

Palaeobiology

***Tapirus priscus* Kaup, 1833 (Tapiridae, Perissodactyla) from the Udabno Site (Late Miocene, Georgia)**

Maia Bukhsianidze

Georgian National Museum, Tbilisi, Georgia

(Presented by Academy Member David Lordkipanidze)

ABSTRACT. *Tapirus priscus* Kaup, 1833 tooth (right upper premolar) was discovered in the Late Miocene vertebrate site of Udabno (Middle Kura Basin, Georgia, Southern Caucasus). The tooth is described and compared with contemporaneous tapir species – *Tapirus priscus* Kaup, 1833 (Vallesian – early Turolian; MN9-MN11) and *Tapirus pannonicus* Kretzoi, 1951 (Vallesian – possibly late Turolian, MN9-MN13). Morphology, particularly, presence of a posthypocrista and dimensions of the Udabno tooth perfectly fit the *Tapirus priscus* upper premolars (P³ or P⁴) and allows to attribute it to this species. This is the first discovery of the genus *Tapirus* from the Udabno site and Southern Caucasus in general. Stratigraphic position of the find in the lower part of the Eldari formation, below the *Udabnopithecus garedziensis* level, suggests that it represents a member of the late Vallesian faunal assemblage. This find indicates presence of humid, non-seasonal, forested environment in the area, which is in accordance with the paleogeographic and paleobotanical data. © 2019 Bull. Georg. Natl. Acad. Sci.

Key words: *Tapirus priscus*, Late Miocene, Udabno

During the expedition of October 2017 in the Udabno site, numerous fossil vertebrate remains were collected from the Late Miocene Eldari formation (this formation is correlated with the Khersonian sub-regiostage of the Eastern Paratethys, ca. 9.5 – 7.5 Ma). The tooth found during this expedition, described below, belongs to a tapir and represents the first find of this mammal in the Late Miocene of the Southern Caucasus.

Materials and Methods

The fossil material, right upper premolar of a tapir, described in this paper comes from the Udabno site,

stored in the Simon Janashia Museum of Georgia, Georgian National Museum, collection number 32-2013/1106. Systematics follows McKenna and Bell [1]. Measurements were made with a digital calliper. Terms and measurements are defined in Fig. 1. Measurements are expressed in mm.

Description

The tooth (Fig. 2) has a complete crown and most of the lingual root; it is moderately worn. This is a lophodont, brachiodont tooth, with a sub-rectangular outline from the occlusal view; buccal cones are higher than lingual. The metaloph is somewhat

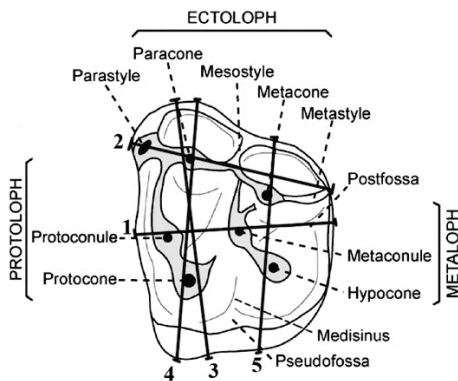


Fig. 1. Tooth terminology for perissodactyls (Modified from Scherler et al. [2]), left upper second molar: 1=length (L), 2=length of ectoloph (Lect), 3=width (W), 4=width across para and protocone (Want), 5=width across meta- and hypocone (Wpost).

shorter than the protoloph; mesial edges of proto- and metaloph stand about at right angles to the ectoloph, they are not connected lingually. The para- and metacone are well developed, they are about equal in size and display pillars on the buccal wall. The parastyle is large and prominent, its height is somewhat lower than the paracone and is located along the same line as the paracone and metacone. The metastyle is strong, there is no sign of mesostyle. A very weak posthypocrista runs down obliquely to the distal cingulum on the distal wall of the metaloph. A weak ectocingulum is developed below the mesostyle and metacone, it does not extend beyond the latter cone. Weak but clear cyngulum is present on the distal and mesial sides. An endocingulum appears only at the pseudofossa.

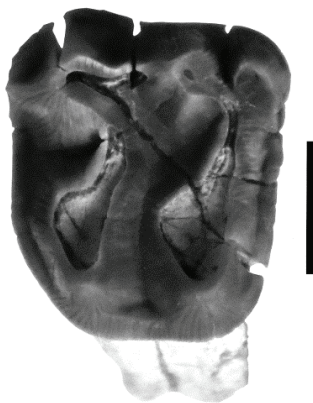


Fig. 2. *Tapirus priscus* right P3 or P4 from Udabno site, #32-2013/1106; bar – 10 mm.

