

## OBSERVATIONS ON SURVIVAL RATIO OF MARKHOR YOUNG

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**Summary.** Starting from July 1977, recurrent observations were made to study the survival pattern of the markhor (*Capra falconeri falconeri*) young in Chitral Gol Wildlife Sanctuary (Aleem, 1976). Young/female ratio declined from 1.19 to 0.79 after 6 months and to 0.5 after about 21 months, in case of 1977 litter, whereas for 1978 litter the ratio dropped to only 0.96 from 1.18 after six months.

**Introduction.** The reports on the young/female ratio have so far been made for the winter season when the rut was on (Schaller, 1976; Schaller and Mirza, 1971; Aleem, 1977, 1978, 1979) and the time when the rut was just over (Schaller, 1976 and Aleem, 1976) and the kids had already grown 6-8 months old. Schaller reported a ratio of 1.2:1, 1.3:1, 1.4:1, for different years whereas Aleem reported the ratio 0.56 (1976) and 0.25 (1977). No definite reason could be advanced to explain the low ratios reported for the previous two years.

It was decided to carry out periodic surveys within the period, markhor give birth to their young and the rut season to determine the litter size and also the possible causes of mortality (if it is occurring).

Markhor (*Capra falconeri falconeri*) young are born in the month of June, following the snow melt and regrowth of vegetation. For a few days they are fed by the mother markhor in solitude after which they start following their mothers, and are easily spotted. Total population of the animals at this time of the year cannot easily be studied, as the animals disperse over long distances in the high elevation ranges in search of food and to remain away from human and livestock disturbances. They can however, be easily spotted during winter when they descend from higher elevations (their summer ranges) to the lower elevations in search of food and to take part in the rut.

**Method.** The study was started in July 1977 and recurrent observations were made after an interval of about 3 months. Distribution of markhor was studied and the location of markhor herds was marked in different zones of the sanctuary. The animals were spotted and subsequently observed with the help of binoculars (8 × 30 mm, 7 × 50 mm) and the telescope (20 × 60 mm). The animals could be observed during early mornings and late evenings on clear days whereas during cloudy weather, they were seen even during intermediate hours.

The young were easily identifiable because of their smaller size and their association with their mothers. The study was continued upto 21 months i.e., upto April 1979, when

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# DISTRIBUTION OF MARKHOR GUMMER AND WINTER MONTHS:

SANCTUARY BORDER  
DISTRIBUTION OF MARKHOR  
LOCATION WHERE MARKHOR WERE SIGHTED (DURING SUMMER)  
LOCATION WHERE THE ANIMALS WERE OBSERVED (DURING WINTER)  
MAXIMUM CONCENTRATION AREA = X  
FIGURES (e.g. 1481) ELEVATION IN METERS

