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SOME OBSERVATIONS ON THE BREEDING OF CHITALS (*AXIS AXIS*) IN THE DEER PARK OF NAVEGAON NATIONAL PARK

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ABSTRACT

The paper describes observations about breeding of chital or spotted deer *Axis axis* at deer park in Navegaon National Park, (Dist. Gondia, Maharashtra) during 1970-90. The observations of 144 births indicates that chital breed only once in a year, mostly from November to February. The animal avoids breeding in peak summer *i.e.* May when the temperature soars to 42C^0 and also during rainy season *i.e.* June- September. The sex ratio of male to female was observed to be 1:1.

Key words: Breeding, Chital, Navegaon park

Introduction

Navegaon National Park is situated in Gondia district of Maharashtra. Navegaon national park is now part of Navegaon-Nagzira Tiger Reserve notified in 2013 as fifth tiger reserve of the state of Maharashtra and 46th reserve of the country. Gondia district falls in Eastern part of Maharashtra state and it lies in tri junction of Maharashtra, Chattisgarh and Madhya Pradesh. The average temperature varies from 12.9C^0 (December) to 42.1C^0 (May) and relative humidity of 62%. The area receives about 1500 mm rainfall.

The forests of the area consists of 5A-Tropical dry deciduous forests of Champion and Seth (1968) classification. The main tree species consists of Teak (*Tectona grandis*), Saja (*Terminalia tomentosa*), Bija (*Pterocarpus marsupium*), Moha (*Madhuca indica*), Tendu (*Diosphyros melanoxylon*), Dhawra (*Anogeissus latifolia*), etc.

The spotted deer or chital *Axis axis* inhabits the area and is common deer species in the wooded tract.

The "Deer park" was established at Navegaon in the year 1969. The chitals were kept in the chain link enclosure of size 110x66m. The chital were breeding here since 70s and the population had risen to as high as 84 in 1987. In 1987, 72 chital were released in Navegaon National Park and Nagzira Wild Life Sanctuary area, keeping only 12 in the deer park. Subsequently due to Central Zoo Authority guidelines all the deer in the park were released in the wild. The present article covers observations about breeding since 1970s till 1990 taken from the records of the deer park.

The enclosure: The enclosure of chital was constructed on the sloping ground at the foothill of a small hillock in the complex. There was a "breeding centre" a small timber construction for animals to take shelter during heavy rains and sun. Some trees of Saja (*Terminalia tomentosa*), Bel (*Aegle marmelos*), Moha (*Madhuca indica*), Bija (*Pterocarpus marsupium*), Tendu (*Diosphyros melanoxylon*) , were also there growing naturally, giving shade and shedding fruits and leaves relished by animals.

The food: The chitals were fed on the leaves of the following species which were brought by the laborers as head-loads from the nearby forests twice a day.

1.	Arat falli	*Olax scandens*
2.	Lokhandi	*Ixora parviflora*
3.	Saja	*Terminalia tomentosa*
4.	Ajan	*Terminalia arjuna*
5.	Shiwan	*Gmelina arborea*
6.	Dhawda	*Anogeissus latifolia*
7.	Bija	*Pterocarpus marsupium*
8.	Baheda	*Terminalia bellerica* etc.

The animals were occasionally fed on grasses cut from the gardens and also leaves of Subabul (*Leucaena leucocephala*).

In addition to above the animals were provided with "Sugrass" a cattle feed as supplement to the fodder.

Water: There was a large tank in the centre of the enclosure where fresh water was pumped every day. The tank was cleaned frequently to get rid of algae and leaf litter.

Material and Methods

The observations of birth of fawns were recorded in the register kept in the park. The observations are given in Table 1 and 2.

