



Prevalence of Ectoparasites in Cattle from Nandagaon-Peth Block, District Amravati, Maharashtra, India

Gayatri Hande* and Rohit Tekode

Department of Zoology, Shri Shivaji Science College, Amravati- 444 603, MS India
gdhande01@gmail.com

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Abstract

Ectoparasites represent a significant constraint to livestock productivity and health, particularly in tropical regions. The present study was carried out to determine the prevalence of ectoparasites in cattle of Nandagaon-Peth Block, District Amravati, Maharashtra. A total of 5060 animals (cows, buffaloes) were examined between June 2023 and March 2024. Ectoparasites were collected by handpicking and dragging methods, preserved in 70–80% ethanol, and identified morphologically. The major ectoparasites identified were Rhipicephalus microplus (ticks), Acariform mites, and lice (Phthiraptera). Infestation was higher in young animals (1–6 months) and buffaloes compared to other hosts. Seasonal variation revealed higher prevalence during monsoon months, declining in summer. The study highlights the economic and health implications of ectoparasite infestation in livestock and emphasizes the need for integrated control measures.

Keywords: Ectoparasites, Ticks, Lice, Mites, Cattle, Prevalence, Nandagaon-Peth, Amravati.

Introduction

India is an agrarian country where more than 70% of the population depends on agriculture and livestock for their livelihood. Livestock plays a crucial role in the rural economy by providing milk, meat, manure, and draught power¹. However, productivity is severely hampered by parasitic infestations, particularly ectoparasites. Ectoparasites are organisms that live on the external surface of the host and include ticks, mites, lice, and fleas. These parasites cause direct damage such as blood loss, irritation, dermatitis, and skin lesions, and indirect damage through transmission of pathogens of veterinary and medical importance^{2,3}. Their impact is most severe in tropical countries like India, where climatic conditions such as high temperature and humidity favour parasite survival and reproduction⁴.

Ticks, especially *Rhipicephalus microplus*, are among the most economically important ectoparasites of cattle. They act as vectors for protozoan, bacterial, and viral diseases, reducing animal health, productivity, and hide quality⁵. Similarly, lice (*Phthiraptera*) and mites (*Acariformes*) cause irritation, anemia, reduced weight gain, and secondary infections⁶. Heavy infestations may even result in mortality of young or immune compromised animals.

Previous studies across India and other countries have reported high prevalence of ectoparasite infestations in domestic ruminants^{7,8}. However, localized studies are important since prevalence and species diversity vary with host type, season, ecological factors, and management practices³. In Amravati District of Maharashtra, limited information is available

regarding the prevalence of ectoparasites in cattle and associated risk factors. Therefore, the present investigation was undertaken to determine the prevalence of ectoparasites infesting cattle in Nandagaon-Peth Block, Amravati District. The study also aims to assess host-related factors such as age and sex influencing infestation, and to provide baseline data for developing effective control strategies.

Materials and Methods

Study area: The present study was conducted in Nandagaon-Peth Block, located 16 km from Amravati city, Maharashtra, India. The block comprises eight villages with predominantly rural livestock-rearing communities. The surveyed villages included Bhugaon, Khanapur, Donad, Nandura (Lashkar), Kathora Gandhi, Sawardi, Pimpalwihir, and Nandgaon-Peth. The geographical coordinates of the study area are latitude 21.056346°N and longitude 77.812677°E (Map). The climate is tropical, with maximum temperatures of 35–36°C during June–July and minimum temperatures of 22–23°C during December–January. Such climatic conditions are favourable for ectoparasite development and transmission. The study was carried out from June 2023 to March 2024. A total of 5060 domestic animals (cows, buffaloes, and goats) were randomly selected from households and farms across eight villages. Data regarding host age, sex, breed, and health status were collected using a standardized data sheet.

Collection and Identification of Ectoparasites: Visual Examination: Each animal was thoroughly examined for the presence of ticks, lice, and mites. Handpicking Method: Ectoparasites visible on the skin and hair coat were removed

using blunt forceps without damaging their mouthparts. Dragging/Flagging Method: For free-living ticks, a cotton cloth was dragged over suspected vegetation in grazing areas, and attached ticks were collected. Preservation: Collected specimens were preserved in 70–80% ethanol in labelled vials for later identification. Specimens were transported to the Microbiology and Parasitology Laboratory, Department of Zoology, Shri Shivaji Science College, Amravati. Mounts were prepared, and ectoparasites were identified morphologically under a stereomicroscope using standard taxonomic keys^{1,6}.