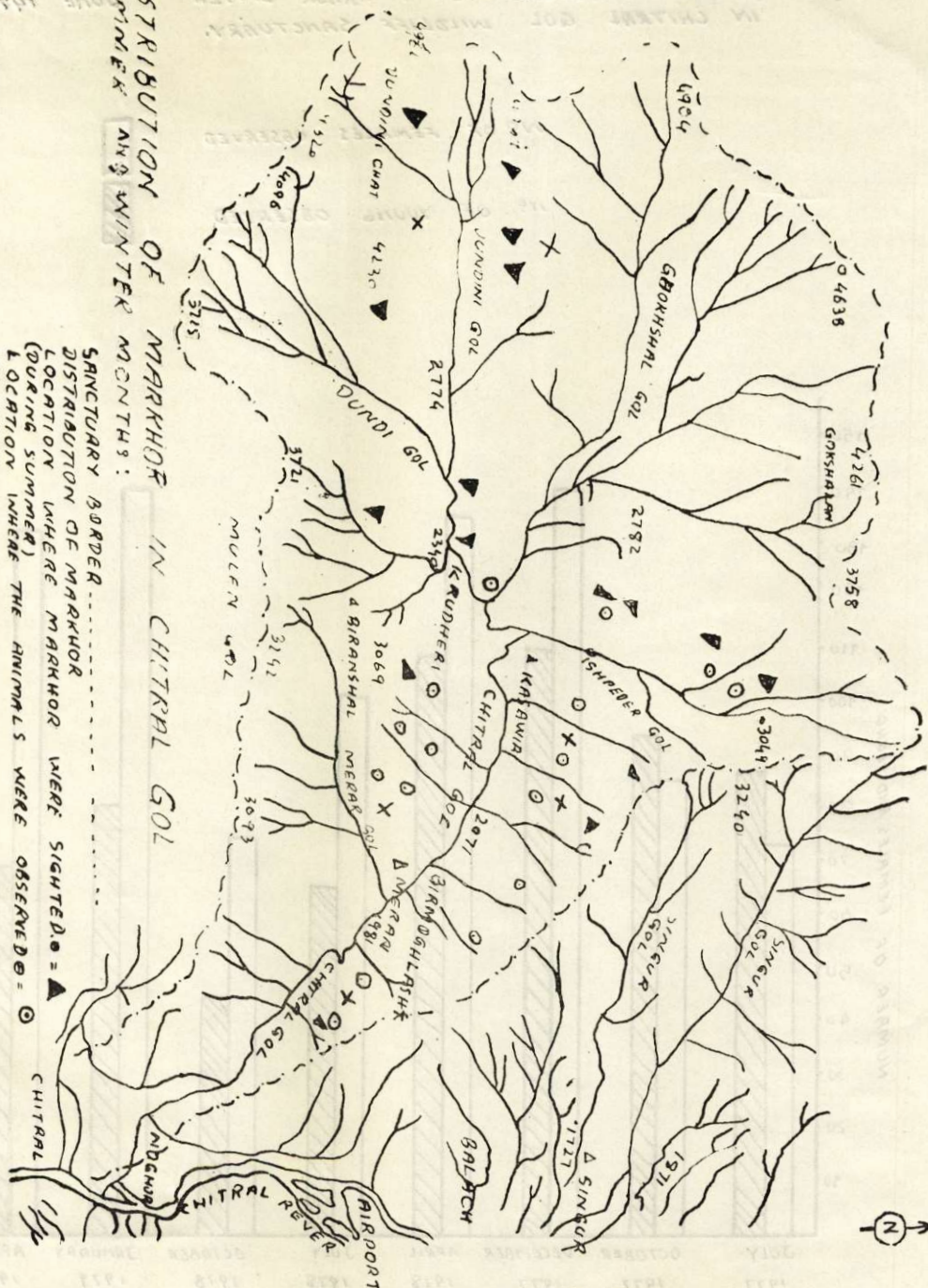


FIG.1 OBSERVATION RECORDS ON MARKHOR LITTER  
IN CHITRAL GOL WILDLIFE SANCTUARY.

