

Original Research Paper

PRESENT STATUS OF DONKEYS IN MAHARASHTRA, INDIA

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Abstract

Domestic donkeys are important non-dairy domestic livestock species in Maharashtra, mainly reared by poor and weaker communities of local society and used for various purposes like mule production, transportation of goods, pack animals at brick kilns, etc. Declined utility in the era of mechanization, as well as massive negligence, has posed a serious threat to the available donkey population. The drastic declining trend recorded in Livestock Census triggered us to understand the present status. Accordingly, a pilot study to assess the present status of donkeys, and population dynamics in Maharashtra was undertaken and it has revealed major constraints faced by donkey owners as unemployment, theft of animals, unavailability of sufficient feedstuffs, etc. as well as reduced use of earthen pots, advanced mode of transportation, lack of education and socio-political ignorance towards donkey owner, etc. as major reasons of declining donkeys in this region, which can be considered for planning effective conservation of this local equine germplasm.

Keywords: Donkeys, Population trend, socioeconomic status, Maharashtra.

المخلص

تعتبر الحمير المنزلية من أنواع المواشي المحلية غير المنتجة للألبان في ولاية ماهاراشترا، ويتم تربيتها بشكل أساسي من قبل المجتمعات الفقيرة والضعيفة في المجتمع المحلي وتستخدم في أغراض مختلفة مثل إنتاج البغال، ونقل البضائع، وتعبئة الحيوانات في أفران الطوب وما إلى ذلك بسبب انخفاض المنفعة في عصر التطور الميكانيكي فضلاً عن الإهمال الجسيم الذي شكل تهديداً خطيراً أمام تعداد الحمير المتناقص. أدى الهبوط الحاد المسجل في تعداد الثروة الحيوانية إلى فهم الوضع الحالي. وفقاً لذلك، تم إجراء دراسة تجريبية لتقييم الوضع الحالي للحمير، وديناميكيات المجموعات في ولاية ماهاراشترا، وكشفت عن القيود الرئيسية التي يواجهها مربو الحمير مثل البطالة، وسرقة الحيوانات، وعدم توفر المواد العلفية الكافية وما إلى ذلك، فضلاً عن انخفاض استخدام الأواني المصنوعة من التربة، ووسيلة النقل المتقدمة، ونقص التعليم والجهل الاجتماعي والسياسي تجاه امتلاك الحمير، وما إلى ذلك، كأسباب رئيسية لتناقص الحمير في هذه المنطقة، والتي يمكن اعتبارها للتخطيط الفعال للبلازما الوراثة للخيول المحلية.

الكلمات المفتاحية: الحمير، الاتجاه السكاني، الوضع الاجتماعي والاقتصادي، ولاية ماهاراشترا.

Introduction

Maharashtra is one of the leading states of India, harboring great biological diversity concerning animal genetic resources. Cattle, buffalo, sheep, and goats are the major domestic livestock of the state, reared by a small marginal farmer to commercial herds. However, the domestic donkeys () are one of the important sure-footed, docile, non-dairy domestic livestock species found all over Maharashtra state and reared mainly by poor and weaker communities of local society. Donkeys had been useful for various purposes like mule production, transportation of goods, packing animals at brick kilns, etc. In other parts of India, donkeys have proven their role in military farms for mule production, transportation aids in remote areas, and cheaper as well efficient pack animals. Domestication of donkeys is one of the traditional businesses for many Indian communities. Although it does not have a productive utility like dairy animals, it has provided sustainability to many communities as pack animals.

