

5. PHYSICAL FEATURES

5.1. INTRODUCTION

The age and sex characteristics of the animal is of immense importance in behavioural studies. Actually it would be immensely difficult to study behaviour of a species in which all animals looked morphologically similar. Fortunately most animals exhibit some structural differences among the different age-sex classes. Such differences in gaur are discussed in this Chapter.

5.2. METHODS

Determination of age and sex are the two main hurdles in the study of animal population in the wild. There is no universal method by which one can easily determine the age and sex of any wild animals in their natural habitat. The age and sex determination of gaur was done by direct observation basing on some of their physical characteristics such as body-size and colour, dewlap, dorsal ridge, horns external genitalia, etc.

5.3. RESULTS AND DISCUSSION

5.3.1. Age

Gaur like most other large wild animals are not easy to age accurately in the wild. Tooth eruption and

replacement although permit easy recognition of age in domestic cattle (Pope, 1919) and in bison (McHugh, 1958; Fuller, 1959) but such technique is not feasible in free ranging animals. It was, however, possible to have a reasonably accurate workable age-scale of gaur based on some easily visible morphological characters such as horns as used by Hornaday (1889), McHugh (1958) for the American bison (Bison bison). Gaurs were divided into 3 age-classes : adult, juvenile and calf, depending on colour, body size, horn, dorsal ridge, dewlap (Table 5.1) and some specific behaviour patterns.

5.3.2. MORPHOLOGICAL FEATURES

5.3.2.1. Adult

Gaurs usually become sexually mature following their second year of age when they began to show the dimorphic characters. The adults have a small head in comparison to massive body covered by light black to jet black pelage excepting on the muzzle, forehead and legs. The muzzle is completely white and the forehead which is very wide bears a gray boss in between the horns. The eyes though actually brown in colour, ~~may~~ appear blue when flash light is beamed on them at night. The legs have white stockings which starts from the top of the knee in

the forelegs and from the point of the hock in the hind legs, both end at just above the hooves (Plate 5.1). Hooves are very small compared to massive body and are sharply pointed forward. The area of the 4 hooves is on average 188 sq.cm. Body colour darkens with age. The horns are unbranched and two in number emerging sideways and upwards, from the head and are curved inwardly. They are smooth or corrugated at the base having rather pointed tips. Some information on adult horns are given in Table 5.2. The most remarkable feature of gaur is the development of the spinous process of the dorsal vertebrae usually known as dorsal ridge (Inverarity, 1889) which continues upto the middle of the back. Schaller (1967) stated that the dorsal ridge is formed by the extension of the spinous process of the third to eleventh vertebrae. Gaur possess dewlaps although Inverarity (1889) did not agree. According to him the skin of old bulls looks like the beginning of a dewlap. The tail is short and tasselled, and seldom reach down much below the point of hook.

5.3.2.2. Juvenile

They are usually 1 to 2 years of age having a smaller body size (Table 5.1) and without any dewlap. Body colour ranges from deep brown to light black with prominent white

stockings in legs. The muzzle and forehead were not strictly white but they started to change the colour towards white. Horns were smooth, blunt and were not curved (although the aged juveniles had slight curved horns). Dorsal ridge in most cases were absent or rudimentary. Juveniles also tended to associate to their mothers.

5.3.2.3. Calf

They were less than one year old having a light orange to dark brown coat. White stockings were indistinct in both legs but the muzzle and forehead were same as body colour. They were with or without small protuberances of horns. Dorsal ridge and dewlap were absent. They were always associated with their mothers.

The calves were classified into 3 age classes - galloping, orangish and brown ones. The new born calves upto one week old were referred to as galloping calves since they usually galloped instead of walking. Calves more than one week but less than a month old with orangish coat (Ogilve, 1951) were referred to as orangish calves. While calves more than one month old having brown pelage (Weigum, 1972) and indistinct stockings in legs, with or without small protuberances of horns were referred to as brown calves.

5.3.3. SEX

Unlike age, adult gear are rather easy to sex in the wild because the external reproductive organs of both sexes could be seen from a distance. But it was difficult to sex the young ones because of their ill-developed external sex organs. As such no attempt was made to sex them in order to avoid bias. Besides, external genitalia several morphological characters such as dewlap, dorsal ridge, and horns also helped in distinguishing bulls from cows. The sexually dimorphic characters are given below :

5.3.3.1. Sex Organs

The penis although abdominal has an external covering which is an outgrowth of abdominal skin (Plate 5.1). On the other hand the vulva of cow is situated just beneath the anus and in normal position is covered by tail. The testes of bull and the mamma with four nipples of cow hang down upto 14-16 Cm (approx) from the posterior abdomen between hindlegs. Both the organs could be seen easily in a posterior view.

5.3.3.2. Body Size

Bulls are more massive than the cows. In majority of mammals the males tend to be bigger and heavier than the

females (Etkin, 1964). The young bulls and the adult cows of all ages looks similar in body size.

