

Research

Identification and Documentation of Indigenous Animal Genetic Resources of Vindhya Region of Uttar Pradesh

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ABSTRACT

The present study was conducted to identify and document unexplored animal genetic resources of Vindhya region of the Uttar Pradesh. A small sized white and light roan coloured Mirzapuri cattle population was identified, producing about 1-2 kg of milk per day. A native buffalo population is also present in the area, however, the extensive use of Murrah breed to upgrade this buffalo population necessitates immediate intervention to conserve and protect this native population. This survey also identified a *desi* goat population in Sonbhadra, Mirzapur and adjoining areas, locally known as Vindhya-chali, Sonbhadri or Sonpari. The *desi* chicken with various colour plumage is also available in the area, with the hen producing from 40 to 50 eggs annually. A medium sized sheep population known as Mirzapuri, Hasari or Lalkai (pink face) is also distributed in Mirzapur, Sonbhadra and surrounding region. These sheep are reared for wool and mutton and yield about 1 kg of wool per year. The study revealed lesser-known populations of Mirzapuri cattle, sheep, Vindhya-chali goat, chicken, buffalo, pig and dog each with unique characteristics. The study indicates that the hilly and rugged terrains of Vindhya region of Uttar Pradesh are home to highly resilient indigenous animal genetic resources, evolved to survive in tough rocky landscapes, high temperatures and limited or grazing resources. These unique livestock and poultry populations provide livelihood support to local landless and small farmers.

Keywords: AnGR, Identification, Phenotypic characterization, Uttar Pradesh, Vindhya region

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INTRODUCTION

The Animal Genetic Resources are represented by a broad spectrum of native breeds of different species like cattle, buffalo, sheep, goat, equine, camel, yak, mithun, pig and poultry etc. According to the 2019 Livestock Census data, India had 535.78 million livestock population and 851.81 million poultry population and the total number of registered animal breeds is 246 including 3 synthetic cattle breeds (Frieswal, Karan fries and Vrindavani) and one synthetic sheep breed (Avishan). These breeds are native to different agro-climatic conditions of the country. Among the different states, Uttar Pradesh occupies the first position in terms of livestock, contributing 12.65% to the country's total livestock population. Uttar Pradesh is closely followed by Rajasthan and Madhya Pradesh contributing 10.60% and 7.58% to the country's total livestock respectively. But, among the registered breeds, Uttar Pradesh possesses only 07 cattle breeds (Kenkatha, Mewati, Kherigarh, Ponwar, Gangatiri, Hariana and Rohilkhandi), 01 buffalo (Bhadavari), 04 goat (Jamunapari, Barbari, Pantja and Bundelkhandi),

02 sheep (Jalauni and Muzaffarnagari) and 01 pig (Ghurrah) breeds only (Kumar *et al.*, 2025a). Apart from these registered breeds the state has a huge number of lesser-known/non-descript populations of various species. The indigenous breeds possess unique traits suited to their specific production environments, including resilience to harsh conditions and resistance to endemic diseases (Prakash *et al.*, 2024). They play an essential role in supporting the livelihoods of landless and small farmers and pastoral communities. However, many of these breeds remain at risk of extinction, necessitating urgent recognition and policy support to counter genetic erosion and promote sustainable utilization

The ICAR-National Bureau of Animal Genetic Resources (NBAGR) undertook an initiative "Mission towards Zero Non-descript Animal Genetic resource of India" in the year 2021, to document native animal genetic resources and identify potential new breeds in the country. Identification and characterization of distinct germplasm in a particular region are essential for conserving valuable genetic diversity and facilitating its

effective utilization in future breeding programmes. The Eastern part of the Uttar Pradesh, especially Vindhya region possesses a demographic profile with diverse topography and sub-tropical climate (Singh and Nayak, 2020). The systematic documentation of livestock and poultry populations within specific geographical regions is one of the important approaches to reduce non-descript population of the country. With a target towards zero non-descript Animal Genetic Resources (AnGR) in the country, this study was conducted to explore, identify and document indigenous AnGR of Vindhya region of Uttar Pradesh.

MATERIALS AND METHODS

Study area

The study was conducted in the Vindhya region of Uttar Pradesh, especially in the Mirzapur and Sonbhadra districts. The Vindhya represents one of the most vital geographical, geological, and historical pillars of the Indian subcontinent, most notably defining the **Vindhya Mountain Range** and the ancient **Vindhya Basin**. The region was selected for its distinctive unexplored indigenous animal genetic resources. This subtropical region, located between 23°52' to 25°32'N latitude and 82°72' to 83°33'E longitude, experiences temperatures from 30°C to 46°C in summer and 2°C to 15°C in winter, with an average annual rainfall of 1036.6 mm. (source: <https://sonbhadra.nic.in/>).

