

A Geographical Study of Goat Distribution in the Districts of Karnataka State (2012–2019)

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Abstract: This study examines the geographical distribution of goats across the districts of Karnataka state. The main aim is to understand the spatial pattern of goat population and its relationship with physical and socio-economic conditions. Secondary data from official livestock sources are used and mapped using GIS techniques. The results show that higher goat populations are mainly concentrated in the rain shadow and semi-arid districts of the state. This pattern indicates that goat rearing is an important livelihood activity in areas with low rainfall and dry region. The study highlights the role of goat farming in supporting the rural economy and provides useful information for regional planning and livestock development and the scenario of drought condition.

Keywords: Goat Distribution, LiveStock, Goat and Climate

I. INTRODUCTION

Karnataka is located in the southern part of India and has diverse geographic and climatic conditions. The state consists of 31 districts, each with different characteristics and economic activities. In the present research, special attention is given to the rain shadow region, particularly the eastern part of the state, where the number of goats is comparatively high. In contrast, the western part of the state shows a lower goat population. This spatial variation creates an interesting scenario for further geographical drought condition and livestock research.

Objectives of the Study

1. To study the geographical distribution of goats in the districts of Karnataka during 2012–2019.
2. To analyse the relationship between goat population and the geographical conditions of the districts.
3. To understand the climatic conditions of the districts based on the pattern of goat population distribution.

II. REVIEW OF LITERATURE

Livestock distribution has been widely studied in India because of its importance to the rural economy and dryland agriculture. Several researchers have noted that goat rearing is closely associated with semi-arid and rain shadow regions where crop farming is uncertain.

According to the Food and Agriculture Organization (FAO, 2012), goats are highly adaptable animals that can survive in harsh climatic conditions with limited fodder. The report emphasizes that goat population is usually higher in drought-prone and marginal agricultural regions. This global observation is relevant for understanding spatial patterns in Indian states such as Karnataka.

The Department of Animal Husbandry and Dairying (2019) reported that India has experienced steady growth in goat population due to increasing demand for meat and the suitability of goats for small and marginal farmers. The Livestock Census highlights strong regional variation in goat numbers across districts depending on rainfall, vegetation, and socio-economic conditions.

In the context of Karnataka, the Directorate of Economics and Statistics Karnataka (2018) observed that northern and central dry districts show higher concentrations of goats compared to the humid coastal belt. The report links this pattern to the rain shadow effect, low irrigation coverage, and dependence on pastoral livelihoods.

Geographical studies by Singh and Kumar (2016) indicate that livestock distribution in semi-arid India is strongly influenced by climate variability, grazing land availability, and rural poverty levels. Their work suggests that goat rearing functions as a risk-minimizing strategy in drought-prone regions.

Similarly, Reddy (2017) found that in peninsular India, goat population density increases in areas with low rainfall and sparse vegetation, where cattle rearing is less profitable. The study emphasizes the need for spatial analysis using GIS to understand district-level variations.

From the review, it is clear that goat distribution is closely related to climatic stress, dryland ecology, and livelihood strategies. However, district-wise geographical analysis for Karnataka covering the recent period (2012–2019) remains limited. Therefore, the present study attempts to fill this gap using spatial and statistical techniques.

III. METHODOLOGY

For this study, goat population data were collected from the 2012 and 2019 Livestock Census. The data were carefully organized and processed for district-level analysis. QGIS software was used to analyse the spatial distribution and to prepare neat thematic maps. In addition, charts and graphs were created using Microsoft Excel to clearly present the statistical patterns.

IV. ANALYSIS

The geographical analysis of goat distribution in Karnataka based on the Livestock Census data of 2012 and 2019 shows clear regional variation in the figure: 1, 2,3,4,5 & table:1 indicates that the districts of Belagavi, Bagalkot, Vijayapura, Kalaburagi, Yadgir, Raichur, Ballari, Chitradurga, Tumakuru, and Mandya recorded a high number of goats in both census years.

Districts such as Bidar, Gadag, Koppal, Haveri, Davanagere, Hassan, Mysuru, Chamarajanagar, Ramanagara, and Chikkaballapur showed a moderate distribution of goat population.

In contrast, the remaining districts particularly the coastal districts, the Western Ghats region, and Bengaluru Urban district reported a low goat population in both the 2012 and 2019 livestock censuses.

Overall, the study indicates that goat population is highly concentrated in the dry and semi-arid districts of northern and central Karnataka, moderately distributed in the transitional districts, and relatively low in the humid coastal and Western Ghats regions.