Temperature, relative humidity, and farm management practices were recorded at each survey site during sampling. These variables were analyzed to understand their influence on ectoparasite prevalence. Ethical Considerations: All procedures were conducted with prior approval and in collaboration with the Department of Veterinary Parasitology and Animal Husbandry, Amravati. Care was taken to minimize stress and discomfort to the animals during sample collection.

Results and Discussion

A total of 5060 animals were examined across eight villages of the Nandgaon-Peth Block, out of which 740 animals were infested with ectoparasites, given in Figure-1 giving an overall prevalence of 14.6%. The village-wise analysis showed that infestation was highest in Pimpalwihir (24.2%), followed by Donad (17.5%), Sawardi (15.9%), and Khanapur (15.3%). Moderate prevalence was recorded at Bhugaon (13.3%), Kathora Gandhi (12.6%), and Nandgaon Peth (12.2%), while the lowest prevalence was observed in Nandura (Lashkar) at 10.3% given in Figure-1. Among the 740 infested animals, ticks were the most common ectoparasites, accounting for 395 cases (54%), followed by mites with 262 cases (36%), and lice with 73 cases (10%). Ticks were dominant in all villages, with the highest number recorded in Nandgaon Peth (65) and Kathora Gandhi (54), whereas mite infestations were relatively higher in Nandgaon Peth (43) and Pimpalwihir (40). Lice, although comparatively less prevalent, were detected across all villages, with the highest occurrence in Pimpalwihir (11) and the lowest in Khanapur and Nandura (7 each) given in Figure-2. Overall, the results indicate that ticks constitute the major ectoparasite burden in the study area, followed by mites, while lice were present at lower levels but consistently across the surveyed villages.

The present study highlights a moderate overall prevalence (14.6%) of ectoparasites in the surveyed villages, given in Figure-3. The predominance of ticks (54%) over mites (36%) and lice (10%) is consistent with earlier findings from similar agro-climatic regions, where high humidity and vegetation favor tick proliferation. Variation in prevalence among villages may be linked to differences in animal management practices, hygiene, grazing systems, and microclimatic conditions. For instance, the high prevalence in Pimpalwihir (24.2%) may be due to greater livestock density, shared grazing areas, and

inadequate parasite control measures. On the other hand, the relatively low prevalence in Nandura (10.3%) could be attributed to better animal care or environmental factors less favorable to parasite survival. The higher occurrence of mites compared to lice suggests that skin conditions and unhygienic housing may be significant contributors. Lice infestation, though lower, still indicates the possibility of poor grooming and close contact transmission in certain herds.

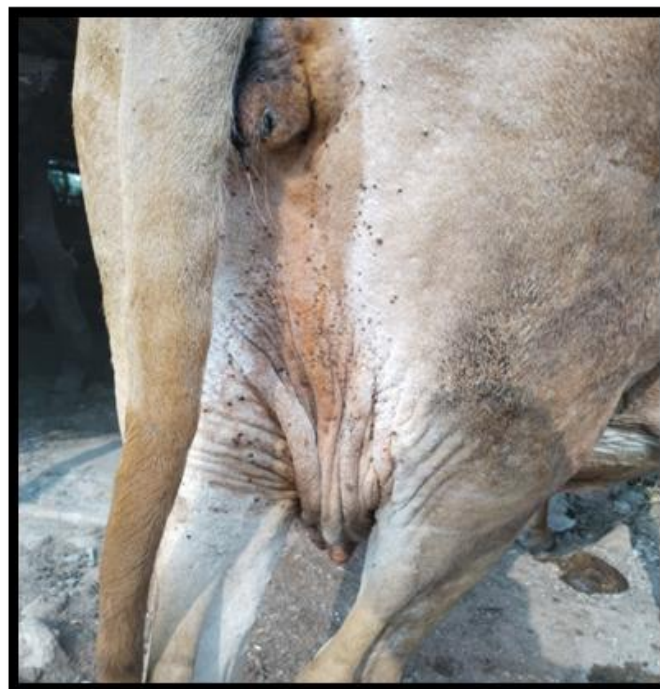


Figure-1: Cow Tail portion are infected by parasite.

