

Behavioural ecology of the caracal in the Kgalagadi Transfrontier Park, and its impact on adjacent small stock production units

by

Haemish Melville

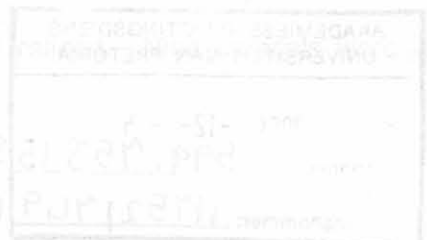
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Abstract

A study, to investigate the behavioural ecology of the caracal and to try to quantify the potential effect that these medium sized felids have on small stock on Namibian farms bordering the Kgalagadi Transfrontier Park, was undertaken from June 2000 to August 2002. It was necessary to capture caracals, which had ranges in the vicinity of the Namibian border, to fit them with radio-collars to facilitate the monitoring of their movements. Although many studies on small predators have been conducted, the methods of capture are constantly being modified and refined. Nine caracals were

caught during 632 trap nights. Refinements of the methodology applied in the use of cage traps for the capture of small carnivores and the immobilisation of the captured animals are described. These refinements include the use of a crush plate in conjunction with a hand held syringe to immobilise animals caught inside cage traps. Non-target animals were frequently caught in cage traps set for caracals, demonstrating the non-specific nature of such trapping efforts. Data relating to the numbers of non-target animals caught during this study were included to illustrate the potential of this capture technique for the capture of other small carnivores.

The movements of radio-collared caracals were monitored, not only to establish whether the range sizes of caracals in the Kalahari are larger than those of caracals in more mesic regions, but also to determine whether caracals, with ranges in the vicinity of the Namibian border, transgressed this border. It seems, from the data gathered, that caracals in the Kalahari do have larger ranges than those in other areas in southern Africa. Additionally, it is clear that caracals do transgress the Namibian border and that the ranges of caracals in this region are contiguous with those in Namibia.

The spoor of caracals were followed with the assistance of an experienced Kalahari San tracker. Much insight into the ecology of elusive and principally nocturnal predators can be gained by spoor-tracking such animals and recording their behaviour based on the evidence and imprints that they leave in the soft sand of the Kalahari. Data gathered whilst spoor-tracking caracals was used to analyse the habitat selection and behaviour of these animals.

Although the vegetation of the southern Kalahari is described as homogeneous, there is definite stratification of the vegetation throughout the dune-veld. By quantifying this

vegetation stratification it was possible to investigate whether caracals showed a preference for any vegetation component. Caracals tended to use the dune streets less than would be expected if they were using all the vegetation components in proportion to their availability.

One of the primary activities of any predator is hunting. By spoor tracking caracals it was possible to stratify the hunting behaviour of caracals into a series of component behaviours including, crawling, stalking, crouching, taking-off, chasing and pouncing. Based on these records of hunting events the hunting behaviour of caracals in the Kgalagadi Transfrontier Park was modelled and a logical sequence of behaviours that were most likely to result in a successful hunt was defined. All hunting events were stratified according to their component behaviours and the relative hunting success for each sequence was recorded. It appears that caracals in the Kalahari tend to lie in ambush for their prey rather than employ prolonged stalks while hunting.

The diet of caracals was analysed based on faecal analysis and on records of kills. This analysis was conducted to establish what caracals in the Kalahari prey upon and whether caracals, that have ranges in the vicinity of the Namibian border, prey upon small stock. It was found that caracals prey primarily on small mammals, especially rodents. Additionally, it was found that caracals prey upon a variety of small and medium sized predators. Although there is an abundance of avian prey available, caracals did not exploit this resource to any great extent. Caracals do prey on small stock, especially during the colder months.

Brant's whistling rats are common in the Kgalagadi Transfrontier Park and as such it was anticipated that they would contribute substantially to the diet of caracals. In this case

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caracals might actively attempt to forage optimally for Brant's whistling rats. Data were gathered by conducting a series of transects and recording the occurrence of Brant's whistling rat colonies within these transects. These data were compared to those of the incidence of caracals encountering Brant's whistling rat colonies during their movements. It seems that caracals may employ an optimal foraging strategy relative to Brant's whistling rats during the hot season but not in the cold season.

Spoor density is an index of predator population density. Spoor counts were done to determine whether the caracal spoor density along the Namibian border was greater than that in the interior of the Kgalagadi Transfrontier Park. Long distance transects were done to investigate the relative spoor densities in three 10 km wide zones relative to the Namibian border. It is likely that caracals use the areas in the vicinity of the Namibian border more intensively and move across the border more frequently in the cold season than in the hot season.

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