Methodology

Field survey was conducted in the Mirzapur and Sonbhadra districts of Uttar Pradesh from 5.9.2024 to 9.9.2024 to explore the AnGR of Vindhya region. The objective of the survey was to identify and



Fig. 1: Mirzapuri cattle

Small ruminants

Vindhyachali goat

Also known as Sonbhadri and Sonpari and distributed in Sonbhadra, Mirzapur and adjoining areas of Uttar Pradesh and mainly reared by tribals between Vindhya and Kaimur hill ranges. It is a hardy and small sized

document the existing animal genetic resources and prevalent livestock management practices in the region. Information on livestock species, breeds and management practices was collected through direct observations and farmer interviews. Phenotypic characterization of the newly identified populations were carried out following the standard guidelines prescribed by the ICAR-National Bureau of Animal Genetic Resources (NBAGR).

RESULTS AND DISCUSSION

Large ruminants

Mirzapuri cattle and buffalo

The survey revealed a distinct homogeneous, small sized white and light roan coloured cattle population in the area, known as Mirzapuri cattle (Fig. 1), producing about 1-2 kg of milk per day. These animals are docile in nature and graze freely in the field throughout day and night. This cattle population needs to be comprehensively characterized to distinguish it from the registered breeds of the nearby region. In a similar study Kumar *et al.* (2025b) identified a local white coloured cattle population in Dehradun district of Uttarakhand. In addition to local cattle, a native buffalo population is also identified in the area (Fig. 2). The coat colour of the buffalo was observed to be brown and black. However, the Murrah breed is being utilized to upgrade this buffalo population, necessitating immediate intervention to protect the indigenous population. These populations are reared by the farmers and tribes of the area under zero input management system and the *Peda*, a local sweet prepared from Mirzapuri cattle is famous in the area for its unique taste.



Fig. 2: Mirzapuri buffalo

goat, exhibiting two-color variants i.e., black and light to dark brown. The complete black-coloured goats are predominant. In brown-coloured animals, light to dark or white strip on lateral aspect of head extending from base of the horn to muzzle, and black colored ring around neck, is a unique feature (Fig. 3). Both sexes possess small to medium sized flat and spiral/twisted

horns. In majority of the animals, horns are curved and oriented upward-backward-outward. Ears are medium sized, flat and leafy in shape with pendulous orientation. Beard was present in about 30% animals. The average body weight is about 10 to 11 kg at six months of age. The average adult body weight of males and female are about 30 and 28 kg, respectively. The average daily milk yield is about 300 g. In a study, Kumar

et al. (2024) and Gangwar *et al.* (2024) also reported similar results for Sonbhadri/ Sonpari goat. These goats are mainly reared for meat purpose under zero input management system. Apart from Vindhyachali goat, another goat population is also distributed in Mirzapur districts having white coat color with black face and ear, but population is very less and heterogeneous in morphometric traits (Fig. 4).



Fig. 3: Vindhyachali Goat (black)



Fig. 4: Vindhyachali Goat (brown)

Mirzapuri sheep

A medium sized sheep population known as Mirzapuri sheep, Hasari or Lalkai (pink face) are distributed in Mirzapur, Sonbhadra and surrounding region and reared for wool and mutton production (Fig. 5). The adult body weight of males is about 40 kg. The sheep produces about 1 kg of wool per year and cost of wool is about Rs. 12-14/kg. The white coat colour with small light to dark brown or black patches on face, ear and muzzle of different sizes are the important characteristics of this sheep population. The nose line is typical Roman type. The sheep are primarily maintained on grazing (extensive system) with zero input system. The major mating occurs after rainy season i.e. July to September.



Fig. 5: Mirzapuri sheep

Other livestock populations

The desi chicken with various colour patterns is also available in the area with egg production ranging from 40 to 50 per year (Fig. 6). The indigenous pigs are small in size having a white coat colour with black spots on different parts of the body (Fig. 7). These are reared for mutton production. A local dog population can also be found in this region (Fig. 8), but the number of pigs and dog is very less, therefore needs to be characterized in detail.



Fig. 6: Desi chicken



Fig. 7: Desi Pig



Fig. 8: Desi Dog

CONCLUSION

The significant finding of this study was the identification of distinct and unique populations of Mirzapuri cattle and buffalo, Vindhyachali goats, Mirzapuri sheep and a desi chicken population. These findings highlight the rich diversity of livestock genetic resources and the varied management practices prevalent across the surveyed districts of Uttar Pradesh.

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