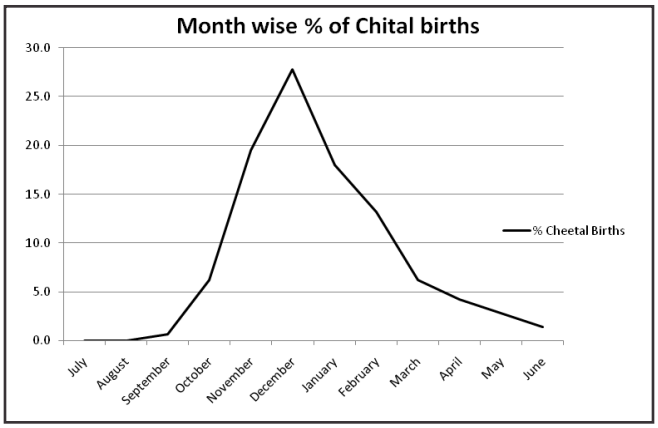
Chital avoid breeding in peak summer and also during rainy season.

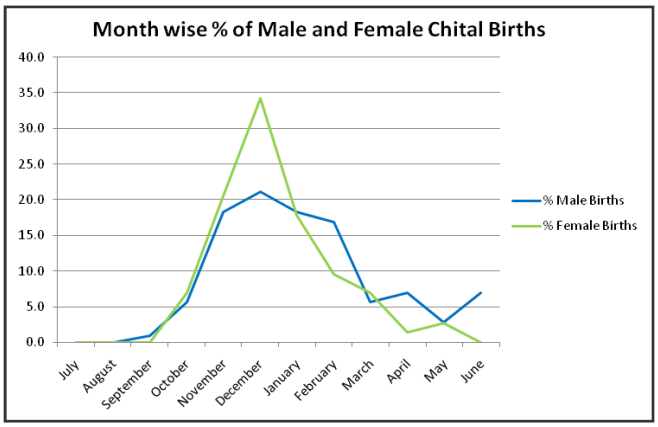
Table 1 : Datewise births of Chitals.

