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continued on the back inside cover

Cover: Leaves and fruits of *Terminalia arjuna* in water colour artwork on cold pressed water colour paper by Bhama Sridharan.



## First photographic record of Hoary-bellied Squirrel *Callosciurus pygerythrus* (I. Geoffroy Saint Hilaire, 1832) (Mammalia: Rodentia: Sciuridae) from Banke National Park, Nepal

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The southern and southeastern Asia's forest ecosystems are home to a high diversity and endemism of squirrels (Koprowski & Nandini 2008; Krishna et al. 2016). There are 285 species of squirrels worldwide (Thorington et al. 2012), however, only 12 species including the Hoary-bellied Squirrel have been recorded from Nepal (Thapa 2014). Squirrels contribute significantly to ecosystem services by eating fungal spores, seeds, and other plant material, and they are also important prey for a variety of species in temperate and tropical forests (Koprowski & Nandini 2008). They are primarily forest-dependent creatures that can only adapt to a certain level of habitat loss. Anthropogenic impacts on both small and large mammals in Nepal appear to be increasing threats to the country's wildlife, which is leading to a decline in species numbers (Baral & Shah 2008; Bhandari & Chalise 2016; Bhandari et al. 2020). A large number of rodents and lagomorphs also experience this as a result of the prolonged usage of pesticides on agricultural grounds (Baral & Shah 2008; Aktar et al. 2009). The Hoary-bellied Squirrel dwells in patches of dense to moderately dense evergreen forests

in mid-canopy temperate, tropical, and subtropical moist habitats (Molur et al. 2005). The squirrel has been found in Nepal's riverine woodland, mixed broad-leaf forest zone, central and eastern Siwalik foothills, Mahabharat range (Mitchell 1979), as well as modified and altered habitats including settlements and farmlands. This species, being arboreal and diurnal, consumes seeds, nuts, fruits, buds, flowers, and insects (Mitchell 1979) and gathers water from young twigs and bamboo (Karki 2013).

The Hoary-bellied Squirrel is a widely distributed species in southern Asia (Thorington et al. 2012; Karki 2013). It can be found in Nepal's lowlands (300 m or less) and temperate regions (up to 2,500 m) (Baral & Shah 2008; Thapa et al. 2016), Sal forests to mixed broad leaved forests in Mahabharat range (Thapa et al. 2016). The species is distributed throughout the Siwalik (Chure) and Mahabharat ranges (Jnawali et al. 2011); confirmed from several districts and protected areas of Nepal (Thapa et al. 2016) (Figure 1). The main threats to the species in Nepal are habitat loss and hunting for food and medicine (Jnawali et al. 2011). Based on an array

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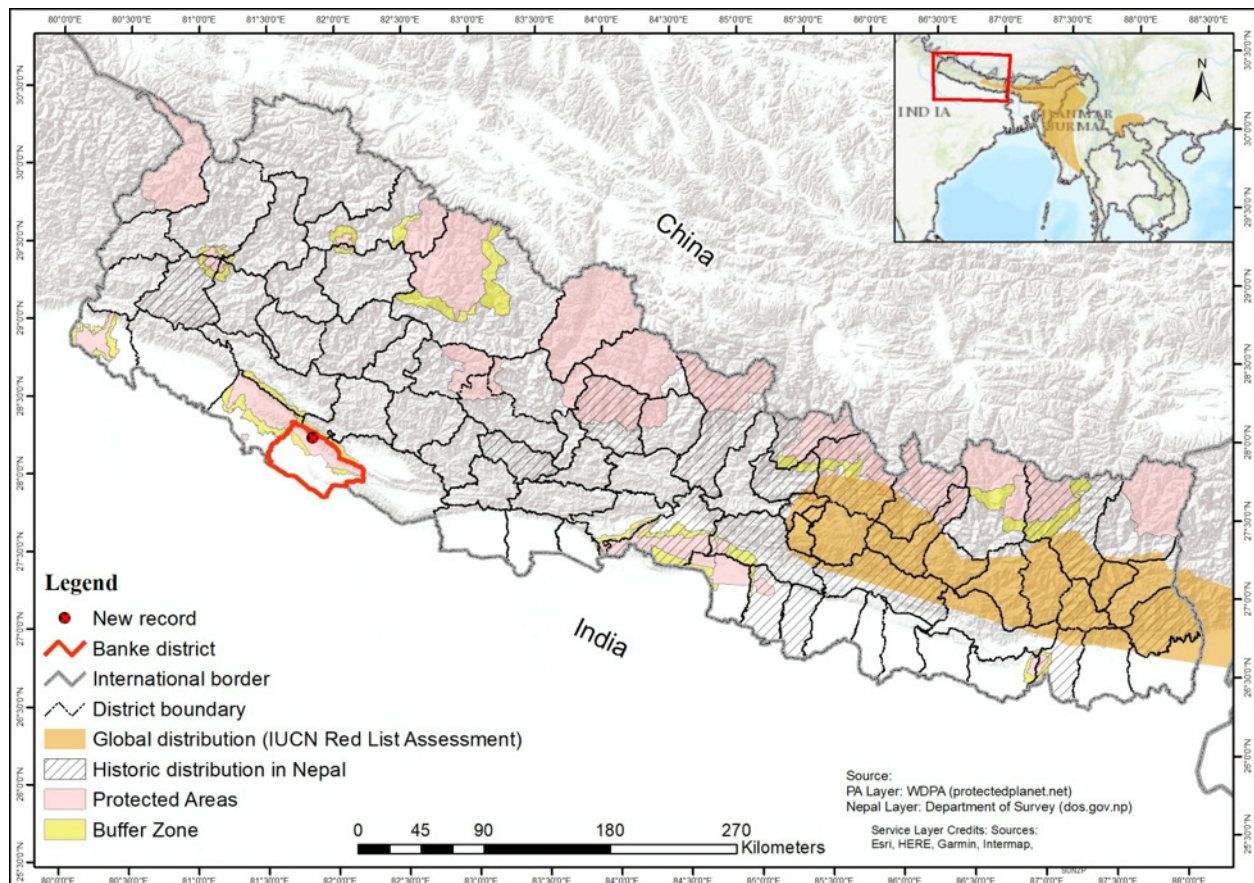
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**Figure 1.** Past records of species in several districts of Nepal and comparison of present record with geographic range map of the IUCN Red List Assessment (Duckworth 2016).

