

The hispid hare, *Caprolagus hispidus* Pearson, 1839

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Abstract. Our work is a collection of general scientific information on the endangered species *Caprolagus hispidus* Pearson, 1839. The hispid hare (*C. hispidus*), feared as extinct in 1964 and rediscovered in 1966, is a species with monotypic genus. The hispid hare, also called bristly rabbit and Assam rabbit, is a species belonging to the family Leporidae, native to the southern part of Asia, whose old range extended along the southern foothills of the Himalayas. As with other endangered mammals, *C. hispidus* is a species that has lost ground in a very short period of time. Nowadays, its habitat is highly fragmented with an area of occupancy estimated at not more than 500 sq km, extending over a total surface of land of 5,000 to 20,000 sq km. Populations of hispid hare experienced a continuous decline in suitable habitat on one side due to increasing of anthropic activities such as agriculture (crops, grazing etc.), flood control, killing and poaching. On the other side, there are also natural threatening causes such as invasion by non-native animal or woody species in grassland, uncontrolled park burning, isolated population and low adaptability of the hispid hare. However, many of the natural factors are often factors mediated by human activity (eg the spread of invasive species or human-facilitated fires). Poor park management is often another cause for low survival of this species.

Key Words: Assam rabbit, *Caprolagus hispidus*, conservation, Lagomorpha, Leporidae, monotypic.

Introduction. Because in the beginning humans were hunters and fishermen, mammals and fish were the first species of animals to be affected by the expansion of human populations. If the fish had their aquatic refuge, inaccessible to humans, the mammals found a refuge more difficult, and that was temporary. This reality is clearly observed in the situation of endangered species, especially in the case of mammals.

The hispid hare (*Caprolagus hispidus* Pearson, 1839), also called bristly rabbit and Assam rabbit (Nath & Machary 2015), is a species belonging to the family Leporidae, native to the southern part of Asia, whose old range extended along the southern foothills of the Himalayas (Aryal et al 2012). As with other endangered mammals, *C. hispidus* is a species that has lost ground in a very short time. Nowadays, its habitat is highly fragmented and diminished with an area of occupancy estimated at not more than 500 sq km (Smith 2008), extending over a total surface of land of 5,000 to 20,000 sq km (wikipedia.org).

Our work is a collection of general scientific data on the endangered species *C. hispidus*.

Description. The Assam rabbit has a harsh and bristly coat (Joshi 2019). The ears are very short and, unlike other species of hares/rabbits, do not project beyond the fur (Pearson 1839) (Figure 1). The coat is dark brown on the back due to a mixture of black and brown hairs (Joshi 2019); brown on the chest and whitish on the abdomen (Figure 1). The tail is brown and about 30 mm long (wikipedia.org). In terms of body weight males, range from 1,810 to 2,610 g, with a mean of 2,248 g (wikipedia.org). Females weigh in average 2,518 g, including a heavily pregnant female weighing 3,210 g in this statistical mean weight (Bell et al 1990).



Figure 1. The hispid hare (*C. hispidus*) (source: pratiknayek.wordpress.com/ posted by IT's My bLoG@PrATik NAYEk on December 24, 2011).

The morphology of supraorbital processes in lagomorphs is used as a diagnostic characteristic in taxonomy (Ge et al 2015). In *C. hispidus*, the frontal bones of the skull are very wide (Ge et al 2015). The occipito-nasal length is normally more than 85 mm (wikipedia.org). There is no clear notch in front of postorbital processes (Ellerman & Morrison-Scott 1966). This hare has an average length from head to tail of 476 mm (Macdonald 2009). The hispid hare is most active in the morning and evening. The limited information available on reproduction indicates that its average litter size is small (Bell et al 1990).

Habitat, distribution and ecology. The ancient range (historically reported) of the hispid rabbit included Uttar Pradesh (northern India), southern Nepal, northern part of West Bengal, Assam (India) and Bangladesh (Chand et al 2017). Today, its distribution is sporadic in Bangladesh, India, Nepal and Bhutan (Chand et al 2017; wikipedia.org) (see Figure 2). It inhabits tracts of early successional tall grasslands and takes refuge in marshy areas or grasses adjacent to river banks during the dry season, when these areas are susceptible to burning (Bell et al 1990). The population in the extensive grasslands of Shuklaphanta National Park has an international significance for conservation (Baral & Inskipp 2009).

The species is dependent on the early successional riverine vegetal associations, typically comprising dense tall grasses, commonly referred to as elephant grass or thatch grass, that grow to a height of over 3 m (Tandan 2010). Mean home range of the species has been reported to be 2800 sq m for females and 8200 sq m for males. Individuals do not migrate but are resident in their habitat during dry season (Tandan 2010).

In January 2016, a hispid hare was reported from Chitwan National Park for the first time since 1984 (Khadka et al 2017). Chitwan National Park is the first national park of Nepal (Bhujju et al 2007). Bardia National Park is another reference for hispid hare conservation. In fact, it is the biggest national park of the western Lowland Terai of Nepal, established in 1976, with an area of 968 sq km (Tandan 2010).

