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Factors and Solutions for Declining Mithun Population in Nagaland and Manipur: A Perspective

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Abstract

Mithun (*Bos frontalis*) is a rare bovine species solely found in the hilly forests of Northeast India. In the previous livestock census (2019), a decline of 33.6% and 10.5% in mithun population was recorded in Nagaland and Manipur, respectively. Over the past few years, increased deforestation, unregulated Jhum farming, resurfacing of outbreaks of foot and mouth disease (FMD), frequent attacks of wild dogs on mithun calves and indiscriminate slaughtering of mithun for table purpose might be attributed to a decline in mithun population. Lack of bankable schemes and no regular income from mithun farming have further aggravated the problem. The need of time is to frame legislative laws to check indiscriminate slaughter of elite mithuns, formulate National Mithun Breeding Policy, develop insurance policies for mithun and bring free-ranging mithun under semi-intensive system. Lastly, better vaccination coverage against FMD in mithun might serve as one of the useful tools in mithun conservation.

Introduction

Mithun (*Bos frontalis*) or Gayal is a unique bovine species exclusively found in the hilly forests of Northeastern states of India at an altitude of 300-3000 m and plays an important role in socio-economic and cultural life of indigenous tribes of Arunachal Pradesh, Nagaland, Mizoram and Manipur. Besides Northeast India, it inhabits China, Bangladesh, Thailand, Bhutan, Myanmar and Malaysia (Khan *et al.*, 2019). The indigenous tribes consider mithun farming as a matter of pride and status and it is fundamentally linked to their sustainable livelihood. Since time immemorial, mithuns are mostly reared under free-range forest ecosystems without scientific supervision of health, nutrition and reproduction. Mithun farmers do not provide other feed and fodder to mithuns, however, occasionally feed them salt as mithuns have a great liking for salt feeding. Unlike cattle, mithun does not require pasture land and is an efficient browser even in steep hilly slopes. Mithun is the state animal of Arunachal Pradesh and Nagaland. It is a medium to large sized ruminant species characterized by jet black body with ash colored forehead and white stockings in all the legs. The visual appearance of mithun is similar to wild gaur (Indian bison) but mithun is smaller in size and its horns are more or less straight. Unlike cattle, hump is absent in mithun. Its ears are broader, dewlap is larger sized and tail & legs are smaller in comparison to cattle. Recently, the research work carried out at ICAR-National Research Centre on Mithun revealed that mithun is phylogenetically distinct from other *Bos* species and originated independently of zebu cattle and gaur (Mukherjee *et al.*, 2019). Mithun is mainly reared for meat purpose and usually slaughtered for high quality organic meat during marriage ceremonies, religious festivals, and community feasts. Being a leaner meat *i.e.*, low in fat and cholesterol,

mithun meat is good for human health. The average body weight of adult mithun aged 4-5 years is usually 400-500 kg (Joshi et al., 2020).

Mithun is aptly called a champion animal due to its multipurpose potential however, to date, it remains as an underutilized animal in North-east India. If farmers begin to utilize mithun more for commercial than cultural use, there exists a great scope to popularize mithun farming as an important source of income. Mithun is a valuable source of organic meat and milk and has immense potential for heavy draught tasks such as ploughing and carting. Moreover, the leather processed from skin of mithun has ample scope in tanning industry due to its superior quality, toughness and long life. Although consumption of mithun milk is regarded as taboo, there is a need to raise awareness among tribal people about milking of mithun and promotion of mithun as a milch animal. In mithun, milk yield ranges from 0.87 to 1.46 kg per day and besides fat and protein, mithun milk is rich in oleic acid, lysine, vitamin A, D & E and lactoferrin. Mithun milk might provide nutritional security to poor tribal farmers of Northeast India and improve their economic status.

In spite of great prospects for commercial mithun farming, the tribal farmers have not seriously looked into this venture and still rear mithun in forests as a free-range animal where it is regularly exposed to fatal diseases and inclement environmental conditions. Over the last few years, a decline is recorded in free-ranging mithun population, therefore, to conserve this rare animal species, there is an urgent need to bring free-ranging mithun under semi-intensive system. The total mithun population in India is 3.8 lakhs. The highest population is found in Arunachal Pradesh which constitutes around 90% of the total mithun population, followed by Nagaland (5.98%), Manipur (2.36%) and Mizoram (1.02%). According to 20th Livestock Census (2019), mithun population exhibited an overall increase of 30.6%; however, Nagaland and Manipur recorded a decline of 33.6% and 10.5% in their mithun population, respectively (Figure 1 & 2). Currently, mithun is considered as a species vulnerable to extinction on account of its narrow geographic range and small population.

