

Article

Exploring the Contemporary Distribution of Saharan Livestock: A Case of the Oued Souf Region, Algeria

Lakhdari Kaouthar*, Boussaada Tarek, Benattallah Salha amira, Laouisset Mohamed saleh and Bouhana Mamar

Scientific and technical research centre for arid areas (CRSTRA), Biskra, Algeria.

* Correspondence: kaoutharfido@gmail.com

Abstract: To assess the current livestock situation in the Oued Souf region and map the distribution of potential species, we carried out a transect followed by an exploratory survey (Lhostev et al., 1993; Lesnoff, 2007; Boulassel, 2008). These investigations, carried out with 110 farmers over a period of eight months, revealed a remarkable diversity of livestock in the study area. Small ruminants dominate, accounting for 94% of total livestock across the different potential zones. Sheep, representing 58%, are mainly concentrated in Ben Guecha and Hassi Khalifa, while goats, representing 36%, are more widespread in Reguiba. Camels make up just 4% of the total livestock population. The Saharan herd has undergone a real transformation, evolving into a more diversified entity. This transformation is attributed to the resilience and ingenuity of breeders who have risen to the challenges posed by the Sahara's arid, harsh environment.

Received: 19 March 2024

Accepted: 17 April 2024

Citation: Lakhdari K., Boussaada T., Benattallah Salha A, Laouisset M.S., and Bouhana M. Exploring the Contemporary Distribution of Saharan Livestock: A Case of the Oued Souf Region, Algeria. Journal Algérien des Régions Arides 2024, 17 (1) : 1–5.

Publisher's Note: ASJP is an electronic publishing platform for Algerian scientific journals managed by CERIST, that is not responsible for the quality of content posted on ASJP.



Copyright: © 2022 by the CRSTRA. Algerian Journal of Arid Regions is licensed under a Creative Commons Attribution Non Commercial 4.0 (CC BY NC) license.

Keywords: Oued Souf, Animal diversity, Saharan breeding, Small ruminants,

1. Introduction

While camel rearing was long considered to be best suited to the Saharan environment, since the 2000s significant changes have reshaped the Saharan herd. More specifically, livestock rearing practices in Saharan regions such as Oued Souf have undergone a radical transformation, largely due to significant agricultural developments.

Indeed, a new agricultural paradigm has emerged, going beyond the traditional cultivation of date palms. This involves irrigated crops facilitated by the exploitation of groundwater through drilling [1, 2], in particular through the use of agricultural pivot techniques, which have made the Souf valley a leading agricultural centre [3].

Given the intrinsic link between agriculture and livestock farming, the aim of our exploratory study was to delineate changes in the distribution of animal species in the Saharan environment of the Oued Souf region. This transformation bears witness to the resilience and ingenuity of individuals who have risen to the challenge of thriving in the arid, harsh landscape of the Sahara.

2. Materials and Methods

The study was carried out in the Oued Souf region, located in the South East of Algeria (Fig. 1). This region is characterised by sandy terrain, as it is nestled in the dunes of the vast eastern erg (latitude 33° 10' 0 N, longitude 7° 15' 0 E). Its hyper-arid climate is marked by scorching summer temperatures, frequently exceeding 45°C and minimal or sporadic rainfall in recent years [4].