Since their domestication, donkeys have played a significant role in the transportation and to some extent in agriculture viz. Kacchi donkeys are still used in agriculture operations in Gujarat. The donkeys are also useful for breeding mules which are equally important pack animals. Donkeys remain an excellent means of transportation in tough terrains especially in high-altitude

mountainous areas and desert regions the world over including India (Behl et al., 2011). There are references from the Vedic era about the domestication of donkeys in India. The Charak-Samhita have noted not only the qualities of ass milk for human consumption but also the therapeutic role of donkey urine in certain disease conditions like epilepsy, insanity, and seizures (Part: 98-105). The book 'Mrigpakshishastra' written in the 8th Century, describes fauna in ancient India and documented white, grey, and black coat colors in donkeys with nomenclatures as Khar and Gardhabh for native donkeys.

However, the negligence over this important equine germplasm at the scientific, social as well as political levels has raised the question of its sustainable existence. As per the 19th Livestock Census (2012), Maharashtra was ranked at 4th position in donkey population in India after Uttar Pradesh, Rajasthan, and Gujarat, respectively. However, the recently reported 20th Livestock Census (2019) indicated about a 40% decline in the total population of donkeys in Maharashtra state. Therefore, the scientific documentation of donkeys is very essential to plan their conservation strategies. Very few efforts at the scientific level have been taken over in Maharashtra toward the conservation of donkeys. The exceptional contribution of NGOs like Donkey Sanctuary (UK) in technical and veterinary aid in some villages near Solapur and Nanded districts of Maharashtra cannot be ignored.

Population dynamics of donkeys in Maharashtra state

The geographical structure of Maharashtra has imparted not only cultural diversity to it but also livestock diversity. Maharashtra state has five political or geographical sub-regions viz. Konkan (coastal region), Desh (Western Maharashtra), Khandesh (Northern Maharashtra), Marathwada (Southcentral region), and Vidarbha (Eastern Central region), respectively.

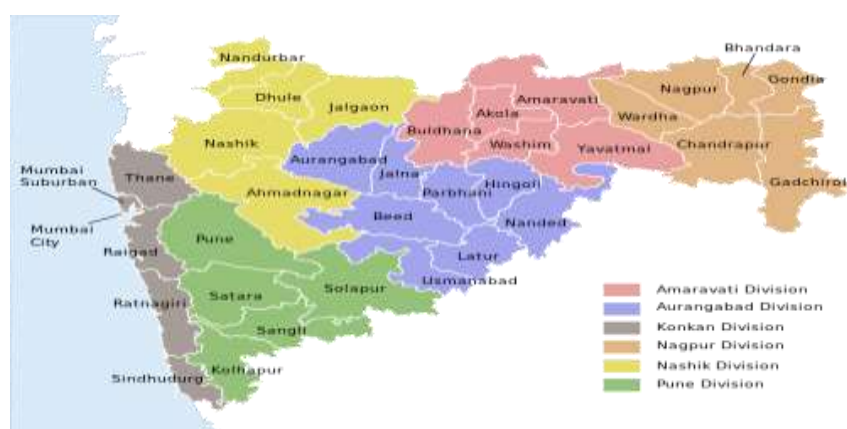


Figure 1: Zonal map of Maharashtra state

Amongst the equines, Maharashtra state harbors 43% donkeys against 54% horses and 3% ponies and mules. The total sex-wise donkey population was 57% male and 43% female donkeys and about 83% donkey population resides in rural areas. The decline in the donkey population was more predominant in Vidarbha region as compared to others. Also, the decline was equally observed in both rural and urban areas (as depicted in below-mentioned figures 3 and 4), this is also noted in the study of Algerian donkeys by (Labbaci et al, 2018) (Labbaci et al, 2021) due to development of technology and the mechanization of agriculture instruments so this has led to declining interest in this breeding over time.