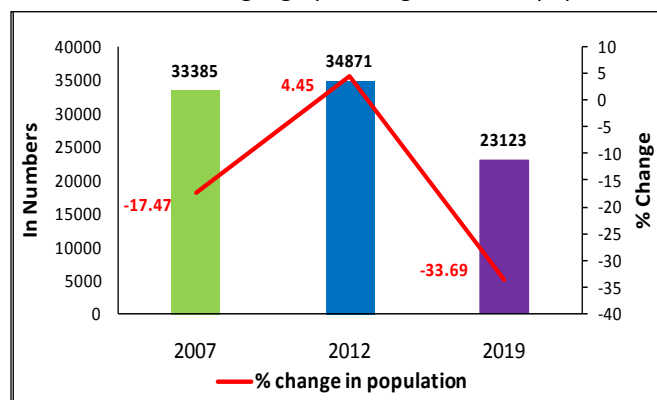


Figure 1: Mithun population trend in Nagaland (Source: Livestock Census 2007, 2012, 2019)

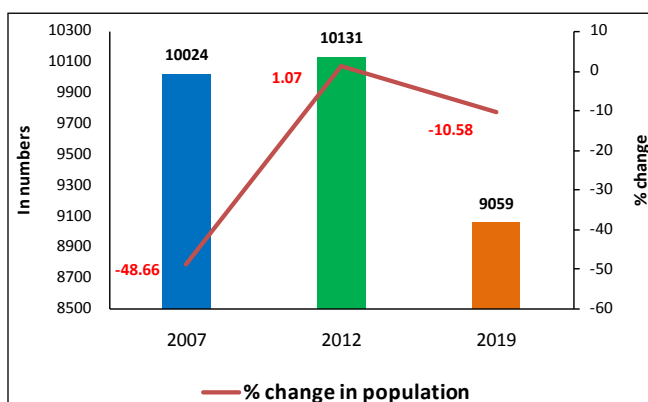


Figure 2: Mithun population trend in Manipur (Source: Livestock Census 2007, 2012, 2019).

Probable Factors for the Decline in Mithun Population

1. Decrease in Forest Cover and Pastoral Area due to Deforestation and Jhuming

Being a free-range ruminant species, mithun is mainly reared in community forest areas with minimal input cost. However, the natural habitats of mithun as well as pastoral areas are depleting day by day due to loss of forest cover (Figure 3) following deforestation and urbanization and thus, the survival of mithun in its natural habitat is at stake. Shifting cultivation (*Jhuming* or *Jhum*) and development activities are the major reasons behind increasing deforestation.

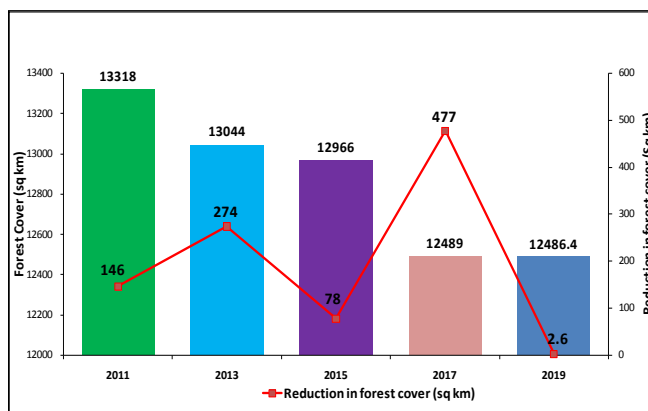


Figure 3: Matrix of forest cover change in Nagaland (Source: India State Forest Report 2011, 2013, 2015, 2017, 2019)

The farmers in Northeastern hilly region commonly practice Jhum cultivation, whereby field for crop is created by cutting and burning the trees and vegetation. Furthermore, unregulated Jhum farming has led to deforestation and subsequent water shortage and frequent landslides in natural habitats of mithun. These in turn reduce the forest area for mithun grazing, ultimately leading to the loss of mithun population due to shortage of fodder and drinking water.

2. Increase in Net Sown Area

This has led to a decline in the natural habitats of mithun as well as the scarcity of fodders in the forests, thereby causing a decline in mithun population.

3. Lack of Bankable and Insurance Schemes for Mithun

The State government has formulated no schemes for mithun farmers to provide financial support for its conservation, development and propagation like other livestock species in the state. Moreover, high input price for fencing of the jungles is the major constraint in mithun rearing.

4. Frequent Predator Attacks

Mithun is reared under free-range conditions in the community forests and thus, farmers do not provide adequate care to mithun and their newborn calves in the form of housing, nutrition, veterinary care, etc. Consequently, it is reported that about 60% mithun calves die every year due to the attack of wild predators such as wild dog, wolf, etc.

5. Lack of Proper Marketing Channels and No Regular Income

Most of the farmers in Nagaland and Manipur are mainly engaged in cultivation of paddy and other cash crops and mithun farming is not considered to be their primary occupation to earn livelihood. Mithun is solely reared for meat purpose and thus, mithun farming provides economic returns to the farmers only when mithun attains the age of 4-5 years when it is slaughtered for sale of meat. Moreover, commercial markets are not readily available for sale of mithun meat, thereby fetching poor economic returns. Consequently, farmers find it quite difficult to rear mithun with provision of essential inputs such as periodical vaccination, deworming, healthcare, extra feed & fodder, etc.