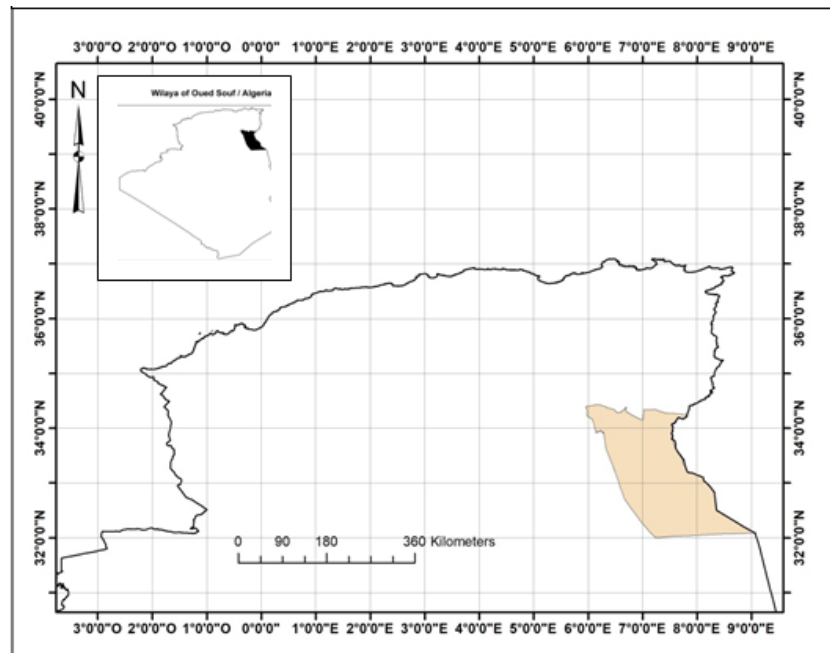
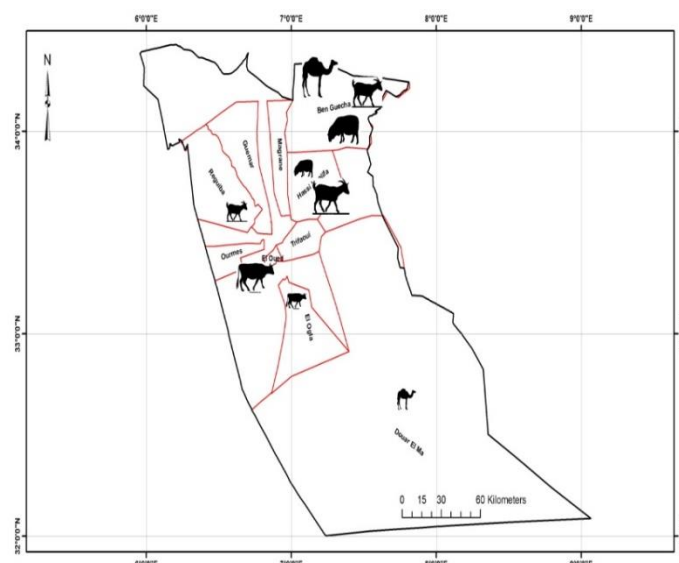


Figure 1. Study area

For our exploratory survey, the presentation of livestock in the study region was the focal point of our investigation, conducted through a systemic analysis [5] spanning a period of five months (February 2021-June 2021). The study targeted 110 breeders with a focus on large farms possessing herds exceeding 50 head /herd. The utilization of a guide and an all-terrain vehicle proved indispensable for the execution of this study.

3. Results

The survey revealed that livestock in the study area comprises several species, including camels, sheep, goats and cattle. Furthermore, four (4) potential areas have been identified, namely: Hassi Khalifa for sheep and goat breeding, Ben Guecha for camels and sheep, Douar El-Maa for camels, and El Oued for bovine breeding (Figure 2).



Our study showed the variability of livestock production depending on the species reared. It appears that sheep and goats are confere to certain zones of the Oued Souf region high animal production (Figure 3).