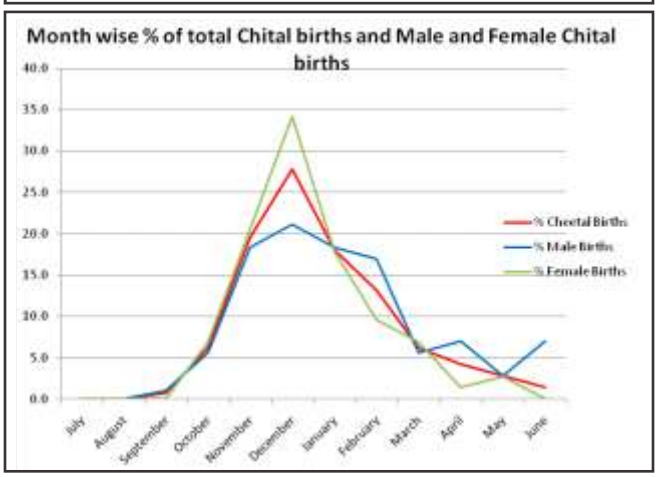
S.No.	Date	M.	F.	S.No.	Date	M.	F.	S.No.	Date	M.	F.	S.No.	Date	M.	F.
1.	3.11.70	-	1	39.	28-12-80	1	-	76	26-12-84	-	1	111.	9-12-86	1	-
2.	13-3-71	-	1	40.	31-12-80	1	-	77	9-2-84	-	1	112.	11-12-86	-	1
3.	25-10-71	1	-	41.	17-6-81	1	-	78	6-3-84	-	1	114.	23-12-86	1	-
4.	10-1-72	1	-	42.	21-6-81	1	-	79	5-11-84	1	-	113.	21-12-86	-	1
5.	22-12-72	1	-	43.	21-10-81	-	1	80	6-11-84	-	1	115.	24-12-86	1	-
6.	2-1-73	1	-	44.	16-12-81	-	1	81	8-11-84	-	1	116.	25-12-86	-	1
7.	5-1-74	-	1	45.	23-12-81	1	-	82	9-11-84	-	1	117.	26-12-86	-	1
8	18-2-74	1	-	46.	26-12-81	-	1	83	12-11-84	-	1	118.	28-12-86	-	1
9	31-3-74	1	-	47.	18-1-82	1	-	84	14-11-84	1	-	119.	29-12-86	-	1
10	9-4-74	1	-	48.	19-1-82	1	-	85	17-11-84	-	1	120.	1-1-87	-	1
11	15-1-75	1	-	49.	20-1-82	-	1	86	10-12-84	1	-	121.	4-1-87	-	1
12	19-2-75	-	1	50.	3-2-82	-	1	87	10-12-84	-	1	122.	15-1-87	-	1
13	21-2-75	-	1	51.	13-3.82	1	-	88	21-12-84	-	1	123.	16-1-87	1	-
14	19-4-75	1	-	52.	18-4-82	1	-	89	2-1-85	-	1	124.	25-1-87	1	-
15	18-1-76	-	1	53.	20-4-82	-	1	90	4-1-85	-	1	125.	11-2-87	1	-
16	19-1-76	1	-	54.	14-10-82	1	-	91	5-2-85	1	-	126.	25-2-87	-	1
17	7-2-76	-	1	55.	20-10-82	-	1	92	27-2-85	1	-	127.	16-3-87	1	-
18	24-3-76	1	-	56.	12-11-82	1	-	93	29-5-85	1	-	128.	8-5-87	-	1
19	28-11-76	-	1	57.	16-11-82	1	-	94	15-11-85	1	-	129.	22-10-87	1	-
20	30-12-76	1	-	58.	19-11-82	1	-	95	21-11-85	-	1	130.	4-11-87	1	-
21	16-2-77	1	-	59.	21-11-82	-	1	96	1-12-85	-	1	131.	18-11-87	1	-
22	21-3-77	-	1	60.	8-12-82	1	-	97	4-12-85	1	-	132.	18-12-87	-	1
23	14-11-77	1	-	61.	24-12-82	-	1	98	15-12-85	-	1	133.	26-12-87	1	-
24	23-11-77	-	1	62.	25-12-82	-	1	99	16-12-85	1	-	134.	28-11-88	-	1
25	30-11-77	1	-	63.	31-12-82	-	1	100	25-12-85	-	1	135.	27-12-88	1	-
26	19-12-77	-	1	64.	13-1-83	-	1	101	8-1-86	1	-	136.	1-1-89	-	1
27	29-5-78	-	1	65.	2-3-83	-	1	102	30-1-86	-	1	137.	24-1-89	-	1
28	16-11-78	1	-	66.	30-5-83	1	-	103	2-2-86	1	-	138.	20-4-89	1	
29	30-11-78	-	1	67.	6-10-83	-	1	104	12-2-86	1	-	139.	11-10-89	-	1
30	21-12-78	1	-	68.	25-10-83	-	1	105	21-2-86	1	-	140.	21-1-90	1	-
31	26-12-78	-	1	69.	2-11-83	1	-	106	23-2-86	1	-	141.	29-1-90	-	1
32	19-4-79	1	-	70.	11-11-83	-	1	107	3-9-86	1	-	142.	2-2-90	-	1
33	19-11-79	-	1	71.	13-12-83	1	-	108	28-11-86	1	-	143.	14-2-90	1	-
34	8-12-79	-	1	72.	26-12-83	-	1	109	2-12-86	1	-	144.	7-3-90	1	-
35	14-1-80	1	-	73.	4-1-84	1	-	110	8-12-86	-	1			71	73
36	4-10-80	1	-	74.	29-1-84	-	1			55	55				
37	11-11-80	-	1	75.	4-2-84	-	1								
38	17-12-80	-	1												
-	-	20	18			38	37								

Table 2: Abstract of births.