of studies, anthropogenic pressure, habitat degradation, hunting, and pesticide usage are the major threats to the species (Shrestha 1997; Majpuria & Majpuria 2006; Baral & Shah 2008; Thapa et al. 2016). It is classified as a 'Least Concern' species globally as well as nationally by the IUCN Red List of Threatened Species (Jnawali et al. 2011; Duckworth 2016). The species has yet to be documented from the western part of the country.

Banke National Park (BaNP) established as the 10<sup>th</sup> national park of Nepal on 12 July 2010 is situated in the western part of the country. The core area of the park is entirely located in Banke District, Lumbini Province, while some portion of the buffer zone area also lies in Salyan District, Karnali Province. BaNP is linked with a trans-boundary landscape, joining Suhelwa Wildlife Sanctuary in India through Kamdi corridor including national and community forests towards the south and Bardiya National Park (BNP) towards the west, which further links with Katarniaghat Wildlife Sanctuary in India via the Khata corridor, national forest, and community forests. The park consists of eight vegetation types: Sal *Shorea robusta* forest, deciduous riverine forest, savannahs &

grasslands, mixed hardwood forest, flood plain, Bhabar, and Chure Range foothills. These ecosystems harbour 34 species of mammals, 236 species of birds, nine species of amphibians, 24 species of reptiles, and 55 species of fish (BaNP 2018). About 90 percent of natural forest coverage is composed of mainly Sal *Shorea robusta*, Karma *Terminalia tomentosa*, Khair *Senegalia catechu*, and Sissoo *Dalbergia sissoo* species that support a wide variety of wildlife. Among rodents, only four species, viz., Northern Palm Squirrel *Funambulus pennantii*, Indian Crested Porcupine *Hystrix indica*, Red Giant Gliding Squirrel *Petaurista petaurista*, and House Rat *Rattus rattus* have been previously recorded in the park (BaNP 2018).

The Chure Hills cover the majority of Banke National Park, along with some flat areas. It is difficult to monitor wildlife crime and forest product smuggling in such locations with regular patrols. On 18 June 2023, a team of 10 persons from the BaNP and the Nepal Army were dispatched for a four-day camping operation. On the first day, the team walked from the Mahadeva area to Baghsal Sota (also known as Baghsal Khola), a perennial