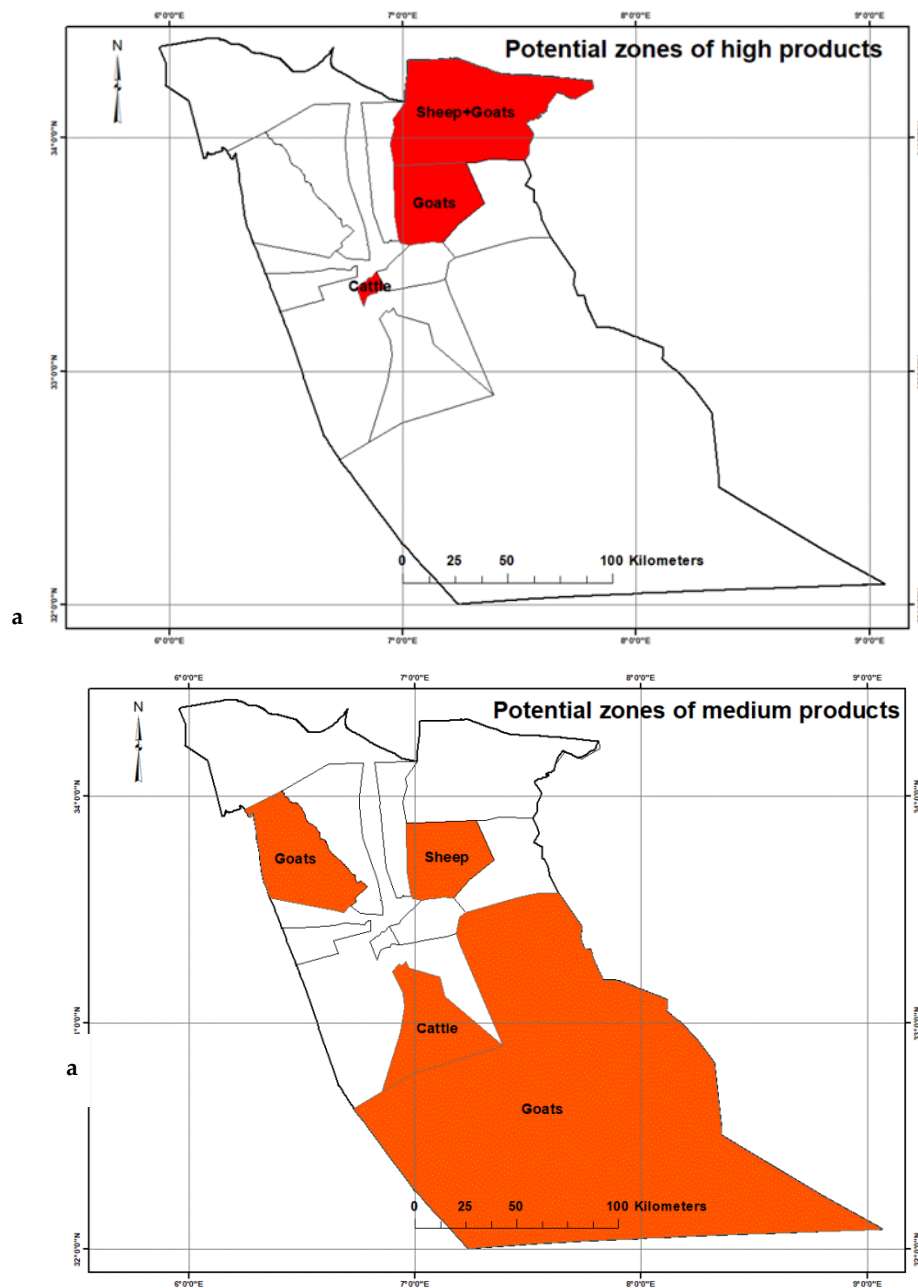
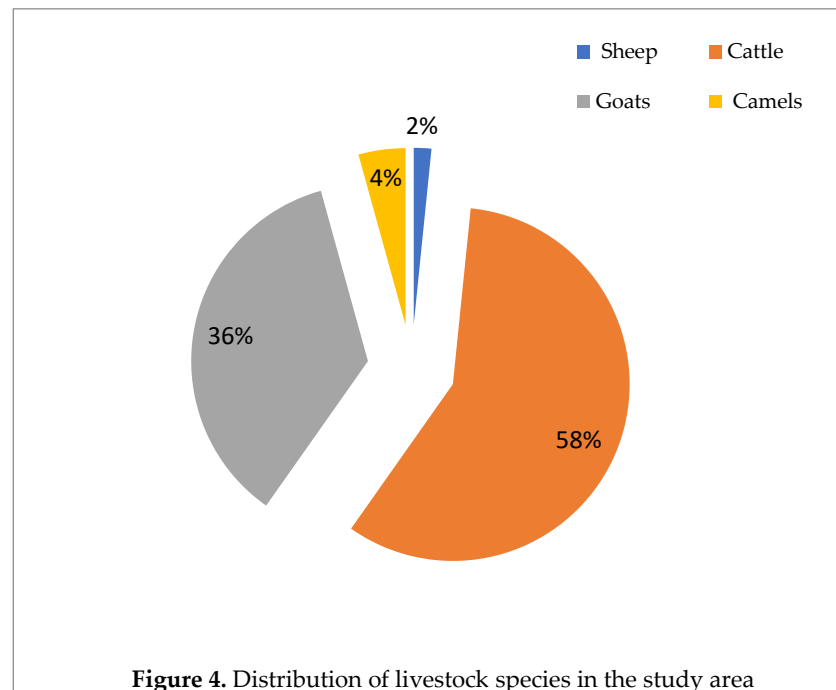


Figure 3. Potential areas of animal production in the study

b

The results presented in figure (4) show that sheep farming is in first place, with 58% of the total livestock. This is followed by goat farming, which accounts for 36%. Camels represent only 4% of the total, while cattle occupy last place, with the lowest representation (2%).