Table-1: Village-wise Distribution of Ectoparasites on cows and buffalos.

Village	Animals Examined	Ticks	Mites	Lice	Total Infested	% Prevalence
Bhugaon	678	49	32	9	90	13.30%
Khanapur	457	38	25	7	70	15.30%
Donad	456	43	29	8	80	17.50%
Nandura (Lashkar)	677	38	25	7	70	10.30%
Kathora Gandhi	790	54	36	10	100	12.60%
Sawardi	567	49	32	9	90	15.90%
Pimpalwihir	455	59	40	11	110	24.20%
Nandgaon Peth	980	65	43	12	120	12.20%

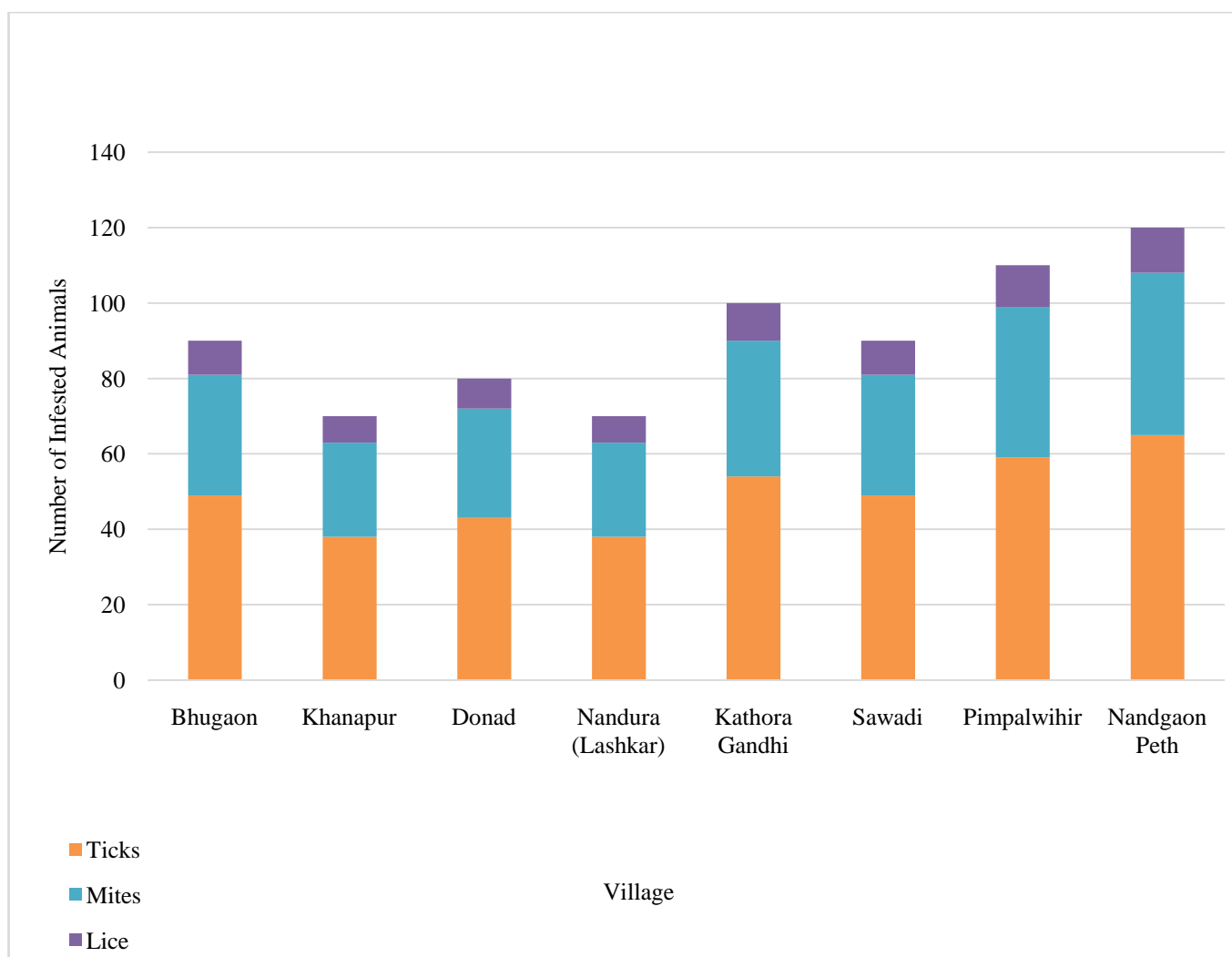


Figure-2: Village-wise Distribution of Ectoparasite.