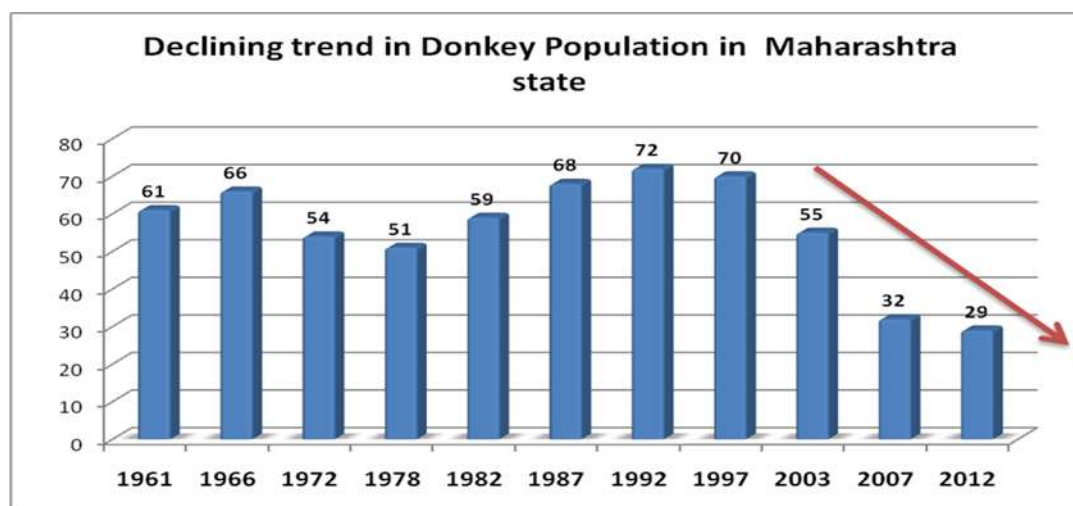


Figure 2: declining trend in donkey population in Maharashtra state

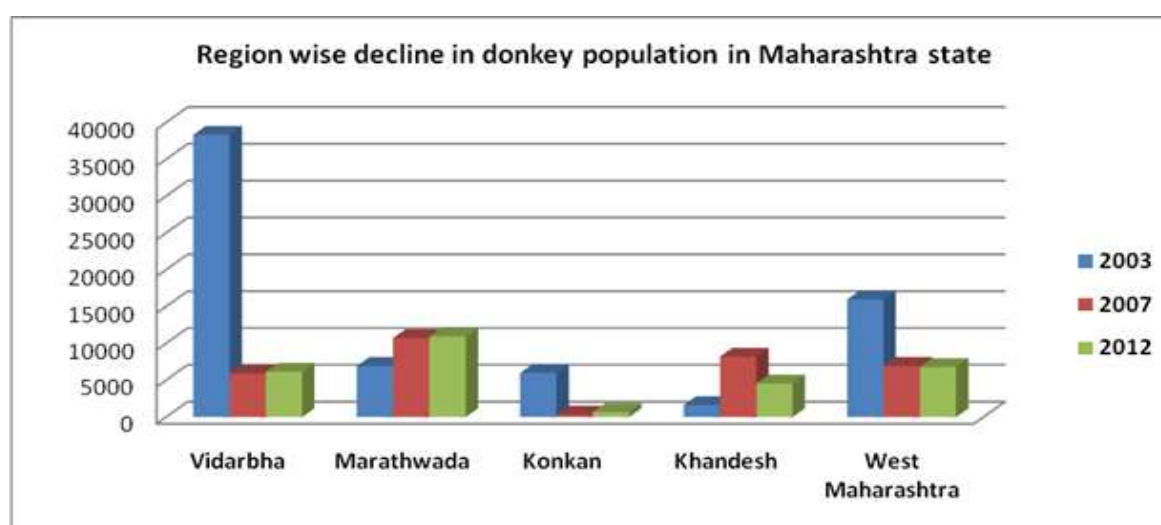


Figure 3 : region wise decline in donkey population in Maharashtra state

Western Vidarbha region of Maharashtra state is encompassing five districts viz. Akola, Amravati, Buldhana, Washim, and Yavatmal respectively. However, the drastic decline in donkey population (84.66%) in the Vidarbha region as compared to other regions of Maharashtra was noticed in the 18th Livestock census (Anonyms, 2007) i.e. from 38,318 to 5877. These five districts of the Western Vidarbha region share 94.67 % of the donkey population of the Vidarbha region. Except for Amravati and Buldhana districts, all three districts of Western Vidarbha region are indicating drastic decline viz. Akola by 93.77%, Washim by 96.93%, and Yavatmal by 56.32% (Livestock Census of 2003 and 2007). Due to a lack of socio-political negligence towards this non-described equine germplasm, no systematic efforts have been undertaken. Nowadays, the problems like increasing theft of animals, unavailability of alternate sources of employment, reduced traditional works by donkey rearing communities and advanced modes of transportation have posed a serious threat to the existence of donkeys in the Vidarbha region (Bankar *et al.*, 2012).

