SHORT PAPER

Journal of the Palaeontological Society of India
Volume 58(2), December 2013: 259-261

ISSN 0522-9630

FIRST RECORD OF *GAZELLA LYDEKKERI* FROM THE TATROT FORMATION OF UPPER SIWALIK OF THE INDIAN SUBCONTINENT

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ABSTRACT

Fossil antelope taxon *Gazella lydekkeri* is reported here for the first time from the Tatrot Formation of the Upper Siwalik of the Indian Subcontinent. The material consists of a left horn-core recovered from the Pliocene Tatrot Formation of the Upper Siwalik exposed near Khetpurali Village of Naraingarh Tehsil of Haryana. Before this find, *Gazella lydekkeri* was known from the Dhokpathan Formation of Middle Siwaliks and the Pinjor Formation of Upper Siwalik only. With this discovery, the record of the genus *Gazella* becomes continuous from Dhokpathan Formation of the Middle Siwalik onwards.

Keywords: *Gazella*, Tatrot Formation, Upper Siwalik, Antelope

INTRODUCTION

In the present communication the authors place on record the fossil antilope taxon *Gazella lydekkeri* for the first time from the Tatrot Formation of Upper Siwalik of the Indian Subcontinent. The genus *Gazella,* which was created by Blainville (1816), is a widespread genus of the tribe Antilopini of the subfamily Antilopinae. There are several living species of genus *Gazella*, such as *G. bennetti*, *G. subgutturosa* and *G. dorcas*. From the Siwaliks of the Indian Subcontinent, the genus *Gazella* was first reported by Pilgrim (1937) who identified two species namely, *Gazella lydekkeri* and *Gazella superb,* from the Dhok Pathan Formation of Middle Siwaliks. Subsequently, the genus was also recorded from the Pinjor Formation of Upper Siwaliks (Vasishat *et al*., 1980; Gaur, 1987). We report here a well-preserved left horn core of *Gazella lydekkeri* recovered *in situ* from the dirty yellow mudstone near the top of the Tatrot beds (Fig. 1) exposed about 0.30 km west of Khetpurali Village northwest of Naraingarh Town of Haryana (Fig. 2). The present discovery forms the first record of *Gazella lydekkeri* from the Tatrot Formation of the Indian Subcontinent.

SYSTEMATIC PALAEONTOLOGY

Order **Artiodactyla** Owen, 1848
Family **Bovidae** Gray, 1821
Subfamily **Antilopinae** (= Gazellinae, Simpson, 1945; p. 160) Baird, 1857
Tribe **Antilopini** Simpson, 1945
Genus ***Gazella*** Blainville, 1816
Gazella lydekkeri Pilgrim, 1937
(Fig. 3)

Material: PUA/SK- 07/79, a left horn- core.

Horizon: Upper Siwalik, Tatrot Formation.

Locality: About 0.30 km west of Khetpurali Village.

Description: The present specimen (PUA/SK- 07/79) is a well-preserved left horn core (Fig. 3). The horn core is nearly complete, except for the apical one-fourth part. With proximal end of the horn core a very small portion of the frontal is preserved. The horn core is not very long and is without keels. The cross-section at the base of the horn core is roughly elliptical in shape, more so near the apex than at the base. From

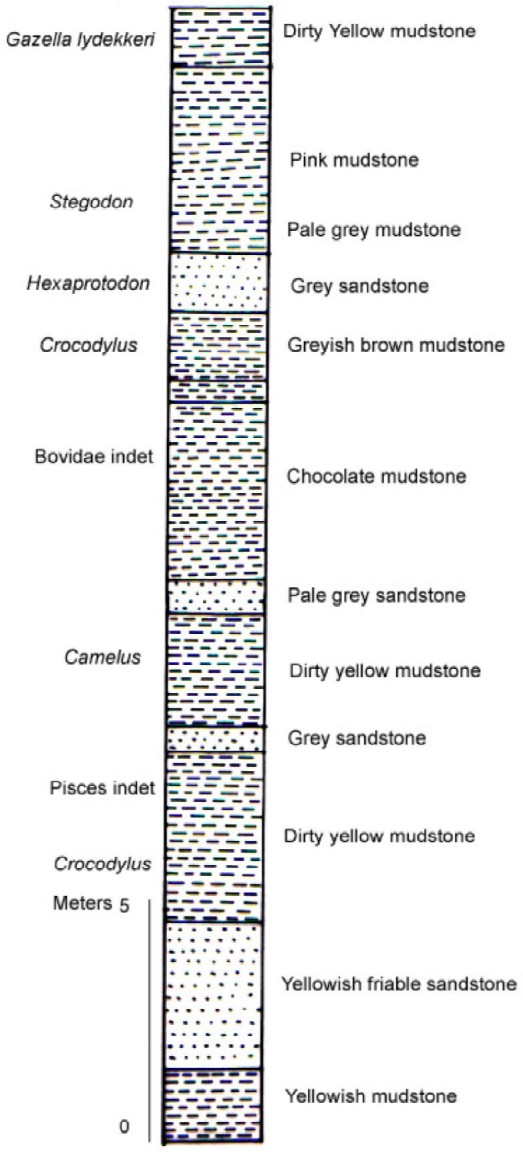

Fig. 1. Local stratigraphic section of the fossil locality.