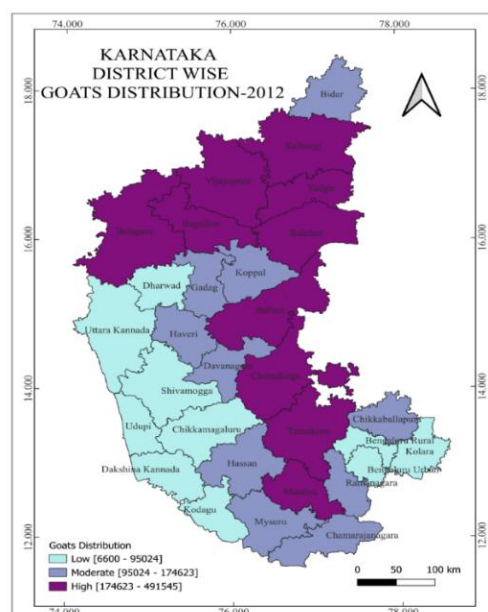
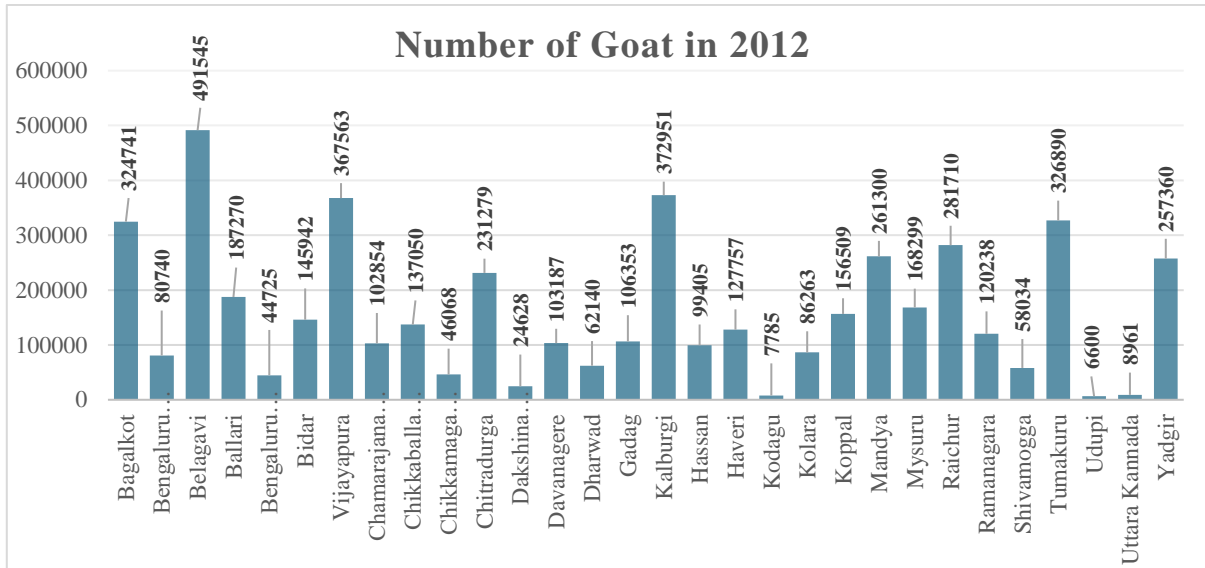