4. Discussion

Our study has revealed the multifaceted nature of Saharan livestock diversity from an environmental perspective. Certain species demonstrate remarkable adaptation to the environment, resulting in high production levels such as sheep raised in the Hassi Khalifa and Ben Guecha areas (Fig 3). This may be attributed to breed selection, considering that Algerian sheep breeds are well adapted to environmental conditions [6]. Conversely, cattle confined to the El Oued area (Fig. 4), occupy the lowest position (2%) indicating that the cattle species has not proven to be well adapted to desert areas. It appears that the practice of a specific type of livestock farming in particular areas is not the result of spontaneous choices by breeders. Instead, it is influenced by inherent characteristics of the species and the agro-ecological context, such as the availability of irrigated crops. Previous studies have highlighted that agricultural by-products in the Oued Souf region have contributed to diversifying livestock farming in the Sahara.

On the other hand, figure 4 shows the predominance of small ruminants (94%) in the study area. Similar results have been reported in Ghardia [7]. However, this predominance characterises all Algerian regions [8], which may be justified by the relationship between small ruminant farming and food security. Indeed, the supply of a wide range of animal products and the diversification of these essential goods strengthen food security.

Furthermore, the diversity in Saharan livestock farming enables enhanced control over specialized production for each species. Specifically, sheep farming (58%) gives the study region a remarkable vocation for meat production. Similarly, the notable expansion of goat farming observed between 2009 and 2019 [9].

However, the unexpected result pertains to dromedaries, whose participation in the overall livestock presence rate in the study region is limited to (4%) Although it is a typically desert species.

Despite the constraints and difficulties of the Saharan regions, the diversification of livestock species in the study area appears to be associated with a successful feeding strategy based on the use of agricultural by-products in the Oued Souf region.

5. Conclusions

In conclusion, the diversity of Saharan livestock, whether based on species indigenous to the Sahara or on species acclimatised to the region, has many advantages for agriculture. It meets a multitude of needs at local and national level, while strengthening the sustainability and resilience of food systems.

References

1. Barkat, A.; Bouaicha, F.; Bouteraa, O.; Mester, T.; Ata, B.; Balla, D.; Rahal, Z. and Szabó, G. (2021). Assessment of complex terminal groundwataquifer for different use of Oued Souf Valley (Algeria) using multivariate statistical methods, geostatistical modeling and water quality index. *Water*. 13(11): 1609.
2. Khezzani, B.; Bouchemal, S. (2018). Development and conservation of water resources for agriculture in an arid environment: a case study of the Souf oasis (Algerian Sahara). *Annals of Arid Zone*, 57(1&2), 1-11.
3. Matallah, M.E., Alkama, D., Ahriz, A., Attia, S. (2020). Assessment of the Outdoor Thermal Comfort in Oases Settlements. *Atmosphere*. 11(2): 185.
4. Boulassel, A.; Ababsa, F.; Lakhdari, F. (2008). Diagnostic rural participatif au service du développement agricole durable: Expériences et Enseignements. Actes du colloque international sur l'aridoculture: Optimisation des productions agricoles et développement durable, CRSTRA, Biskra. 1: 53-62.
5. Adaouri M.; Triki S.; MeftiKorteby H.; Lebied M.; Sebbag L (2022). Efficacité de l'effet mâle sur la reproduction et la productivité de brebis OuledDjellal croisées avec des béliers D'man. *Livestock Research for Rural Development*. Volume 34, Article #49. Retrieved February 2, 2023, from <http://www.lrrd.org/lrrd34/6/3449mada.html>
6. Ben Semaoune, Y.; Senoussi, A.; Faye, B. (2019). Typologie structurale des élevages camelins au Sahara septentrional Algérien-cas de la wilaya de Ghardaïa. *Livestock Research for Rural Development*. 31(2). DOI:10.9755/ejfa.2020.v 32. i4.2087.
7. Deghnouche, K.; Cherif, B. N.; Boukhalifa, H. H. (2018). Factors conditioning growth in sheep in semi-arid region of Algeria. In IX International Scientific Agriculture Symposium" AGROSYM (pp. 1640-1644).
8. Matallah S.; Matallah F. Gadi T 2020 Effet de la race sur la composition physico-chimique de laits de chèvres du Sud-Est algérien. *Livestock Research for Rural Development*. Volume 32, Article #148. Retrieved February 8, 2023, from <http://www.lrrd.org/lrrd32/9/saida32148.html>
9. Kerboua, M.; Feliachi, K.; Abdelfettah, M.; Ouakli, K.; Selhab, F.; Boudjakdji, A.; ... & Ghenim, H. (2003). Rapport national sur les ressources génétiques animales: Algérie. Ministère de l'Agriculture et du Développement Rural, Commission Nationale AnGR, 1-46.