Year/Month	Jan	Feb	Mar	Apr	May	June	Jul	Aug	Sep	Oct	Nov.	Dec.	Total
1970	-	-	-	-	-	-	-	-	-	-	1	-	1
1971	-	-	1	-	-	-	-	-	-	1	-	-	2
1972	1	-	-	-	-	-	-	-	-	-	-	1	2
1973	1	-	-	-	-	-	-	-	-	-	-	-	1
1974	1	1	1	1	-	-	-	-	-	-	-	-	4
1975	1	2	-	1	-	-	-	-	-	-	-	-	4
1976	2	1	1	-	-	-	-	-	-	-	1	1	6
1977	-	1	1	-	-	-	-	-	-	-	3	1	6
1978	-	-	-	-	1	-	-	-	-	-	2	2	5
1979	-	-	-	1	-	-	-	-	-	-	1	1	3
1980	1	-	-	-	-	-	-	-	-	1	1	3	6
1981	-	-	-	-	-	2	-	-	-	1	-	3	6
1982	3	1	1	2	-	-	-	-	-	2	4	4	17
1983	1	-	1	-	1	-	-	-	-	2	2	2	9
1984	2	3	1	-	-	-	-	-	-	-	7	3	16
1985	2	2	-	-	1	-	-	-	-	-	2	5	12
1986	2	4	-	-	-	-	-	-	1	-	1	11	19
1987	5	2	1	-	1	-	-	-	-	4	2	2	14
1988	-	-	-	-	-	-	-	-	-	-	1	1	2
1989	2	-	-	1	-	-	-	-	-	1	-	-	4
1990	2	2	1	-	-	-	-	-	-	-	-	-	5
Total	26	19	9	6	4	2	-	-	1	9	28	40	144
% births month wise	18.0	13.2	6.2	4.2	2.8	1.4	-	-	0.7	6.3	14.5	27.8	100







Result and Discussion

1. The chital breed only once in a year.
2. There is only one fawn in a litter.

The sex ratio of male to female fawns is 1:1 (71:73). As per Schaller the average sex ratio of Kanha, Corbett and Keoldeo Ghana National parks is 70.5 bucks to 100 does. In Kolkata zoo also fawn ratio of 10 males to 13 females has been recorded. During the present study births were observed to occur mostly from November to February (78.5%), the maximum incidence being observed in November and December (47.3%). However, as per Schaller (1998) the maximum births were reported from January to May and as per Prater (1971) in wild the young one are reported to be produced at any season. According to Mishra (1982), the fawns are seen in every month of year however the maximum no. was seen in December. Thus the main season of birth was during relatively cold and dry post monsoon period. Ramesh (2010) reported that fawns are seen throughout the year but peak fawning months were observed to be February – May and the male female ratio was skewed towards female (63.4 male : 100 female). As per Shrinivasalu (2001) fawns were recorded almost throughout the year though the number of fawns sighted peaked during late winter. (Almost half the fawns recorded). The average buck to doe ratio was 58 : 100. As per Sankar and Acharya (2004), new-born fawns were seen all through the year with a peak fawning period from December to February.

3. No births were observed during July / August and very few births were observed during May, June and September indicating that the animal avoids breeding in peak summer when the temperature soars to 42°C and also during rainy season *i.e.* June-September
4. The per cent male birth is slightly more in summer months and lowest in December suggesting increase in male births during pinch period.

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नवगांव राष्ट्रीय पार्क के मृग पार्क में चीतलों (*एक्सिस एक्सिस*) के प्रजनन पर कुछ प्रेक्षण

एस.एच. पाटिल

सारांश

शोधपत्र में 1970-90 के दौरान नवगांव राष्ट्रीय पार्क (जिला-गोंडिया, महाराष्ट्र) में मृग पार्क में चीतल अथवा स्पॉटेड डीयर (*एक्सिस एक्सिस*) के प्रजनन के बारे में प्रेक्षणों का वर्णन किया गया है। 144 जन्मों के प्रेक्षण दर्शाते हैं कि चीतल पुख्यत: नवम्बर से फरवरी तक वर्ष में केवल एक बार प्रसव करती है। पशु चरम गरमी, यथा मई, जब तापमान 42 डि. से. तक होता है, में और वर्षाती मौसम यथा-जून-सितम्बर में भी प्रजनन से बचता है नर से मादा का लिंगानुपात 1:1 प्रेक्षित किया गया।

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