

Population trends and distribution of Yak and Mithun in India

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ABSTRACT

Yak and mithun are important animal genetic resources of India. Yak is an important source of meat, milk and draught power in high altitude areas. Mithun is reared mainly for meat in Northeastern states. Present status of these species was evaluated in terms of their population trend and distribution. It is estimated that by 2020, the population of yaks and mithuns will be only 0.90 and 3.69 lakhs, respectively. Only four states of India have more than 2000 yaks. Similarly, only four states in India have more than 3000 mithuns. The population of these species is restricted to a few regions only within these states, although some other regions in these states have potential for propagation of these animals. For example, eighty-five percent of the population of yaks of the Arunachal Pradesh is now confined to the two districts of Tawang and West-Kameng. These results suggest that these species, especially yak, require immediate attention for their conservation and propagation.

Keywords: demographic change, distribution, mithun, population, yak

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INTRODUCTION

Although, yak and mithun are confined to specific regions with very small proportion among total livestock population of the country, these species have their own importance to the local societies (Niranjana and Biswas 2013). Yak is well adapted morphologically and physiologically to survive in cold climate of the high altitude regions providing milk, meat, fiber and draught power to the local population (Nivsarkar et al. 1997, Weiner et al. 2003). Mithun is reared in semi-domesticated conditions in the Northeast region and is an important meat animal (Gupta et al. 1999). This paper attempts to describe the present status of these species in India in terms of their population trend and distribution.

MATERIALS AND METHODS

Secondary data from livestock census and other

literature was obtained (Census 2012, Niranjana and Biswas 2013) and state wise population densities were calculated for these species. The district wise and state wise census data for these species was grouped for population intervals to obtain the number of districts or states with specified minimum population. The regression equation for the population trend was developed (Gupta 2011) using census data for these species from 1992 onwards and the population for the years 2020 and 2025 were estimated by method modified from (Singh *et al.* 1991) as

$$Y' = a + bX'$$

Where, Y' = Estimated population in the year X'

b = Slope in the regression equation
 $Y = a + bX$

$a = Y$, when $X = 0$

RESULTS AND DISCUSSION

Yak

The total yak population in our country is 0.76 lakhs (Census 2012) showing a decline of 7.6 percent from the previous census, although it has shown an overall increase of 32.24 percent compared to their population in the year 1992 (Table 1, Fig. 1). Taking into consideration the trend since 1992, their population is estimated to be 0.9 and 0.97 lakhs in the years 2020 and 2025, respectively (Table 1).

Jammu and Kashmir has the maximum population of yaks (0.54 lakh), possessing about

71 percent of the total yak population of the country, followed by Arunachal Pradesh (18.34 %) and Sikkim (5.26 %) (Table 2). In terms of population density, Sikkim has the highest density of 0.569 yaks per sq. km followed by Jammu and Kashmir (0.245) and Arunachal Pradesh (0.169) (Table 2).

Only six states in India have the regions with the required environmental conditions that are suitable for yak rearing. Out of these six states only four states have more than 2000 yaks (Table 4). Within these states also, the yak population is confined to a few districts only. In Jammu and Kashmir, 61.94 percent of the total yak

Table 1: Population trend of Yak and Mithun in India

S. N.	State	Total yak population	Percent of total population of India	Density per square km
1.	Jammu and Kashmir	54493	71.08	0.245
2.	Arunachal Pradesh	14061	18.34	0.169
3.	Sikkim	4036	5.26	0.569
4.	Himachal Pradesh	2921	3.81	0.052
5.	West Bengal	1089	1.42	0.012
6.	Uttarakhand	62	0.08	0.001
	India	76662	-	0.023

** ($P \leq 0.01$), * ($P \leq 0.05$) at level of significance

Table 2: Yak population and density (2012) in different states of India

S. N.	State	Total yak population	Percent of total population of India	Density per square km
1.	Jammu and Kashmir	54493	71.08	0.245
2.	Arunachal Pradesh	14061	18.34	0.169
3.	Sikkim	4036	5.26	0.569
4.	Himachal Pradesh	2921	3.81	0.052
5.	West Bengal	1089	1.42	0.012
6.	Uttarakhand	62	0.08	0.001
	India	76662	-	0.023

Table 3: Mithun population and density (2012) in different states of India

S. N.	State	Total mithun population	Percent of total population of India	Density per square km
1.	Arunachal Pradesh	249000	83.48	2.973
2.	Nagaland	34871	11.69	2.103
3.	Manipur	10131	3.40	0.454
4.	Mizoram	3287	1.10	0.156
5.	Himachal Pradesh	918	0.31	0.017
6.	Jammu and Kashmir	57	0.02	0.0003
	India	298264	-	0.091

Table 4: States of India with more than 2000 yaks and districts with more than 500 yaks

