The Relationship Between Altitude and Group Size in Mountain Baboons (*Papio cynocephalus ursinus*)

S. P. Henzi,¹ M. L. Dyson,² and A. Deenik³

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Twenty-seven troops were counted during a 1989 census of the mountain baboon population at Giants Castle Game Reserve. In contrast to earlier findings, and despite a similar population structure, we found no relationship between group size and altitude. We argue that this is a consequence of long-term population processes whereby groups split as they grow larger and, in some cases, as their home ranges expand upward. At these high altitudes, smaller groups are eventually subjected to environmental conditions that destroy them. We propose that the high-altitude slopes act as a demographic sink.

KEY WORDS: baboon; *Papio*; demography; population dynamics; ecology; altitude.

INTRODUCTION

An earlier analysis of the baboon population in the Drakensberg Mountains revealed that, on average, troops were smaller than those of other populations and their size declined significantly with increasing altitude (Whiten et al., 1987). Altitude provides a convenient and reliable indirect measure of habitat quality in these mountains since a number of environmental parameters, such as rainfall and temperature, covary with it (Killick, 1963). Repeated counts over the period 1981–1983 confirmed an earlier report by

¹Department of Psychology, University of Natal, Durban, South Africa.
²Zoology Department, University of the Witwatersrand, Johannesburg, South Africa.
³Natal Parks Board, Giants Castle Game Reserve, P.O. Estcourt, South Africa.
Hall (1963) and provided the first reliable evidence of a clear association between ecology and group size in baboons.

While these data are robust, the counts were made at a time of very low rainfall in the Drakensberg (Fig. 1). The 5 subsequent years have been much wetter. It is possible that this increase in rainfall, through its effect on habitat quality, might have led to a change in mean group size and to a modification of the effect of altitude. In this paper we evaluate this, presenting data from a population census conducted during May 1989.

**METHODS**

**Study Site**

Giants Castle Game Reserve consists of montane and subalpine grassland bounded on the west by the Lesotho plateau (3000 m) and on the east, some 14 km away, by farmland (1500 m). Large tracts of proclaimed and protected wilderness extend from the northern and southern boundaries, making the baboon population continuous for at least 160 km. Whiten et al. (1987) give a detailed description of the study area and climatic conditions.