



ABSTRACT OF PAPERS AND POSTERS

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SEASONAL VARIATION OF THE GROUP SIZE AND COMPOSITION IN PYRENEAN CHAMOIS

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Chamois (*Rupicapra pyrenaica pyrenaica*) population in "Los Valles" Game Reserve, Western Pyrenees, was surveyed during summer and autumn 1986 in order to assess (1) its numerical status, (2) the environmental factors determining its spatial distribution, and (3) its social grouping. Results concerning (1) and (2) have been previously published (García-González & Hidalgo, 1987 and in press).

Regarding the social structure, both group size and composition change all through the year, as the biological cycle of this species passes and according to the different ecological requirements of the season.

In the study area, chamois gather in groups formed by a varying number of individuals, usually between 1 and 20, although it is not infrequent to observe quite larger herds. Groups made up by lonely individuals (or by a female with her kid) involve, at any season, the highest rate (ca. 30%) in relation to the total number of groups. The remaining ones are found with frequencies ranging between 1% and 11-14%, whether summer or autumn, respectively. There is no apparent relationship between those frequency patterns and the etho-physiological features of this species or the ecological factors of its habitat.

Herds can be grouped into four classes depending on their size. The corresponding frequencies of observation are very much alike (27-28%) in the summertime, except for the larger herds (i.e. 16+ animals). They occur in a considerably lower frequency. During the autumn, the one of the smaller herds (i.e. 2-6 animals) increases up to 38%, whereas those of the larger and medium-sized (i.e. 7-15 animals) groups decrease slightly. Single groups stand at the same rate. This trend does not change essentially by taking into account the proportion of individuals belonging to every class, instead of the proportions of herds.

The summer ascent in height has an indirect effect on the grouping pattern (García-González *et al.*, 1985). It results in an increasing rate of larger herds as well as the trend by the larger average-sized groups towards inhabiting higher places than in any other season (2300+m in summer, while 1800-2300m in autumn). The average group size increases as altitude does. By the other hand, the predominance of smaller groups during the autumn can be influenced by the rut. All these seasonal variations make the average group size being larger in summer than in autumn (9.0 vs. 6.8 animals per group, respectively).

With regard to the social composition of herds, it is remarkable the high rate of lonely adult males both in summer and autumn. It represents around a quarter of the total number of groups. The most frequently observed ones are several types of matriarchal herds (20-30% each) and the aforementioned lonely males, in the summertime, whereas in autumn the latter and those formed by male(s)+female(s)+yearlings+kids (21%). By comparing the results from both seasons, a strong difference in the patterns of social grouping stands out. It means a pronounced increase in the frequencies of "full" groups (i.e. the ones representing all the sex and age classes) and groups made up by adult males and females, and at the same time, a drop in those of matriarchal and adult male groups. The frequencies of the remaining ones are quite stable in broad outline all through the year - anyway they involve just a low rate, less than 15%, of the total number of groups.

Seasonal variations in the social composition of herds are mainly determined by changes in the gregariousness of the adult male. The herd behaviour of males shows a strong increase coming the autumn, as a result of the rutting behavioural patterns. So the frequency of groups including adult males trebles at this period (43% vs. 15% in summer), whereas that of groups without them decreases down to 30% from values above 50%, as in the summertime. The rate of isolated males (i.e. those ones living alone or

within only-male groups) remains at ca. 25% both in summer and autumn.

The location of groups is different inasmuch as altitude during the summer, according to their social composition. Matriarchal herds are located higher than those including adult males. It does not happen in autumn. The summer segregation may respond to female need for searching a suitable place to bear (Hamr, 1985).

The general pattern of social grouping is similar in chamois from both Spanish Western Pyrenees and the Carlit massif (González & Berducou, 1985), French Pyrenees. Main difference rests on quite a greater frequency of "full", females+yearlings+kids and male(+females+kids) groups within the "Los Valles" population than in the Carlit one, being the remaining groups more frequent among the Carlit population. As the former kind of group display a more complex network of social links, it may indicate the "Los Valles" population hold an upper level of organization, whose causes are yet not convincingly known.

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