Also, the trend of shifting the rural donkey population to urban areas was noticed in the subsequent donkey population of Maharashtra state may be due to the availability of employment in building constructions and transportation of goods. There is an increase of 23% in the population in urban areas

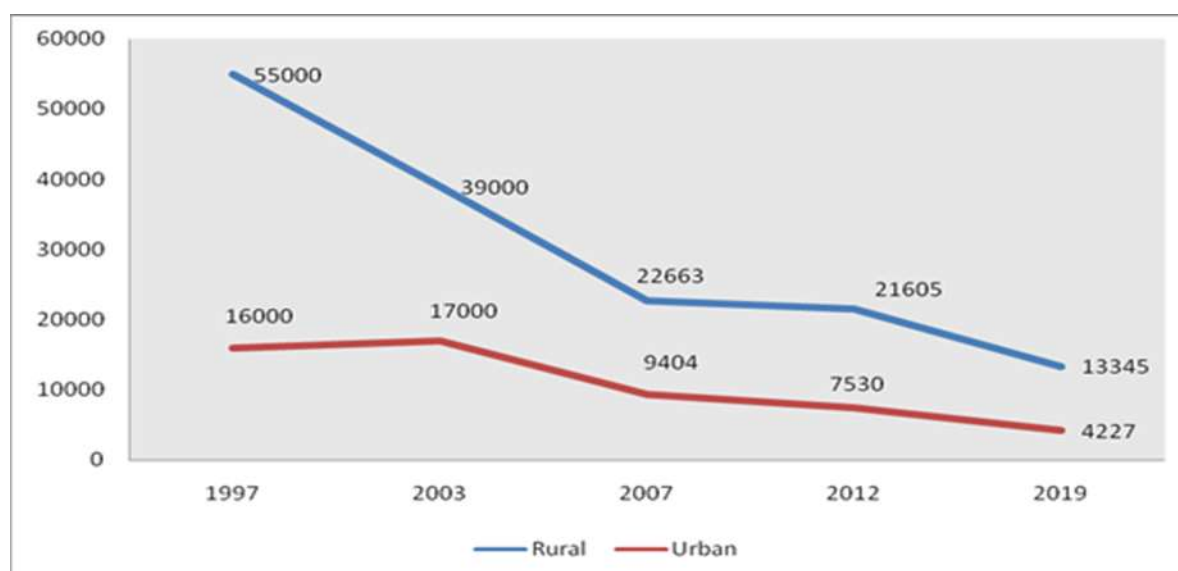


Figure 4: the evolution of urban and rural donkey heard size through time in Maharashtra state (from 1997 to 2019)

Phenotypic and morphometric characterization

The donkeys in Maharashtra are medium-sized with compactly build bodies and strong and straight back, efficiently working animals. The coat of hair was thin all over the body except the mane and around the ears and face in some cases. The prominent coat color of the donkey was grey followed by dark brown or black, roan (mixture of black and brown), and grey and white (light grey). A typical white band around the muzzle and a strip of dark shade across the shoulder and back were observed in the majority of the donkeys.

