Proceeding Paper

THE EFFECT OF SPATIO-TEMPORAL VARIATION ON THE FEEDING BEHAVIOR OF THE DROMEDARY

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Abstract: The dromedary is the only livestock species capable of efficiently utilizing the limited vegetation resources of Saharan rangelands, thanks to its unique feeding behavior. To better understand how it forages in its natural habitat, our study conducted spatio-temporal monitoring across various rangelands using the bite-count method, observing and filming three individuals. Our findings revealed **34 plant** species from **19 families** in the rangelands. In cooler seasons, the dromedary's daily activity distribution was **67%** grazing, **11%** ruminating, and **22%** on other activities. During the hot season, grazing time decreased to **34%,** while ruminating increased to **28%,** with **38%** on other activities. The amount grazed daily was linked to the variation in vegetation cover, ranging from *1.7 to 14.85 kg* of dry matter. The dromedary can adapt to the spatiotemporal variation of rangelands.

Keywords: Dromedary, feeding behavior, Saharan rangelands, spatiotemporal.

Introduction

Camel breeding in Algeria holds significant importance within the Saharan community, with a population of approximately 417,322 heads (FAO, 2018). It contributes to the food security of the Saharan population by supplying local markets primarily with meat and, secondarily, with milk. Camels are a vital source of animal protein for the local community (Adamou et Boudjenah, 2012; Adamou et Bairi, 2009 ; Senoussi, 2012 et Bouallala et *al.*, 2013). The Saharan rangelands are the only source of food for dromedaries, supported by various geomorphological formations, such as riverbeds, depressions, hamadas, regs, sandy soils, and salt flats (Chehma et *al.*, 2010).. Camels rely primarily on perennial plants throughout the year, and occasionally on ephemeral plants when available (Slimani et *al.*, 2013). Despite the forage supply limitations of these rangelands, and the negative impacts of climatic variations, the dromedary remains the animal best suited to managing this environment. Thanks to its particular behavior, it efficiently utilizes the available food resources, which are often considered scarce and unusable by other livestock (Jouany, 2000). Moreover, studies by Trabelsi et *al.*, (2010) have shown that the dromedary plays a significant role in seed dispersal of spontaneous plants throughout its journey on the rangelands. Several studies on feeding behavior in Algeria, such as those by Gauthier-pilters, 1969 ; support these findings. In this context, our objective is to demonstrate the impact of the dromedary's feeding behavior on the regeneration of its rangelands.

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Materials and Methods

For the floristic study of the rangelands, we based our surveys on the subjective sampling method. For the species inventory, we relied on the minimal area method. The monitoring of feeding behavior was conducted on three females in each herd, all over 10 years old, of similar size, with a live weight of approximately 400 kg, and non-pregnant. Our study is based on the direct observation of dromedaries during the plant grasping process, using the tooth strike method (bite method), inspired by the works of Gauthier-pilters, 1977 ; Meuret , 1985 et kassilly, 2002. To facilitate observation, we used a camcorder. The recorded video sequences lasted from 30 minutes to one hour for each female in the morning and 30 minutes to one hour in the afternoon. Video analysis allowed us to extract all relevant information about their behavior on the rangelands.

Results and Discussion

The results of the study conducted on the floristic composition of the rangelands revealed that floristic surveys across different rangelands allowed us to identify **34 species** belonging to **19 families**. During our monitoring, in cooler seasons, we estimated the distribution of the dromedary's daily activities as follows: **67%** of the time spent grazing, **11%** spent ruminating, and **22%** on other activities. In contrast, during the hot season (summer), the dromedary's activities are more restricted, with **34%** of the time spent grazing, **28%** spent ruminating, and **38%** on other activities. Monitoring its diet revealed that the daily amount grazed is closely linked to the spatiotemporal variation of the vegetation cover, with quantities ranging from **1.7 to 14.85 kg** of dry matter per day. These quantities are closely related to the availability of forage, which is itself dependent on the season and the type of rangelands.

Conclusions

In this critical state of the rangelands, combined with the harsh climatic conditions of the environment, the dromedary has proven to be better adapted to these variations by organizing its day differently, depending on the climatic conditions (season) and the floristic diversity of the rangelands. Additionally, the amount grazed is linked to the spatiotemporal variation of the rangelands.

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