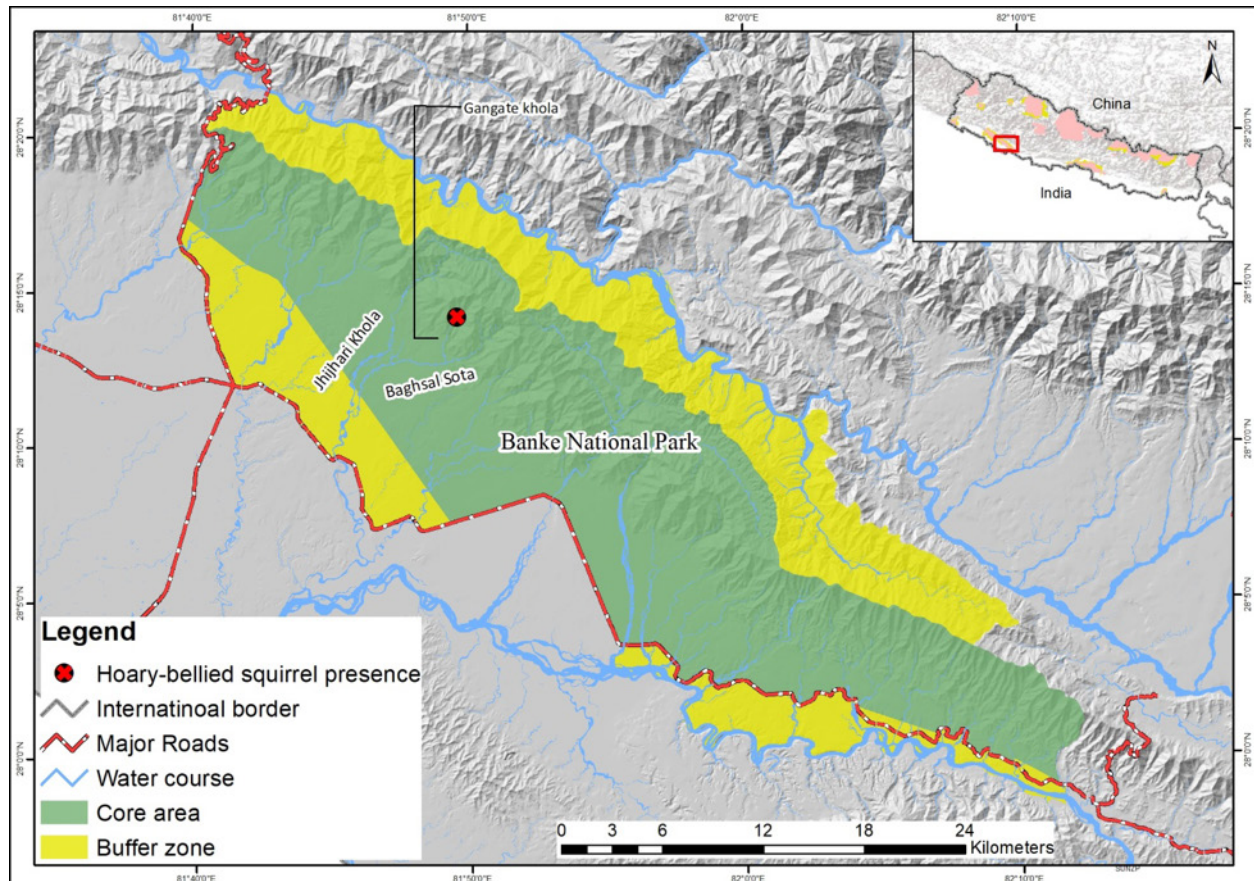


Figure 2. Map showing the sighted location of Hoary-bellied Squirrel *Callosciurus pygerythrus* in Banke National Park.

source of water. At 1540 h, while heading towards Chure Top along Gangate Khola (a tributary of Baghsal Sota), the first author noticed an animal climbing on a Jamun *Syzygium cumini* tree at 28.235701° N, 81.826066° E, at an elevation of 532 m (Figure 2). When the species was approached at close proximity, it leaped to the Bhorla *Bauhinia vahlii*, a climber and reached the canopy of the Jamun tree. The species was photographed with a Canon 2000D, and the location was marked with a Garmin 64s GPS. Binoculars (Olympus 8 x 42) were used to observe the species size, coloration, physical traits, and climbing and resting events in the field.

The animal has brown dorsal pelage but dark grey at limbs and in addition a yellowish hip patch, which occurs seasonally a blunt muzzle and comparatively larger tail, dirty white pelage, and alternating bands of black to blackish and yellowish to white appears in the tail. Based on the characteristics, the animal was identified as the juvenile Hoary-bellied Squirrel *Callosciurus pygerythrus* (Image 1 & 2).

The current photographic record provides the first photographic evidence and range extension of the



Image 1. Climbing event of Hoary-bellied Squirrel *Callosciurus pygerythrus*. © Yam Bahadur Rawat.



**Image 2. Resting event of Hoary-bellied Squirrel *Callosciurus pygerythrus*. © Yam Bahadur Rawat.**

Hoary-bellied Squirrel's distribution in the western part of the country. In addition, there is a lack of information regarding their population ecology, interactions with other sympatric rodents like the Orange-bellied Himalayan Squirrel *Dremomys lokriah*, and how the species react to an increase in anthropogenic interactions in human-dominated landscapes. However, an in-depth study of habitat characteristics, nutrition, distribution, movement, and activity patterns would further aid in the long-term survival of Hoary-bellied Squirrel in BaNP.

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