Fig:1: District wise Goat distribution in Karnataka-2012

Fig:2: Number of Goat in 2012



Data Source: Livestock Census-2012

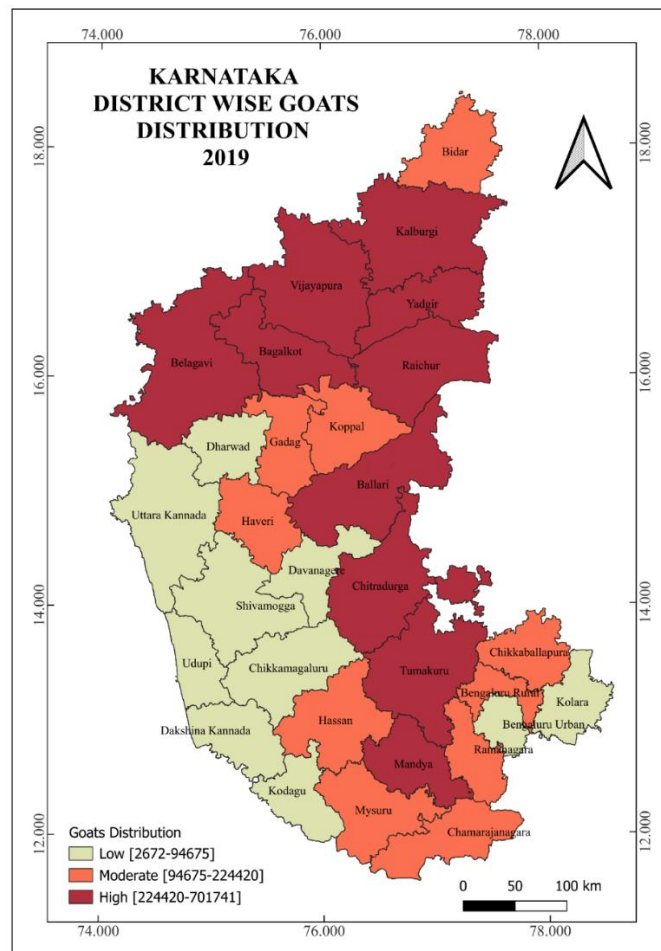
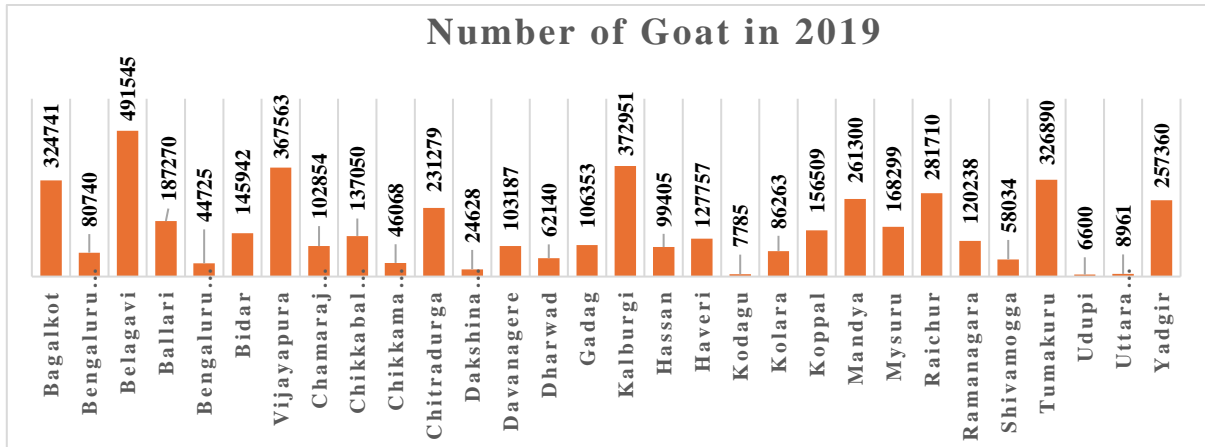