6. Lack of Awareness and Misconception

The mithun farmers are not aware of the importance of regular deworming and vaccination of their mithuns. A large proportion of farmers believe that vaccination deteriorates the meat quality resulting into loss of its aesthetic value and thus, there is no trend of mithun vaccination and the animals die in large numbers during outbreak of highly contagious diseases like FMD, etc.

7. Migration of Farmers from Rural to Urban Areas for Employment

Due to increasing migration trend, the tribal people find it difficult to involve themselves in mithun farming and they are looking for alternative means of employment and income.

8. Restriction on Mithun Rearing in Some Villages of Nagaland

Being a browser animal, mithun often tends to trespass into agricultural fields (cultivated land area) of neighboring villages and damage their crops. There are reports that in few cases, mithuns were shot dead by

the owners of the fields. However, in most instances, mithun owners are required to pay a hefty fine (Rs. 500.00 per mithun footprint noticed in damaged field) as a compensation for the crop damage. Therefore, farmers have gradually begun to discontinue mithun rearing and shift to more profitable ventures like cultivation of cash crops (cardamom, kiwi, coffee) and agroforestry activities.

9. Transboundary Movement and Interspecies Mingling

Inter-border crossing for better grazing areas and mixing with other species such as cattle, pig, etc. have increased the spread of fatal diseases in mithun. Foot and mouth disease (FMD) is said to be the most deadly disease of mithun and about 8 outbreaks of FMD resulting in significant mortality in mithun were reported in Nagaland between 2006-14 (AICRP-FMD, Kohima). A lack of awareness among mithun farmers about vaccination of FMD, Hemorrhagic Septicemia (HS) and Black Quarter (BQ) has led to frequent outbreaks of these deadly diseases and thus, heavy mortality leading to decline in mithun population.

10. Over-Exploitation of Mithun for Table Purpose

Over the years, insufficient meat production in the state of Nagaland (Figure 4) has led to an increase in demand for mithun meat among the consumers and therefore, an increase in the rate of mithun slaughtering. This indiscriminate slaughtering of elite bulls and mithun cows in production (in the absence of legislative laws for mithun slaughtering) is one of the important reasons for rapid decline

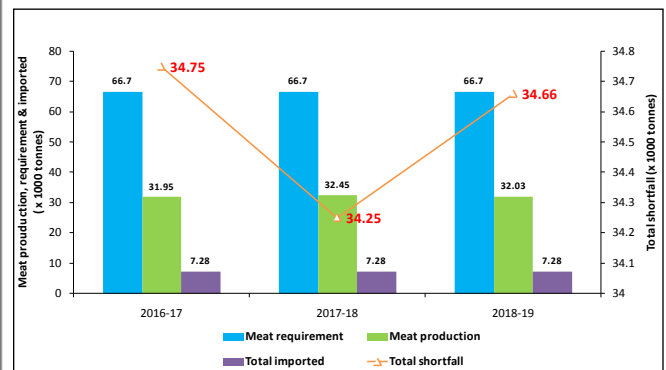


Figure 4: Meat production scenario in Nagaland (2016-19) (Source: Survey Report 2016-17, 2017-18, 2018-19, Department of Animal Husbandry & Veterinary Services, Govt. of Nagaland)

in mithun population in Nagaland.

Potential Solutions for the Control of Declining Mithun Population

- The state governments of all the mithun-rearing states should take initiatives to frame legislative laws to control indiscriminate slaughter of mithun. Certain categories of mithuns such as proven bulls and highly productive mithun cows should not be allowed to be slaughtered recklessly.
- Development of bankable schemes and insurance policies

for mithun.

- Formulation of National Breeding Policy/ Plan for mithun and creating better awareness among stakeholders about the same.
- Efforts should be made for inclusion of mithun under National Livestock Mission for better vaccination coverage against FMD in mithun across mithun rearing states.
- The idea of community mithun conservation centre should be promoted and 1 centre per 3-4 villages needs to be established. The state government should render financial aid and labor support.
- Cultivation of fodder plants relished by mithun should be promoted in nurseries in community mithun conservation centres to make up for shrinking pastoral areas.
- There is an urgent need to spread awareness among mithun farmers about the importance of mithun vaccination against FMD, HS and BQ. The initiatives should be taken to make them realize the importance of mithun and the actual potential of mithun farming for improved livelihood. Support to stakeholders by providing FMD vaccine.
- Popularization of semi-intensive mithun farming and the farmers should be made aware about the need of adopting semi-intensive mithun farming for mithun conservation. The technical back-up should be provided to the farmers to establish semi-intensive units under field conditions.
- Encouragement to organic mithun farming for better economic returns. Organic livestock guidelines should also be

framed for mithun. There is a need to establish demo organic mithun farm.

- Introduction of employment generation schemes at the village level to stop migration of villagers towards cities.

Conclusion

Being the state animal of Nagaland, a significant decline in population of mithun over the past few years is indeed a matter of grave concern. At present, conservation of this unique bovine species of Northeast India might be possible through collective efforts of ICAR-National Research Centre on Mithun and State Veterinary Departments apart from extensive vaccination of mithun against FMD, popularization of semi-intensive system of mithun rearing and formulation of bankable schemes and insurance policies for mithun.

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