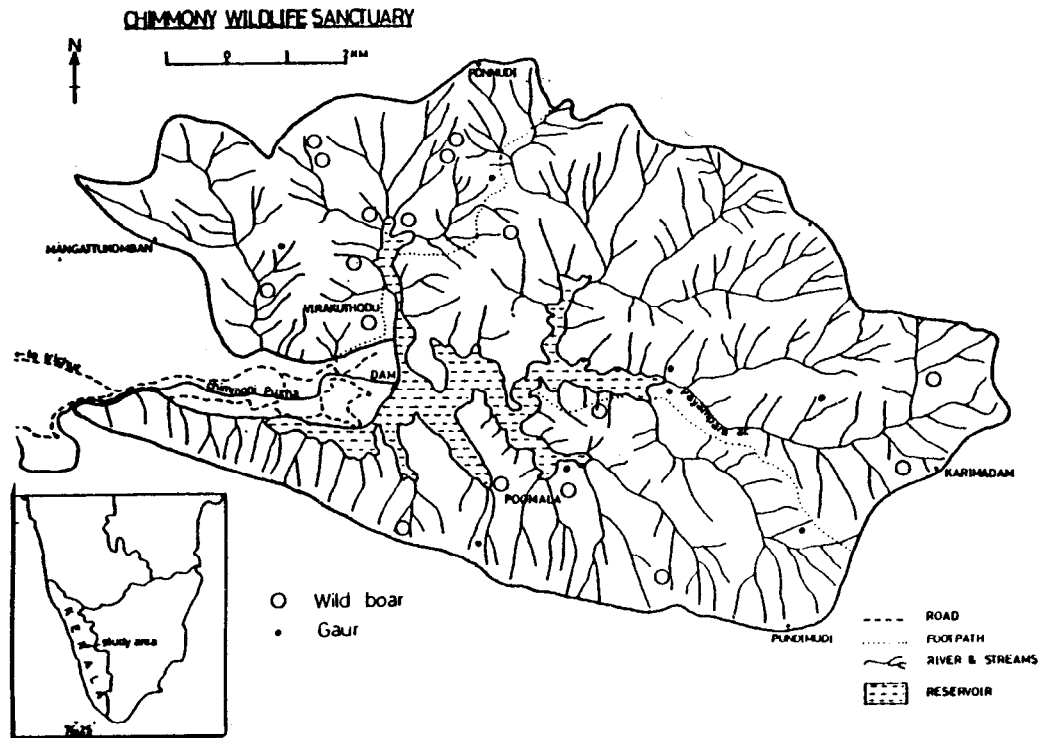
Kerala, Wild Boar was abundant at Chimmony also. Even though the indirect evidences were common, direct sighting at day time was less. A total of 153 Wild Boar were seen in 30 sightings. Male to female ratio was 1 : 1 ( $n = 41$ ). Wild Boar inflicts considerable damage to the plantation crops in the surrounding village, Echippara and were found relishing on plantains, pineapple and other annuals and caused heavy economic loss to the cultivators. They were recorded from Kallichampara, Virakuthodu, Thottapura, Poomala, Payampara, Peechikava, Kavala, Valiavara, Namboorikallu, Vavala and Mankuzhi (Fig. 4).

**Pangolin** : Indirect evidence of Pangolin

was recorded four times. Being a nocturnal animal, direct sighting at day time was impossible.

**Reptiles** : Three species of Tortoise were recorded from the area namely Indian Pond Terrapin *Melanochelys trijuga* (Schweigger), Kerala Forest Terrapin *Heosemys silvatica* (Henderson) and Travancore Tortoise *Geochelone travancorica* (Boulenger). Vijaya (1982) has reported *Heosemys silvatica* from the nearby Chalakkudy forests. Indian Pond Terrapin was seen at Nellippara in the semi-evergreen forest at a height of 800 m. It was also observed at Virakuthodu near the reservoir. Kerala Forest Terrapin was observed at Mangattu Komban in a moist

Fig. 4



Distribution of Wild Boar and Gaur in Chimmony Wildlife Sanctuary

deciduous forest at a height of 855 m above MSL. Travancore Tortoise was collected from Poomala from the semi-evergreen forest from a height of 253 m and also from Payampará in the same vegetation but at lower at altitude of 281 m

### Discussion

Out of the 47 species of larger mammals reported from the State, 22 species are found in the Sanctuary. These include rare and endangered species like Lion-tailed Macaque and Tiger. Troop size of Bonnet Macaque is comparable to that in other areas. Since they inhabit the fringe areas, any disturbance in the natural forest may divert them to crop raiding as happened in other areas (Nair and Balasubramanian, 1985). As the population of herbivores was

very low, it supported only a small carnivore community. Among the Rodents, Malabar Giant Squirrel had a good population, and distributed all along the sanctuary. Being small in area, the Elephant population recorded from the sanctuary was not exclusive to this sanctuary. Being highly disturbed and due to the lack of protection, the population of Deer species was not dense. Both Sambar and Spotted Deer were less in number. Felling and logging operations carried out in the sanctuary also had an adverse effect on the herbivore population and most of the natural habitats are disturbed. Since this sanctuary is having the few lowland moist deciduous forests under protected category the protection of the area from further deterioration is necessary.