5.3.3.3. Body Weight

No actual weight of gaur was taken by the present author. The weight of different age classes, reported by several workers, are given in Table 5.3. From the Table 5.3 it is cleared that the black bulls bear an weight of about 900 kgs. or above, while the brown bulls, weigh 750 kgs. to 850 kgs. The Body weight of cows ranged from 500 to 600 kgs., juveniles 300 to 400 kgs. and neonates are only 43 kgs.

5.3.3.4. Body Colour

Young bulls have dark brown coat while the older ones look jet black. The cows have the same colour as the young bulls although the older ones sometimes look more blackish.

5.3.3.5. Dewlaps

Bulls possess two dewlaps, the larger one hangs from the neck in between forelegs, and the smaller one hangs from the chin (Plate 5.2). The dewlaps are ill-developed in cows.

5.3.3.6. Dorsal Ridge

Cows do not possess the well developed and conspicuous

dorsal ridge of the bulls where it occupies the middle of the back and terminates abruptly (Plate 5.1, 5.3).

5.3.3.7. Horn

In young bulls, horns are smooth, yellow orange in colour and tipped with black as in cows while in older bulls they were corrugated and are of dull olive colour. Bulls have widely sweeping horns arising approximately at a right angle from the head and are with 10 to 15 transverse ridges at the base (Plate 5.3). On the other hand cows have sharp inwardly curved horns, emerging from the head at an angle less than right angle. In bull, the tips of the horns are sometimes frayed, terminate abruptly and usually lie outside the head while in cows the tips terminate gradually to a point and usually lie above the head. Mc Dougal (1977) reported that the horns of bulls are more massive than cows.

Table 5.1 : Age-class of gaur depending on some morphologic^d characters
(Measurements are approximate).

Age-class	Age (in years)	Body colour	Shoulder height (cm)	Nose to rump length (cm)	Horn-length (cm)	Horn- shape	Dorsal ridge	Overlap
Adult	Above 2	Light black to jet black	112-183	152-290	25-76	Curved & pointed	Present	Present
Juvenile	1 to 2	Deep brown to light black	76-112	107-152	8-25	Straight & blunt	Absent or rudimentary	Absent
Calf	Less than 1	Light Orange to dark brown	50-76	76-107	Less than 8	Small protuberance.	Absent	Absent

Table 5.2 : Measurement of adult horns from different angles (in cm).

Different Angles	Date collected by the author				Date collected by Inverarity (1989)				
	Bull-1	Bull-2	Cow-1	Cow-2	Bull-1	Bull-2	Bull-3	Bull-4	Bull-5
Between tips	56	54.5	43	42	71	57	44.5	52	51
Widest span	71.1	68.6	72.4	71.1	86.4	85.7	82.6	81.3	78.7
Length									
(i) Right	67.3	75.5	75	64.8	57.2	62.9	67.3	61	63.5
(ii) Left	68.6	76.2	73.6	63.5	66	62.9	63.5	60.3	66
Base Girth									
(i) Right	39.4	35.5	38.1	38.1	43.2	40.6	38.1	38.1	35.6
(ii) Left	39.4	35.5	36.8	38.1	-	-	-	-	-
Between bases									
(i) Up	22.9	25.4	25.4	30.5	-	-	-	-	-
(ii) Low	33	30.5	30.5	38.1	-	-	-	-	-
Vertical Height									
(i) Right	36	38	35	31	22.2	22.9	19.7	19.7	22.9
(ii) Left	36	40	31	30					

Table 5.3 : Body weight of gaur/seladang of different age and sex classes.

Serial No.	Age and Sex Class	Body weight (in Kg)	Authority
1.	Black bulls	900	Prater (1971)
* 2.	"	Above 900	Hubback (1937)
3.	"	922	Morris (1947)
4.	"	932	Morris (1947)
5.	"	Above 900	Powell (1964)
* 6.	"	900	Yusof (1981)
7.	"	900	Mukherjee (1982)
8.	Brown bulls	583.6	Meinertzhagen (1939)
9.	"	774	Meinertzhagen (1939)
10.	"	855	Meinertzhagen (1939)
11	Cow	695.7	Meinertzhagen (1939)
12.	"	436 (Excluding blood)	Schaller (1967)
*13.	"	509	Yusof(1981)
*14.	Juvenile	300	Yusof(1981)
*15.	"	400	Yusof(1981)
16.	Calf (Neonate)	43	Schaller (1967)

* indicate weight of seladang.

Plate - 5.1 : A majestic lone bull showing the conspicuous white stockings in the legs.

Plate - 5.2 : An adult male showing the well developed dorsal ridge extending upto the middle of the back.

Plate - 5.3 : An adult male showing the horns, the tip of which lie outside the head.



Plate-5.1



Plate-5.2



Plate-5.3