Tandan (2010) investigated population, ecology, extent of movement and habitat utilization of hispid hare in Bardia National Park. The habitat found to be used by hispid hare was classified into 7 categories: 1) forest (dominated by trees of any species), 2) edge of forest and grassland, 3) tall grassland (containing grass of > 1 m height), 4) short grassland (grass height from 15 cm to 1 m), 5) open grassland (grass of < 15 cm height), 6) open-tall grassland (grass that is present in patches in the habitat dominated by sand), and 7) river banks (dominated by boulders, sand near the river and stream). Hispid hare did not use forest and the edge between forest and grassland (Tandan 2010). It rather preferred river banks (48.27%) in winter season, followed by open grassland (20.68%). Whereas in summer season, it mostly preferred the open grassland (35.48%) formed after burning practices, and open-tall grassland (29.05%) (Tandan 2010).

The same author investigated the diet of the hispid hare, which consisted of 23 different species of plants, but > 90% of volume in the diet was composed by less than 10 vegetal species. *Imperata cylindrica* was the most preferred plant species (with an abundance of 25.65% in winter and 45.68% in summer). *Saccharum spontaneum*, *I. cylindrica*, *Desmostachya bipinata*, *Cynodon doctylon* and *Saccharum munja* were the most preferred 5 species that constituted more than 85% of the plant species consumed (Tandan 2010). Grass species were the most preferred, which constituted 98.10% from the total volume of plants consumed in winter and 95.25% from the total volume of plants in summer. A percentage of 56.52% from the species were commonly preferred in both seasons, most of them being grass species (Tandan 2010).



Figure 2. The present range of *C. hispidus* (wikipedia.org).

Taxonomy and phylogenetics. The hispid hare, feared as extinct in 1964 and rediscovered in 1966, is a species with monotypic genus, member of the family Leporidae (Tandan 2010). The morphology of the skull bones is a very important criterion for lagomorph taxonomy (Wood-Bailey et al 2022). However, molecular genetic criteria are equally important for taxonomy, but also for phylogeny (Figure 3).

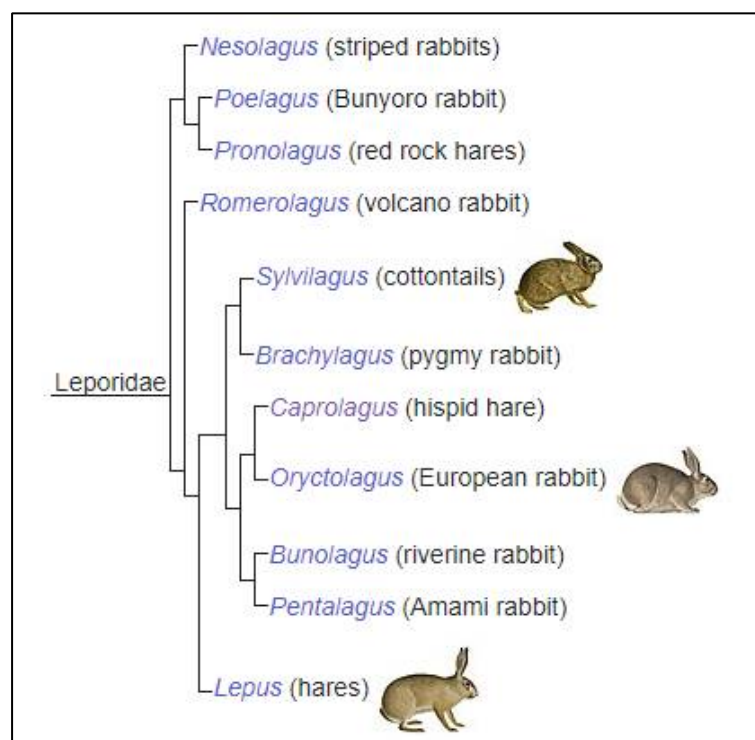


Figure 3. A cladogram of Leporidae created by Matthee et al (2004), based on nuclear DNA and mtDNA (wikipedia.org).

Conservation. Populations of hispid hare experienced a continuous decline in suitable habitat on one side due to increasing of anthropic activities such as agriculture (crops, grazing etc.), flood control, killing and poaching (wikipedia.org). On the other side, there are also natural threatening causes such as invasion by non-native animal or woody species in grassland, uncontrolled park burning (Sadadev et al 2021), isolated population and low adaptability of the hispid hare (Tandan 2010). However, many of the natural factors are often factors mediated by human activity (eg the spread of invasive species or human-facilitated fires). Weak park management is often another cause for low survival of this species (Tandan 2010).

The species is listed as Endangered on the IUCN Red List since 1986 (Aryal & Yadav 2019).

Conclusions. The hispid hare (*C. hispidus*), feared as extinct in 1964 and rediscovered in 1966, is a species with monotypic genus. The hispid hare, also called bristly rabbit and Assam rabbit, is a species belonging to the family Leporidae, native to the southern part of Asia, whose old range extended along the southern foothills of the Himalayas. As with other endangered mammals, *C. hispidus* is a species that has lost ground in a very short period of time. Nowadays, its habitat is highly fragmented with an area of occupancy estimated at not more than 500 sq km, extending over a total surface of land of 5,000 to 20,000 sq km. Populations of hispid hare experienced a continuous decline in suitable habitat on one side due to increasing of anthropic activities such as agriculture (crops, grazing etc), flood control, killing and poaching. On the other side, there are also natural threatening causes such as invasion by non-native animal or woody species in grassland, uncontrolled park burning, isolated population and low adaptability of the hispid hare. However, many of the natural factors are often factors mediated by human activity (eg the spread of invasive species or human-facilitated fires). Poor park management seems to be another cause for low survival of this species.

Conflict of interest. Authors declare that there is no conflict of interest.

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