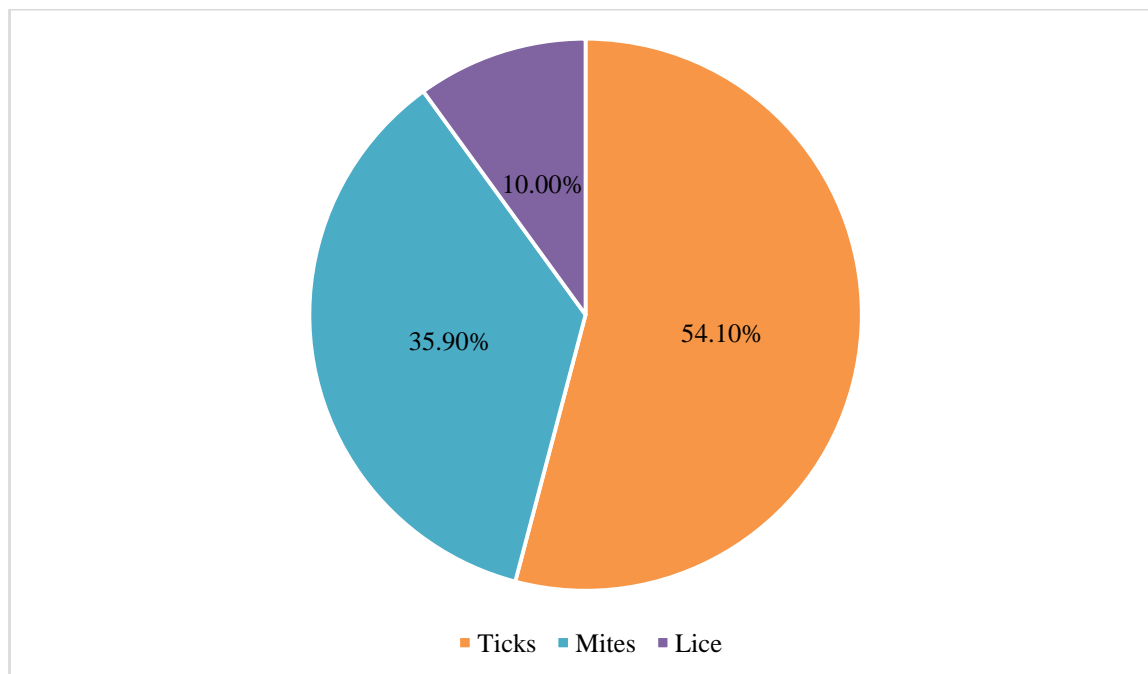


Figure-3: Overall Portion of Ectoparasites.

Analysis of host-related factors showed that young animals (1–6 months old) had a higher infestation rate compared to older animals, and buffaloes were more affected than cows. Seasonal trends indicated a peak in ectoparasite prevalence during the monsoon months, likely due to favorable humidity and temperature conditions, whereas infestation declined during the summer. These results suggest that both host age and species, as well as seasonal climatic conditions, play significant roles in ectoparasite distribution. The findings highlight the potential economic losses and health risks associated with ectoparasite infestations and emphasize the need for targeted and integrated control measures in livestock management.

Conclusion

The study reveals a moderate overall prevalence (14.6%) of ectoparasites among animals in the eight surveyed villages of Nandgaon-Peth Block. Ticks (54%) were identified as the primary ectoparasite, followed by mites (36%) and lice (10%), highlighting their significant role in animal parasitic burden. Variation in prevalence across villages suggests that local management practices, hygiene, grazing patterns, and environmental conditions influence ectoparasite distribution. Higher infestation in villages like Pimpalwihir indicates potential issues with livestock density and parasite control, whereas lower prevalence in Nandura points to better animal management or less favorable conditions for parasite survival. Overall, the findings emphasize the need for targeted ectoparasite control measures, improved animal husbandry, and regular monitoring to reduce parasitic infestations and enhance livestock health.

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