S. N.	State	Population	Clusters of districts with sizable yak population (Total population in the Cluster)	Districts in the state with more than 500 yaks
1.	Jammu and Kashmir	54493	Cluster I: Kargil, Ladakh (33754) Cluster II: Kishtwar, Doda (17249)	Kargil (17397), Ladakh (16357), Kishtwar (15964), Bandipore (2695), Doda (1285), Anantnag (602)
2.	Arunachal Pradesh	14061	Cluster I: Tawang, West Kameng (11892)	Tawang (7943), West Kameng (3949), Kurung-Kumey (511)
3.	Sikkim	4036	Cluster I: North district, East district (3842)	North district (3684)
4.	Himachal Pradesh	2921	Cluster I: Lahaul-Spiti, Chamba (1910)	Lahaul and Spiti (1267), Chamba (643)

Table 5: States of India with more than 3000 mithuns and districts with more than 1000 mithuns

S. N.	State	Population	Clusters of districts with sizable yak population (Total population in the Cluster)	Districts in the state with more than 1000 mithuns
1.	Arunachal Pradesh	249000	Cluster I: Upper-Siang, West Siang, East Siang (51707) Cluster II: Dibang Valley, Lohit, Anjaw, Lower Dibang Valley (18705) Cluster III: Upper Subansiri, Lower Subansiri, Kurung-Kumey, Papun-Pare (142854) Cluster IV: East Kameng, West Kameng (34579)	Papun-Pare (46045), Kurung-Kumey (39264), Lower-Subansiri (35809), East-Kameng (31655), West-Siang (22805), Upper-Subansiri (21736), Upper-Siang (19732), Anjaw (9731), East-Siang (9170), Dibang-Valley (5363), West-Kameng (2924), Lower Dibang-Valley (1960), Lohit (1651), Tirap (1113)
2.	Nagaland	34871	Cluster I: Phek, Kohima, Zunheboto, Peren (18501) Cluster II: Tuensang, Kiphire, Mon (14861)	Zunheboto (7318), Tuensang (6968), Phek (5732), Kiphire (4247), Kohima (2826), Mon (3646), Peren (2625)
3.	Manipur	10131	Cluster I: Chandel, Churachandpur, Tamenglong (8228) Cluster II: Senapati, Ukhrul (1878)	Chandel (5170), Tamenglong (1692), Churachandpur (1366), Senapati (1119)
4.	Mizoram	3287	Cluster I: Champhai, Aizal, Serchip (2055)	Champhai (1849), Saiha (1232)

population of the state is confined to the two adjoining districts of Kargil and Ladakh (cluster I). Another 31.65 percent of the total yak population of Jammu and Kashmir is confined to the region (cluster II) consisting of districts of Kishtwar and Doda. In Arunachal Pradesh 84.57 percent of the state's total yak population is confined to the region comprising of Tawang and West Kameng districts. Similarly, 65.35 percent yak population in Himachal Pradesh is restricted to the districts of Lahaul-Spiti and Chamba. In Sikkim 91.28 percent of the yak population of the state is located in the North district (Table 4).

Kargil district in Jammu and Kashmir with 17397 yaks, has the maximum yak population in the country comprising 22.69 percent yak population of the country and 31.93 percent yak population of the state. Kargil is followed by Ladakh (16357) and Kishtwar (15964) districts of Jammu and Kashmir and Tawang (7943) district of Arunachal Pradesh.

Only eleven districts in India have more than 500 yaks. Jammu and Kashmir has six districts with more than 500 yaks followed by Arunachal Pradesh having only three districts with more than 500 yaks.

Mithun

Mithun population in 2012 was recorded at 2.98 lakhs showing an increase of 93.5 percent from their population in 1992. It has shown an increase of 12.88 percent from the last census in 2007. Taking into consideration their population trend from 1992 onwards, their population is estimated to be about 3.7 lakhs in 2020 and 4.07 lakhs in 2025 (Table 1).

Arunachal Pradesh with 2.49 lakh mithuns possesses the largest mithun population in the country (83.48 %) followed by Nagaland (11.69 %) and Manipur (3.4 %) (Table 3). Population

density is also highest in Arunachal Pradesh with 2.973 mithuns per sq. km followed by Nagaland and Manipur with 2.103 and 0.454 mithuns per sq. km.

Only four states in India have more than 3000 mithuns (Table 5). Like yaks, most of the mithun population is confined to specific regions or clusters of districts. For example, region comprising of Upper Subansiri, Lower Subansiri, Kurung Kamey and Papun Pare districts of Arunachal Pradesh (cluster III) possess 57.37 percent of the total mithun population of the state (Table 5). Similarly, region comprising Upper Siang, West Siang and East Siang (cluster I) has 20.77 percent mithun population of this state. In Manipur, 81.22 percent of the total mithun population of the state is confined to the region (cluster I) comprising of districts of Chandel, Churachandpur and Tamenglong.

Papun Pare district of Arunachal Pradesh has the maximum mithun population in the country (46045) which constitutes 15.44 percent of the total mithun population of the country. Kurung Kamey and Lower Subansiri districts of the same state with 39264 and 35809 mithuns have second and third largest population of mithuns in the country

CONCLUSION

The above analysis has clearly shown that the population of yaks has shown decline of 7.64 percent compared to their population in 2007. Although, the population of mithuns has shown an increasing trend, their total population is 2.92 lakhs only. Further, majority of the population of these species is localized in the specific regions of a few states, although other regions in these states have the potential for propagation of these species. These facts suggest that special interventions are required for the conservation and propagation of these important animal genetic resources of our country.

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