JUNE 1977

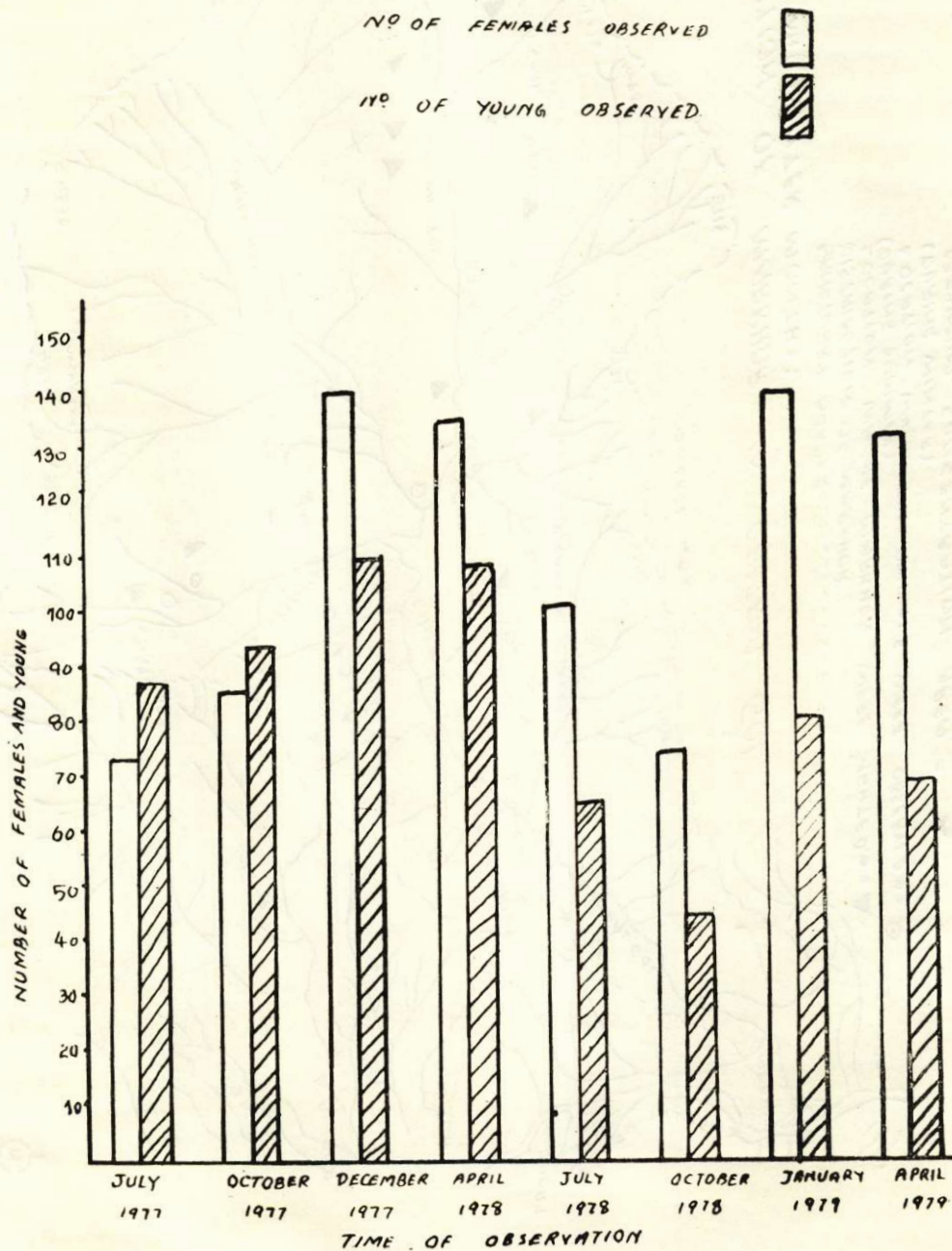




FIG: 2

OBSERVATION RECORDS ON MARKHOR LITTER OF JUNE 1978  