Data of various phenotypic characters observed in 101 donkeys (54 Female and 47 male) belonging to 20 donkey owner's families were collected during 2012-2014 by personal interviews at their doorstep. The prominent coat color of the donkeys was grey (68%) followed by dark brown or black (13%), roan i.e. mixture of black and brown (11%) and white or light grey (8%) respectively. Typical white bands around the muzzle and a strip of dark shade across the shoulder and back are observed in almost all donkeys. The ears were long (19.38 cm), erect, and alert with slightly lateral and backward orientation (79%). The peripheral area of the ear was marked with dark hairs. Their eyes were black. The neck and back were straight. Thin hair coat all over the body except the mane and around ears and face in some cases was observed. The forehead was concave (93%) with a length of 44.06 cm and a width of 40.73cm. Their eyes were black and spaced about 9.52 cm from each other. The back was straight (81%) or curved (19%). Mean values for various morphometric traits viz. Body length (scapula to pin bone), whole body length (forehead to the base of tail), chest girth, forearm length, hind arm length, height at wither, height at croup, height at the knee, height at hock and tail length were 67.38 cm, 137.97 cm, 93.22 cm, 81.56 cm, 86.42 cm, 88.11 cm, 94.78 cm, 30.83 cm, 36.97 cm, and 51.64 cm, respectively were noticed, which did not differ in male and female, significantly. However, the adult male donkey weighs about 30-35 kg and the adult female donkey weighs about 28-35 kg, respectively (Bankar et al. 2015).

Socioeconomic status of Donkey keepers

In Maharashtra state, donkeys are being kept by various communities as an ancestral profession viz. Kumbhar (Pot makers), Bhoi (river sand and soil carriers), Vadar or Vadari (makers of stone articles), and some minor communities like Kaikadi, Vaidu, Dhobi, etc. These communities are poor and weaker sections of society. Donkeys are not only providing the primary source of livelihood to these communities but also have a cultural position in various traditions. Various places in Maharashtra state viz. Jejuri (Dist. Satara), Sarangkhedra (Dist. Dhule), Malegaon (Dist. Hingoli), and Deulgaon Raja (Dist. Buldhana) are famous for donkey fairs and markets. (Bankar et al.,2012).

Table 1: Representation of the morphological and phenotypic characteristics studied in the population of Maharashtra studied

Phenotypic characteristics	Coat color	Grey (68%) / Black (13%) / Roan (11%) / Light grey (8%)
	Muzzle color	White band
	Ears	Erect and alert with slightly lateral and backward orientation (79%).
	Eyes	Black
	Back type	Straight (81%) / curved (19%)
	Forehead type	Concave (93%)
Morphometric characteristics (means)	Ear length	19.38 cm
	Forehead length	44.06 cm
	Forehead width	40.73 cm
	The space between eyes	9.52 cm
	Body length (scapula to pin bone)	67.38 cm
	Whole body length (forehead to base of tail),	137.97 cm
	Chest girth	93.22 cm
	Forearm length	81.56 cm
	Hind arm length	86.42 cm
	Height at wither	88.11 cm
	Height at croup	94.78 cm
	Height at knee	30.83 cm
	Height at hock	36.97 cm
	Tail length	51.64 cm
	Male donkey body weight	30-35 kg
	Female donkey body weight	28-35 kg