Comparison and Discussion

The general morphology of the tooth displays traits, such as, brachiodonty and bilophodonty, pillar-like prominent parastyle, bulging paracone and metacone, parallel and lingually unconnected proto- and metaloph, which identify it as a tapir tooth. Further more, the sub-rectangular outline indicates that it is an upper premolar, either P³ or P⁴. Since the find comes from the Eldari formation (in the lower part of it), which is correlated with the Khersonian sub-regiostage (-9.5-7.5 Ma) the comparative sample for the Udabno tooth is rather well defined and includes following Late Miocene forms from the Western Eurasia: *Tapirus priscus* Kaup, 1833 (Vallesian – early Turolian; MN9-MN11) and *Tapiriscus pannonicus* Kretzoi, 1951 (Vallesian – possibly late Turolian, MN9-MN13).

In general, there is a remarkably small degree of variation in dental morphology across different species of the Late Miocene and extant tapirs. Species identification in the case of dentition, as a rule, relies mainly on dimensions. Morphologically, only presence of posthypocrista on the upper P³ and P⁴ in *T. priscus* distinguishes this relatively large species from the smaller *T. Pannonicus* [4]. Morphology, particularly, presence of a posthypocrista and dimensions of the Udabno tooth (Table) perfectly fit the *Tapirus priscus* upper premolars (P³ or P⁴) and allows to attribute it to this species.

Tapirus priscus is a typical Vallesian form of Europe, which survived into the early Turolian. The last record of *T. priscus* is from the Dorn-Dürkheim 1, Germany, MN11; [5]. Fossils in the Udabno site come from the different stratigraphic levels, and in terms of European Land Mammal Ages embrace latest Vallesian and early Turolian – MN10-MN11 [6, 7]. The discussed tooth comes from the lower part of the Eldari formation from Udabno 1 of Gabunia et al. [6], below the *Udabnopithecus garedziensis* level and can represent a member of the late Vallesian fauna.

Table. Measurements of P^{3,4} of *Tapirus priscus* and *Tapiriscus pannonicus* compared with Udabno specimen. Eppelsheim data are from Guérin and Eisenmann [3]; Dorn-Dürkheim data from Franzen [4], number of specimens per measurement is indicated in parenthesis. Measurement abbreviations see in Fig. 1

Taxon, tooth, site, specimen number	L	Lect	W	Want	Wpost
<i>Tapirus priscus</i> , P ^{3,4} ; Udabno (32-2013/1106)	19.2	20.2	22.9	22.4	23.1
<i>Tapirus priscus</i> , P ^{3,4} ; Dorn-Dürkheim 1 (SMF-DD 523)	20.40 (1)		23.37 (1)	23.21 (1)	23.47 (1)
<i>Tapirus priscus</i> , P ³ ; Eppelsheim	19.0-22.5 (2)			21.0-25.5 (2)	22.0-26.0 (2)
<i>Tapirus priscus</i> , P ⁴ ; Eppelsheim	18.5-22.0 (3)			22.5-26.5 (3)	21.5-26.0 (3)
<i>Tapiriscus pannonicus</i> , P ³ ; Dorn-Dürkheim 1 (DD 0442)			16.04 (1)	15.84 (1)	
<i>Tapiriscus pannonicus</i> , P ⁴ ; Dorn-Dürkheim 1 (DD 0442)		14.95 (1)	18.39 (1)	18.5 (1)	17 (1)
<i>Tapiriscus pannonicus</i> , P ^{3,4} ; Dorn-Dürkheim 1	14.52-16.97 (13)	12.47-17.08 (14)	15.26-21.05 (12)	15.15-20.19 (12)	13.5-17.68 (10)

Environmental preferences of the fossil tapirs did not differ from their extant counterparts. They were and are inhabitants of humid environments, forests close to waters. From paleogeographic point of view, Udabno site was rather close to the coastal zone of the Kura Bay – a westward extension of the South Caspian Basin [8], while available paleobotanical data from the Iori valley [9, 10] point to the presence of gallery and coastal forests with subtropical elements.

Conclusion. New faunal element *Tapirus priscus* was discovered in the Udabno fossil vertebrate site in the

lower part of the Eldari formation. Stratigraphic position of the find in the lower part of the Eldari formation, below the *Udabnopithecus* level, suggests that it can represent a member of late Vallesian fauna. This is the first discovery of tapir in the Late Miocene of the Southern Caucasus. This find indicates presence of humid, non-seasonal, forested environment in the area, which is in accordance with the paleogeographic and paleobotanical data.

The research was funded by the Shota Rustaveli Science Foundation of Georgia, project #217626.