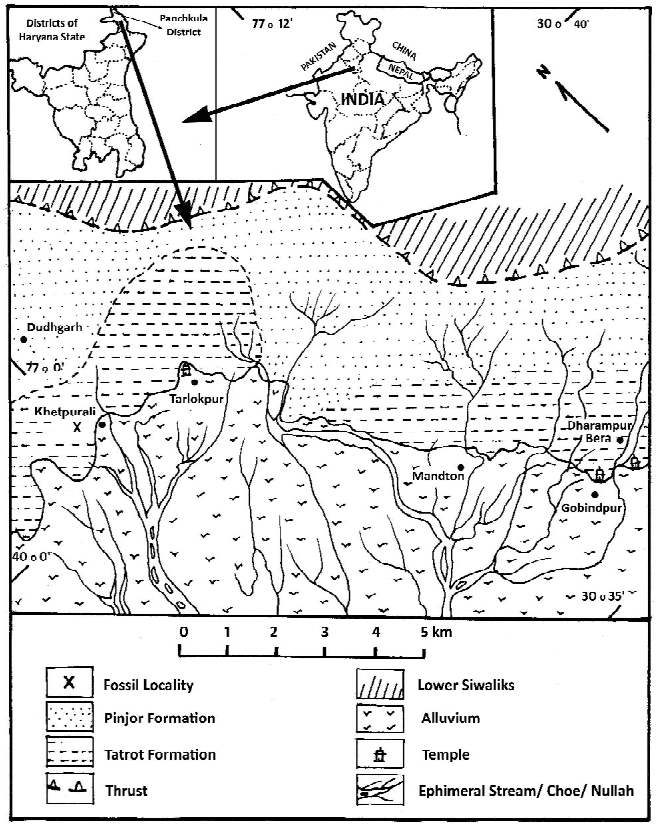

Fig. 2. Locality map of the study area.

Fig. 3 Left horn core of *Gazella lydekerri.*

the preserved portion of the orbit, it is evident that the horn-core was situated right above the orbit slightly on the medial side.

The surface of horn-core is covered by very fine longitudinal striations, which are only faintly visible, probably due to weathering. The anterior side of the horn-core shows several depressions which were probably caused by pre-burial erosion. The posterior side of the horn-core shows two furrows. The furrows are faint near the base but become progressively prominent near the tip. The horn-core displays slight medio-lateral compression and slight backward curvature.

The total preserved length of the horn-core measured along the anterior edge is 79.35 mm. The antero-posterior diameter at the base of horn-core is 23 mm and the transverse diameter is 21.80 mm. The antero-posterior and transverse diameters near the tip are 18.2 mm and 15.03 mm, respectively. The estimated length of the complete horn-core is approximately 105 mm (Table 1). The preserved part of frontal, though very small indicates that the horn-core was tilted backwards approximately at an angle of between 55° and 60°.

Table 1: Comparative measurements (mm) of horn cores of *Gazella lydekkeri*.

Measurement	Present specimen PUA/SK- 07/79	*G. lydekkeri* Pilgrim, 1937 Amer. Mus. No. 19663
Length of horn-core	84.0 +	100.0
Max. antero-posterior diameter	22.9	26.0
Max. transverse diameter	20.5	21.0

DISCUSSION

Pilgrim (1937) reported a new species, *Gazella lydekkeri* from the Dhokpathan Formation of the Middle Siwalik of Pakistan. The holotype comprises a skull and a conjoined mandible (Amer. Mus. No. 19663), which resembles the living forms of *Gazella* in having a longer and more slender skull, a higher occipital and in the shape and direction of tilt of its horn-cores. Another species, ?*Gazella superb,* that was also reported from the Dhokpathan Formation of Pakistan Siwaliks, is a rather large species with extremely large horn cores (Pilgrim, 1937).

The present specimen shows typical features of genus *Gazella*, viz. elliptical cross-section of horn-core, slight medio-lateral compression of horn-core, absence of keel on horn-core and no torsion of axis. Therefore, it has been assigned to the genus *Gazella*. It has been suggested that the type and degree of longitudinal grooving as well as the shape of the cross-section might be better species features, although their variability is not probably known (Solounias, 1981).

Out of the two species of the genus *Gazella*, known from the Siwalik, namely *G. lydekkeri* and *G. superba*, the present specimen shows close metrical and morphological similarities with the former. It differs from *G. superba* by its smaller size. *Gazella superba* is gazelline of rather large size with extremely large horn-cores (Pilgrim, 1937). The present horn-core closely resembles in size (Table- 1) with the horn-cores of the holotype skull (Pilgrim, 1937, *Amer. Mus. No*. 19663, p. 802, fig. 35). It differs from the holotype only in one respect that the groove present on its posterior aspect is bifid while in the holotype it is single. But this difference does not warrant the placement of the present specimen in a new species of *Gazella*. Therefore, the present horn-core is assigned here to *Gazella lydekkeri*. The present discovery indicates that the genus *Gazella* had a continuous record in the Indian Subcontinent from the Middle Siwalik to the Present.

ACKNOWLEDGEMENTS

Part of this work was carried out under the U.G.C. Major Project entitled "Search for Mio-Pliocene Primates and other Mammalia in the Siwaliks of Northwest India" awarded to the second author vide grant number F. No. 39-76/2010 (SR).

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Manuscript accepted June 2013