### Acknowledgements

Financial assistance for the project was given by the Kerala Forest and Wildlife Department. We are indebted to Shri P. Surendranathan Asari, I.F.S., Chief Conservator of Forests (Wildlife) for his interest in the study; Dr. S. Chand Basha, I.F.S., former Director, KFRI, has given a lot of advice during the study. Field data was collected with the assistance of Shri P.V. Prabhakaran. Field staff of the Chimmony Wildlife Sanctuary assisted the study in many ways. I am thankful to Dr. P.S. Easa, Scientist-in-Charge for many valuable suggestions.

### SUMMARY

Status of larger mammals in Chimmony Wildlife Sanctuary was studied during the years 1992 to 1995; mainly based on observational methods. Vegetation of the sanctuary is composed of tropical wet evergreen forests, tropical semi-evergreen forests, and South Indian moist deciduous forests. Twenty two species of larger mammals were recorded from the sanctuary. Rare and endangered species like Lion-tailed Macaque *Macaca silenus* (Linnaeus); Tiger *Panthera tigris* (Linnaeus) and Kerala Forest Terrapin *Heosemys silvatica* (Henderson) are reported for the first time from this area. As the density of herbivores was very low, it supported only a small carnivore community.

### चिम्मोनी वन्य प्राणि संश्रय में बड़े स्तनियों की स्थिति और उनका वितरण

इ०ए० जयसन

#### सारांश

चिम्मोनी वन्य प्राणि संश्रय में बड़े स्तनियों की स्थिति और उनके वितरण का 1992 से 1995 तक के वर्षों में अध्ययन मुख्यतः प्रेक्षण विधि के आधार पर किया गया। इस संश्रय की वनस्पतियों में उष्ण आर्द्र सदाहरित वन, उष्ण अर्ध सदाहरित वन और दक्षिण भारत नम पर्णपाती वन आते हैं। संश्रय से बड़े स्तनियों की 22 जातियाँ आलेखित हुई। दुर्लभ और विलुप्ति खतरे में पड़ी जातियाँ जैसे सिंहपुच्छ वानर (मैकाका सिलेनुस) बाघ (पेंयरा टाइग्रिस लि०) तथा केरल वन वारिकूर्म (जल कछुआ, हेओसेमिस सिल्वेटिका हेंडरसन) का इस क्षेत्र से पहले पहल उल्लेख हुआ है। चूंकि यहां शाकभाजियों का घनत्व बहुत ही कम है इसलिए इस पर बहुत ही कम मांसभोजी प्राणी रह पाते हैं।

### References

- Anon. (1992). Birds of Chimmony Wildlife Sanctuary. A survey report. *Nature Education Society*, Trichur, 16 p.
- Balakrishnan, M. and P.S. Easa (1986). Habitat preferences of larger mammals in the Parambikulam Wildlife Sanctuary. *Biol. Conser.* 37 : 191-200.
- Champion, H.G. and S.K. Seth (1969). *A revised survey of the Forest Types of India*. Govt of India, 404p.
- Jayson, E.A. (1990). An ecological survey at Satpura National Park, Pachmarhi and Bori Sanctuaries, Madhya Pradesh. *Indian Jour. of Forestry* 13(4) : 280-294.
- Kaler, O.P. (1990). *The first management plan for Chimmony Wildlife Sanctuary (1990-91 to 1999-2000)*. Kerala Forest Department, 61p.
- Nair, P.V. and K. Balasubramanian (1985). Long-term environmental and ecological impact of multipurpose river valley projects. *Kerala Forest Research Institute*, Report No. 26. 75p.
- Ramachandran, K.K., P. Vijayakumaran Nair and P.S. Easa (1986). Ecology of larger mammals of Periyar Wildlife Sanctuary. *J. Bombay Nat. Hist. Soc.* 83 (3) : 505-524.
- Rodgers, W.A. and H.S. Panwar (1989). Planning a Wildlife Protected Area Network in India. *Wildlife Institute of India*, Dehra Dun. Vol 1 and 2.
- Vijaya, J. (1982). Rediscovery of Forest Cane Turtle *Heosemys (Geoemyda) silvatica* (Reptilia Testudinata : Emydidae) from Chalakkudy forests in Kerala. *J. Bombay Nat. Hist. Soc.* 79(3) : 676-677.