პალეობიოლოგია

Tapirus priscus Kaup, 1833 (Tapiridae, Perissodactyla) უდაბნოს ადგილსაპოვებლიდან (გვიანი მიოცენი, საქართველო)

მ. ბუხსიანიძე

საქართველოს ეროვნული მუზეუმი, თბილისი, საქართველო

(წარმოდგენილია აკადემიის წევრის დ. ლორთქიფანიძის მიერ)

უდაბნოს გვიანმიოცენურ ხერხემლიანთა ადგილსაპოვებელში (მტკვრის შუა აუზი, საქართველო, სამხრეთ კავკასია) ნაპოვნი იქნა *Tapirus priscus*-ის კბილი (ზედა, მარჯვენა პრემოლარი). ნამარხი აღწერილი და შედარებულია ტაპირის თანადროულ სახეობებთან – *Tapirus priscus* Kaup, 1833 (გავრცელების დიაპაზონი ვალეზიური – ადრეთუროლიური; MN9-MN11) და *Tapiriscus pannonicus* Kretzoi, 1951 (ვალეზიური – შესამლოა, გვიანთუროლიური; MN9-MN13). უდაბნოს კბილის მორფოლოგიური თავისებურებები, კერძოდ, პოსტპიპოკრისტას არსებობა და ზომები *Tapirus priscus*-ის ზედა პრემოლარს (P³ ან P⁴-ს) შეესაბამება და იძლევა საშუალებას, რომ უდაბნოს ნამარხი აღნიშნულ სახეობას მივაკუთვნოთ. ეს არის ტაპირის პირველი აღმოჩენა უდაბნოს ადგილსაპოვებელში და ზოგადად, სამხრეთ კავკასიაში. აღნიშნული ნამარხის სტრატეგრაფიული დონე – ელდარის წყების ქვედა ნაწილი, *Udabnopythecus garedziensis*-ის დონის ქვევით, მიუთითებს იმაზე, რომ ტაპირი უდაბნოს გვიანვალეზიური ფაუნის წევრი იყო. მისი არსებობა ჰუმიდურ, არასეზონურ, ტყით დაფარულ პალეოგარემოზე მეტყველებს, რაც ეთანხმება უდაბნოს მიდამოების შესახებ არსებულ პალეოგეოგრაფიულ და პალეობოტანიკურ მონაცემებს.

REFERENCES

1. McKenna M.C., Bell S.K. (1997) Classification of mammals above the species level. Columbia University Press, New York.
2. Scherler L., Becker D., Berger J-P. (2011) Tapiridae (Perissodactyla, Mammalia) of the Swiss Molasse Basin during the Oligocene-Miocene transition. *J. Vert. Paleont.*, 31: 479–496.
3. Guérin C., Eisenmann V. (1994) Les tapirs (Mammalia, Perissodactyla) du Miocène supérieur d'Europe occidentale. *Geobios*, 27, 1: 113–127.
4. Spassov N., Ginsburg L. (1999) *Tapirus balkanicus* nov. sp., nouveau tapir (Perissodactyla, Mammalia) du Tirrolien de Bulgarie. *Ann. Paléontol.*, 85, 4: 265-216.
5. Franzen J.L. (2013) The tapirs (Mammalia, Perissodactyla, Tapiridae) from the Late Miocene (early Turolian) of Dorn-Dürkheim 1 (Germany, Rheinhessen). *Palaeobio. Palaeoenv.*, 93: 171-189.
6. Gabunia L.K., Gabashvili E.G., Vekua A.K., Lordkipanidze D. (2001) The Late Miocene hominoid from Georgia. In: L. de Bonis, G.D. Koufos, and P.J. Andrews (eds.), Hominoid evolution and climate change in Europe. Vol. 2: phylogeny of the neogene hominoid primates in Eurasia, 316–325. Cambridge University Press, Cambridge.
7. Bukhsianidze M. and Koiava K. (2018) Synopsis of the terrestrial vertebrate faunas from the Middle Kura Basin (Eastern Georgia and Western Azerbaijan, South Caucasus). *Acta Palaeontologica Polonica*, 63, 3: 441–461.
8. Koiava K., Maissuradze L., Strasser A., Shatilova I., Kvaliashvili L. and Glonti V. (2012) Palaeogeography of the Sarmatian of Eastern Georgia. *Bull. Georg. Natl. Acad. Sci.*, 6, 3: 91–98.
9. Fataliev R.A. (1964) Verkhnesarmatskaia flora gory Katar v mezhdurech'e Kury i Iori, p. 17, Synopsis of the PhD Thesis, Komarov Botanical Institute, L. (in Russian).
10. Kokolashvili I., Shatilova I., Bukhsianidze M. (2018) The first pollen data from the Upper Sarmatian Deposits of the Chachuna 2 Section (Eastern Georgia). *Bull. Georg. Natl. Acad. Sci.*, 12, 4: 93-99.

Received January, 2019