IN CHITRAL GOL WILDLIFE SANCTUARY

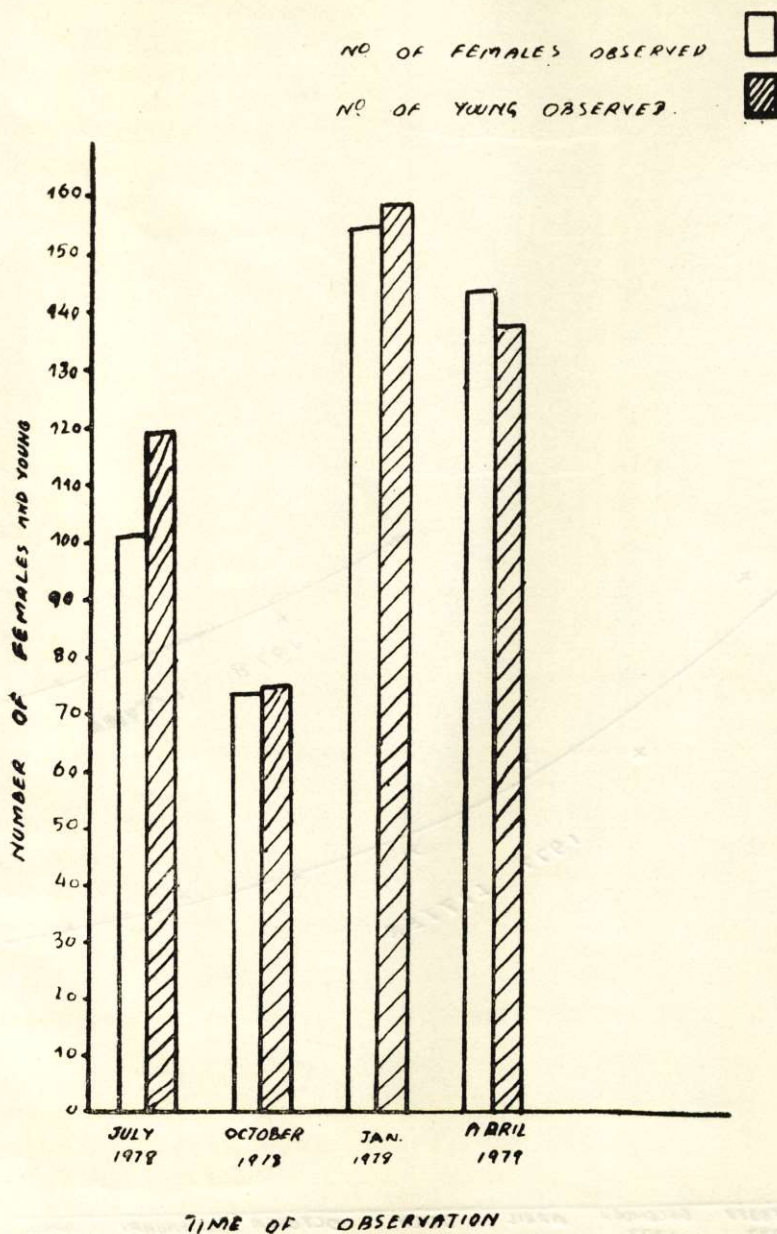
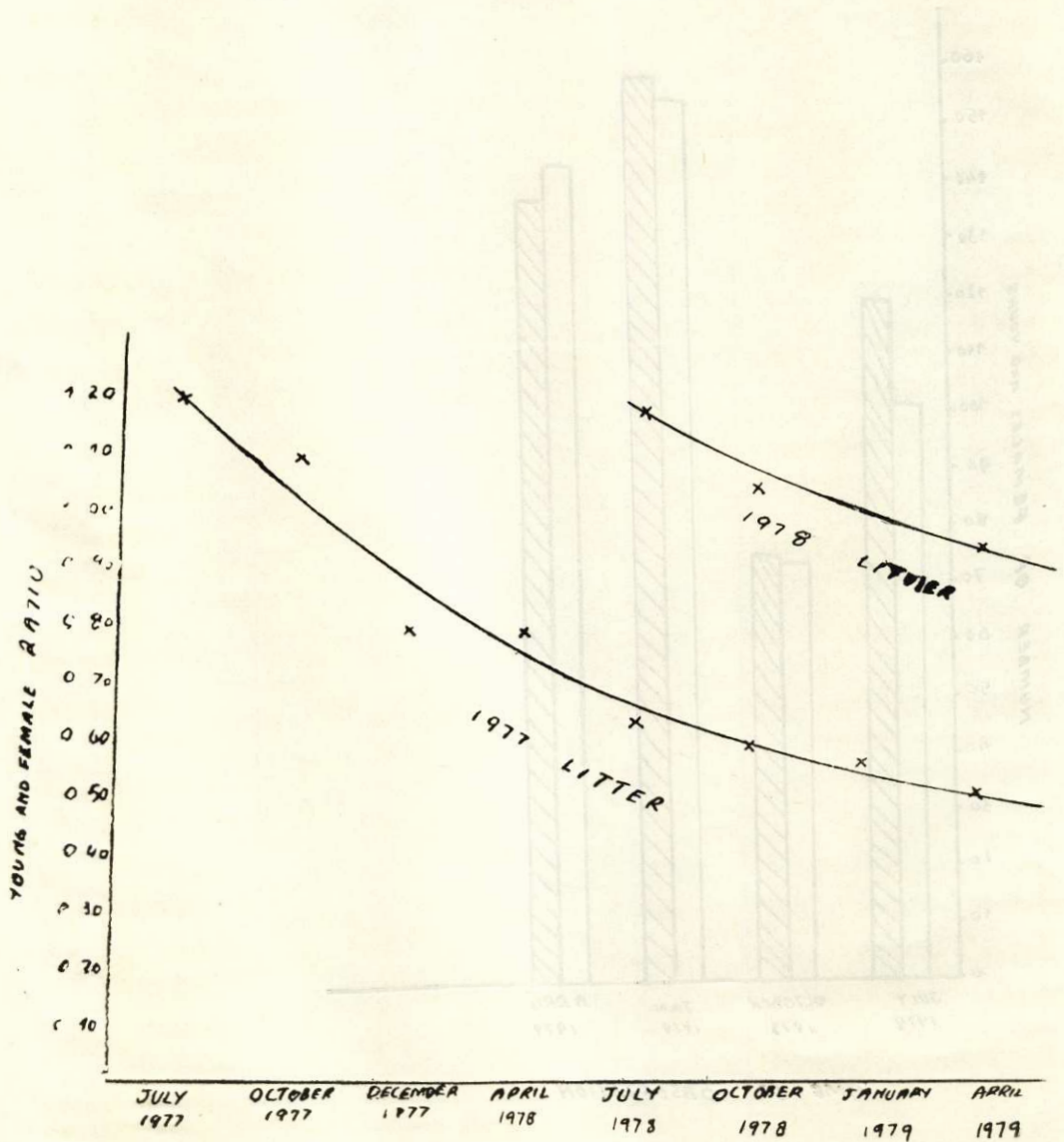