Figure 5: Roan and grey coat color



Figure 6: Measurement of morphometric indices



Figure 7: Typical white band around muzzle



Figure 8: typical dark strip on back

Preliminary data was collected using a performed questionnaire, from 66 randomly selected donkey owners of various villages of Akola, Amravati, Buldhana, Jalgaon, and Jalna districts of Maharashtra. The majority of donkey owners were from poor and weaker strata of society and illiterate (54.48%). The mean family size observed was 4.23 ± 0.148 . Their main occupation was donkey rearing (62.12%) and most of them were laborers (45.45%). Their annual income ranged from Rs. 10,000 up to one Lakh. No owner was having pakka house for sheltering animals and most donkeys were kept in congested spaces (71.21%). Almost all donkey owners were purchasing feed indicating the non-availability of free grazing common land. The paucity of knowledge regarding feeding practices like supplementary feeding, mineral mixture, etc. was observed in donkey owners. Most of the owners (61.87%) were found interested to keep adult animals in their stock and preferred breeding by a male from their flock (72.73%). However, most of the owners (87.88%) were ignorant about the selection of males for breeding. Regarding knowledge of health care management, most of the owners (57.58%) were adopting a domestic mode of treatment and lacking information on diseases and control measures (59.09%). The majority of owners (75%) were involved in the sale and purchase of animals but faced the problem of transportation of animals to market (74.24%).

The draught power of donkeys is facilitating its use in the transportation of goods, construction work, brick kilns, tracking, and tourism. Appreciating performance under harsh and stressful conditions, utilization of low-quality feed resources, cheaper than other equines, and sure source of employment with minimum input, etc. are a few important facets that are attracting poor and weaker strata of society. Very few donkey owners are rearing donkeys for mule production. (Chauhan S.K., 2008, Anonyms, 2011).

Significant constraints faced by the donkey keepers' community were unemployment, theft of animals, veterinary care, unavailability of feedstuffs, lack or limited information sources, etc. The reduced use of earthen pots, advanced modes of transportation, lack of education, and socio-political ignorance towards donkey owners may have enforced to shift of donkey owners from donkey rearing to other occupations, which may pose a serious threat to existing donkey germplasm.



Figure 9: Collection of data in survey



Figure 10: Use of donkeys for carrying soil

Conservation strategies

The dry deciduous land, irregular rainfall, and drought conditions especially in the Vidarbha region have raised a distressful attitude amongst the farmers and livestock owners towards acquainting scientific rearing practices. Donkey keepers are keeping donkeys without housing them properly and without applying any scientific management practices like feeding, breeding, deworming, and treatment of ill or injured, etc. (Aganga *et al.*, 2000). The existing management practices like the free-ranging of donkeys by the roadside is creating many problems like theft of animals (Bankar *et al.* 2012), heavy gastro-intestinal parasitic load, injuries and even death due to road accidents (Shrikhande *et al.* 2009, Raut, 2011). Donkey owners and donkey-rearing communities are very poor, illiterate, and lacking basic knowledge about scientific rearing practices.

The dissemination of technical knowledge about better management practices along with health cover will positively strengthen not only the socio-economic status of donkey owners but also will be helpful to the animal. The basic knowledge of nutrients requirement and preventive measures will assist in the improvement of health status and will accelerate the physical potential of donkeys as pack animals (Singh *et al.* 2007, Pal *et al.*, 2012). Selection of elite animals, breeding management of donkey stallions, and application of breeding techniques for mule production by donkey owners will help account for its real genetic potential. Generation of baseline data for physio-biochemical parameters, morphological and morphometrical as well as various production and reproduction traits are essential to study for defining the non-descript germplasm at the geographic and genetic level (Gupta *et al.*, 2010, Behl *et al.*, 2012, FAO, 2011). The specific identity of such germplasm will impart social status to its owners. Production of good quality mules by appropriate breeding techniques may become the potential area for employment generation to rural youth. Educating donkey owners for adopting scientific rearing practices is an urgent and dire need of the Western Vidarbha region to safeguard the declining donkey population.

Conclusions

Donkey is the most neglected domestic equine germplasm and is kept by the people of lower strata of society in the Maharashtra state of India. Continuous negligence of the precious germplasm at all levels is putting great threat to the existence of donkeys, however, the declining trend in population can be arrested through systematic planning and effective implementation. There is an urgent need to disseminate technical knowledge about scientific animal husbandry practices amongst donkey farmers as well as to provide them with sustainable alternate employment to boost the community-based conservation of donkeys.

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