Fig:3: District wise Goat distribution in Karnataka-2019

Fig:4: Number of Goat in 2012



Data Source: Livestock Census-2019

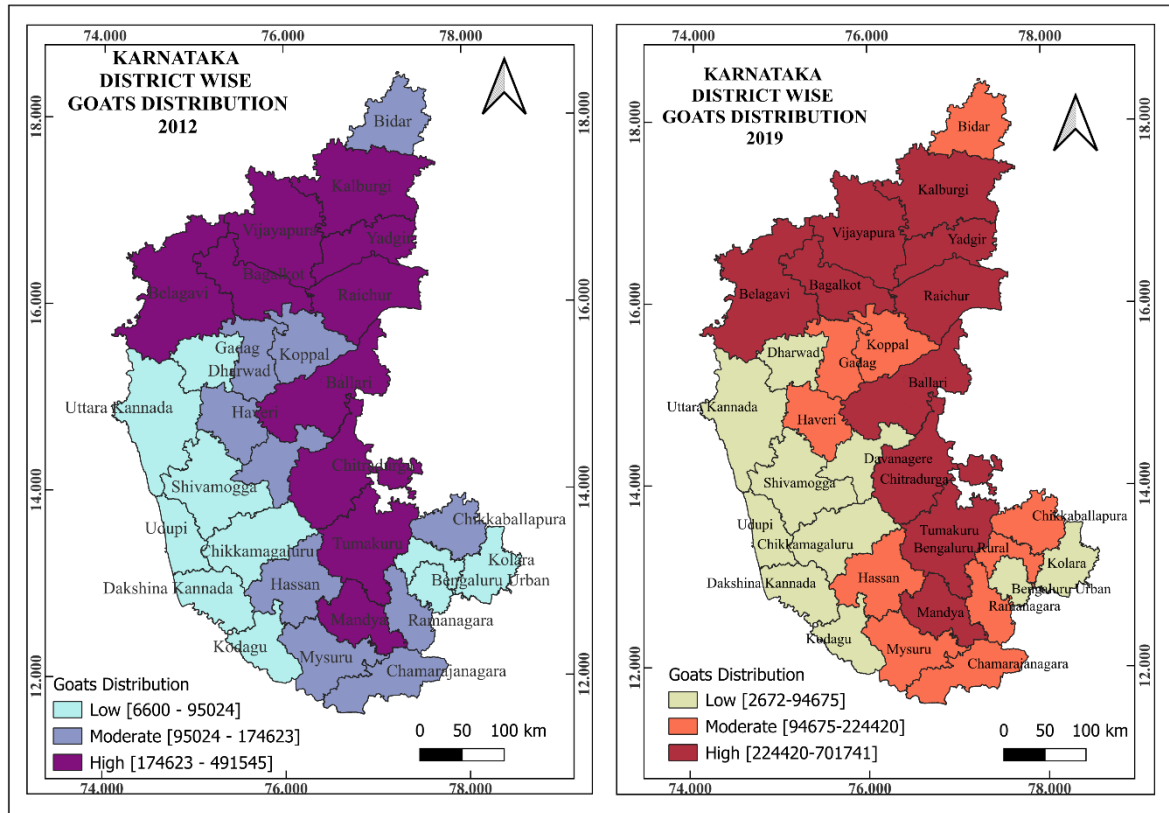


Fig:5: District wise goat distribution in Karnataka-2012 & 2019

Table:1: District wise Goat distribution in Karnataka-2012 and 2019

SL.No	Name of the Districts	No.of goats in 2012	No.of goats in 2019	SL.No	Name of the Districts	No.of Goats in 2012	No.of Goats in 2019
1	Bagalkot	324741	383926	17	Hassan	99405	129058
2	Bengaluru Rural	80740	95156	18	Haveri	127757	144969
3	Belagavi	491545	701741	19	Kodagu	7785	7603
4	Ballari	187270	298232	20	Kolar	86263	93713
5	Bengaluru Urban	44725	62464	21	Koppal	156509	172578
6	Bidar	145942	182854	22	Mandya	261300	346430
7	Vijayapura	367563	569098	23	Mysuru	168299	208206
8	Chamarajanagar	102854	144633	24	Raichur	281710	282718
9	Chikkaballapur	137050	188392	25	Ramanagara	120238	150130
10	Chikkamagaluru	46068	41040	26	Shivamogga	58034	59719
11	Chitradurga	231279	385058	27	Tumakuru	326890	427926
12	Dakshina Kannada	24628	32215	28	Udupi	6600	2676
13	Davanagere	103187	79429	29	Uttara Kannada	8961	10655
14	Dharwad	62140	74069	30	Yadgir	257360	256848
15	Gadag	106353	191656				
16	Kalburgi	372951	446200				

V. RESULT AND DISCUSSION

The thematic maps and charts clearly indicate that the highest concentration of goats is found in the eastern and central parts of Karnataka. These areas largely fall within the rain shadow zone and are characterized by high temperature and low rainfall. Such climatic conditions promote the growth of shrubs and thorny vegetation, which serve as the main fodder source for goats.

The study findings suggest that regions with high goat populations tend to coincide with relatively arid climatic conditions. Goats are well adapted to dry environments and can efficiently utilize shrubs and thorny plants for feeding. Therefore, areas dominated by such vegetation naturally support larger goat populations.

However, the dominance of shrubs and thorny vegetation also reflects ecological stress and unfavourable climatic conditions in these regions. Hence, the study implies that districts with high goat density are more vulnerable to arid and negative climatic environments.

In view of this, the government should give special attention to these high goat population areas by implementing suitable schemes for climate resilience, fodder development, and sustainable livestock management. Such measures will help improve environmental conditions while supporting the livelihoods of goat-rearing communities in Karnataka.

The Climate Change Scenario in Karnataka: A Detailed Parametric Assessment, conducted by the Government of Karnataka, identified 84 taluks in the state as drought-affected between 2001 and 2018. A large concentration of these



taluks is located in the northern and central districts, including Bidar, Kalaburagi, Yadagir, Raichur, Vijayapura, Belagavi, Bagalkot, Gadag, Koppal, Ballari, Chitradurga, Chikkaballapura, Kolar, Tumakuru, and Mandya.

The livestock census data of 2012 and 2019 indicate that goat farming is more prominent in many of these drought-prone districts. Goats are well adapted to arid and semi-arid environments because they can survive on shrubs, thorny vegetation, and limited water resources. Therefore, the spatial pattern of goat population provides an indirect indicator of the prevailing climatic stress in a region.

VI. CONCLUSION

The results of the present geographical study suggest a positive relationship between drought-prone conditions and higher goat population. Areas with a higher concentration of goats generally correspond to regions experiencing frequent drought and dry climatic conditions. Conversely, areas with lower goat population tend to have relatively better moisture availability and less drought severity. Hence, goat population distribution can be used as a supportive proxy to assess regional climatic conditions, particularly drought vulnerability, in Karnataka.

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