FIG. 3

COMPARISON OF YOUNG/FEMALE RATIO OF MARKHUR IN  
IN DIFFERENT SEASONS IN CHITRAL GOL WILDLIFE SANCTUARY  
FOR TWO YEARS





the young born in 1977 had already grown into yearling stage. June 1978 litter was simultaneously studied upto April 1979 when they were 9 months old.

**Results.** During summer the females with their young were distributed all over the sanctuary, wherever they could find refuge from human beings and their livestock. They remained confined to high elevations in good grazing grounds. 'Chhat', where the livestock are not allowed to graze contained the maximum population, followed by 'Ishpedher' where the slopes are too steep to provide an easy access. The animals remained confined to lower elevations during winter. During spring and fall, they were located on intermediate points as well as their summer and winter resorts. (The map shows winter and summer distribution pattern).

Males were found associated with the females only during December/January during the rut after which they abandoned them and lived in male only herds or as solitary individuals.

The following observations were made:

	Females	Young/ yearling	Actual	Ratio estimated
	Fig (1)	Fig (2)		Fig (3)
<b>June 1977 births</b>				
		<b>Young</b>		
July 1977	73	87	1.19	1.19
October 1977	85	93	1.09	1.02
December 1977 (total population)	139	109	0.79	0.87
April 1978	134	106	0.79	0.75
		<b>Yearling</b>		
July 1978	101	65	0.64	0.67
October 1978	74	44	0.60	0.61
January 1979 (total population)	139* (155)	80	0.58	0.56
April 1979(almost total population)	131* (144)	69	0.53	0.53
<b>June 1978 births</b>				
July 1978	101	119	1.18	1.18
October 1978	74	75	1.05	1.09
January 1979 (total population)	155	159	1.03	1.01
April 1979 (almost total population)	144	138	0.96	0.96

\*Population records of December 1977, assuming that no mortality occurred. Exact estimates for the time were 155 and 144, which included the yearling females of the previous year transformed into adults, hence increase in the number.

As is obvious from the figures above, it was not possible to estimate the total population during July and October and almost total population was estimated during April. The young/female ratio plotted in figure 3 shows a continuous drop, with the passage of time. In 1977 litter, a sudden drop was seen in the initial 6 months of the life of young but the ratio almost stabilised showing a steady downward trend. In 1978 litter, the drop was almost steady, the maximum casualties, however, occurred during the first 3 months.

### References

- ALEEM, ABDUL. 1976. Markhor in Chitral Gol. *Pakistan J. For.* 26(2): 117-128 pp.
- ALEEM, ABDUL. 1977. Population dynamics of markhor in Chitral Gol. *Pakistan J. For.* 27(2): 86-92 pp.
- ALEEM, ABDUL and M.M. MALIK. 1977. Litter size in markhor in Chitral Gol. *Pakistan J. For.* 27(3): 203-206 pp.
- ALEEM, ABDUL. 1978. Markhor, population dynamics and food availability in Chitral Gol Game sanctuary. *Pakistan J. For.* 28(3): 159-165.
- ALEEM, ABDUL. 1979. Markhor, population dynamics and food availability in Chitral Gol sanctuary. *Pakistan J. For.* 29(3): 166-181.
- SCHALLER, GEORGE B. 1976. Mountain mammals of Pakistan. *Oryx*, 13(4): 351-356 pp.
- SCHALLER, G.B., and Z.B. MIRZA. 1971. On the behaviour of Kashmir markhor (*Capra falconeri cashmiriensis*). *Mammalia*, 35: 548-68 pp.