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# The continued presence of Assamese macaques *Macaca assamensis* (McClelland, 1840) at the lowest elevational record for Nepal

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**Photo 1.** Assamese macaque feeding on *Ficus religiosa* fruits (© HS Baral 17 January 2013)

On 17 January 2013, while returning from Barahakshetra, Sunsari District, east Nepal a famous pilgrimage site, above Chatara, we spotted a small group of macaques on a tree. These macaques were on the eastern bank of the Koshi River. Initially, we thought these as rhesus macaques *Macaca mulatta* but on close examination with binoculars, these turned out to be Assamese macaques *Macaca assamensis*. The coordinates were noted as N26°51'49.30" E87°09'09.97" and the elevation of the area was 135 m. We observed the macaques for about 30 minutes (1615–1645 hrs) as they busily fed on fruits of Peepal tree *Ficus religiosa*. Carl Zeiss 10×42 binoculars were used to make close observation on the macaques and photos were taken by SAMSUNG GPS locator camera with 16× optical zoom (Photo 1). In total we saw three adults and a baby on the tree. There might have been other macaque members in the adjacent forests, but we could not locate them.

Assamese macaque troop was observed and sampled at the same locality in May 2015 and later described by Khanal et al. (2018, 2019, 2021). They reported a troop of 7 individuals

from 130 m asl at Chatara. Previous to these two independent observations, the macaques were said to occur between 200–2750 m (Baral and Shah 2008) and 380 to 2,350 m (Jnawali et al. 2011) in Nepal.

On 6 March 2023 three sub-adult Assamese macaques were observed by KBS at the same locality feeding along the roadside on offerings made by pilgrims. They had short and thin fur due to the shedding of winter coats. They were bold and tolerated the proximity of humans (Photo 2 taken using MIO mobile set). Further, on 31 March 2023, six Assamese macaques were noted in the same locality at 1130 hrs and photographed by HSB using Nikon Coolpix P1000 (Photos 3 & 4). The macaques were observed for about 30 minutes until they started retreating to tree parts not visible to us. The macaques quietly fed on the flower of an unidentified tree. HSB used Swarovski 10×42 binoculars for the observation.

These observations part of which have been reported by Khanal et al. (2018, 2019, 2021) in earlier publications have also included in their genetic analysis. The aim of this article is to establish the facts that Assamese macaques in Chatara



are regular and these four independent observations are not one off-records only. These records with photographs, GPS location and altitude constitute the persistent occurrence of Assamese macaque at the lowest elevation in Nepal.

In Nepal, Assamese macaques are primarily found in subtropical and temperate forests, usually above 500 m asl. The species has been recorded from Annapurna Conservation Area, Langtang National Park, Shivapuri

Nagarjun National Park and Makalu Barun National Park. Outside the protected area network, it is recorded from Dhading, Myagdi and Palpa Districts (Jnawali et al. 2011), Baglung and Parbat Districts (Paudel and Chalise 2016), Darchula, Baitadi, Surkhet and Achham Districts (Khanal et al. 2019). Besides these records, we have also observed this species in the northern buffer zone areas of Bardiya National Park and Ramdighat Kali Gandaki Bridge of Syangja District.

It is found in tropical and subtropical semi-evergreen as well as dry deciduous and montane forests in other range countries (Boonratana et al. 2020). Its global distribution is from Nepal east into northeast India, northern Myanmar and southeast through southernmost China to the upper Mekong in Tibet, and in the east into southern Guizhou to Hoi Xuan in Viet Nam and Thateng in Lao PDR; the range continues south through the Myanmar/Thailand border ranges as far as Chongkrong, as well as to the Sunderbans in Bangladesh (Wada 2005; Boonratana et al. 2020).

The Nepal population of *Macaca assamensis* is threatened due to its restricted distribution of less than 2,200 km<sup>2</sup> extent of occurrence and 914 km<sup>2</sup> area of occupancy and continuing decline in area, extent and quality of habitat, the number of locations and in the number of mature individuals—the latter two conditions being inferred from threats to habitat and population from degradation and hunting, respectively (Boonratana et al. 2020). The National Red List on Nepal's Mammals has estimated its extent of occurrence at approximately 14,895 km<sup>2</sup>, which comes to larger than recent update by Boonratana et al. (2020). The species is assessed as Vulnerable at national level mainly because of its small, fragmented population and restricted distribution (Jnawali et al. 2011). More recent studies have shown its distribution in the entire length of the country, from Mechi to



**Photo 3.** Assamese macaques foraging on a tree (© HS Baral 31 March 2023).



**Photo 4.** Assamese macaque (© HS Baral 31 March 2023)

Mahakali (Khanal et al. 2019). It is one of the 27 species of mammals that are protected priority species in Nepal (Baral and Shah 2008; Jnawali et al. 2011).

Globally, the threats to this species' habitat include selective logging and various forms of anthropogenic development

and activities, alien invasive, and hunting and trapping for sport, "medicine," food, and the pet trade (Boonratana et al. 2020). Although it has a wide distribution, the species is considered to be threatened in most parts of its range. Additionally, hybridization with adjacent species poses a threat to some populations (Molur et al. 2003). This species is currently listed as Near Threatened (NT) in IUCN Red Data Book and included in Appendix II of CITES (Boonratana et al. 2020; DNPWC 2018).

Two subspecies of Assamese macaque have been identified: the nominate *M. a. assamensis* which occurs in the eastern and southeastern part of its distribution range and *M. a. pelops* which occurs west of the Brahmaputra River including Nepal (Choudhury 2022; Menon 2014). Boonratana et al. (2020) state that the Nepal subpopulation may be a different subspecies based on its colour and form, no further details are provided. Khanal et al. (2021) further argue that the Nepal population may warrant further studies and re-appraisal of its taxonomy highlighting findings from their mitochondrial and nuclear DNA studies. We endorse these recommendations for future work to understand species' taxonomic status and their meaningful conservation in Nepal.

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