

ANTLER OF FEMALE RED DEER (*CERVUS ELAPHUS* L. 1758) IN BULGARIA

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Abstract

It was observed an appearance of antler in female Red deer (*Cervus elaphus*). The emergence of right antler was established in early January 2015. At that very time it was at the length of 10 cm. The antler was covered with velvet and was not changed. The hind gave birth to a normally developed female yearling in 2014. The hind was shot in November 2015, and then the antler was 18 cm. The internal organs were normal and an embryo in the uterus was found formed. Craniometrical measurements fell within the normal for Red deer. Probable cause of this case is the occurrence of changes of hormone levels.

Key words: antlers, Cervidae, craniometrical measurements, hind.

The antlers are one of the secondary sexual characteristics in males of all generations of the family Cervidae, except genus *Rangifer*, where both sexes have antlers (Bubenik and Bubenik 1990). Growth of antler antlers in female deer was achieved with other genera of family Cervidae after testosterone impacts (Jaczewski 1976). The antlers that appear as a result of this usually do not undergo the transformation of normal antlers and are covered with velvet constant (Bubenik et al. 1982).

There are numerous descriptions of female deer with antlers and most of them belong to the genera *Capreolus* and *Odocoileus*. The presence of antler antlers in female to genus *Cervus* is quite rare, probably due to multiple pregnancy, and it is rarer compared to the species of genera *Capreolus* and *Odocoileus* (Bubenik 1966, Bubenik et al. 1982, Goss 1983, Bubenik and Bubenik 1990). Cases of hinds with antlers were described in Wapiti (*Cervus*

canadensis (Erxleben 1777)), Sika deer (*Cervus nippon* Temminck 1838) and only several cases in Red deer (*Cervus elaphus* L. 1758) (Bubenik and Bubenik 1990).

Antler of a female Red deer with a length of 18 cm grew after transferring from one hunting region to another hunting area (Fig. 1).

The female was caught by an Iskar Hunting ranch (right bank of Iskar Dam) along with 31 Red deer (6 males and 26 females). They were in a quarantine corral in hunting area in Sashtinska Sredna Gora Mountain and stayed there from February to September 2014. Then the herd was released into an acclimation corral with 540 ha in same hunting area. The red deer were not manipulated with pharmaceuticals to stimulated growth of antlers and in acclimatizing of them was used only natural food. The emergence of right antler was established in early January 2015. At that very time it was at the length of 10 cm. The

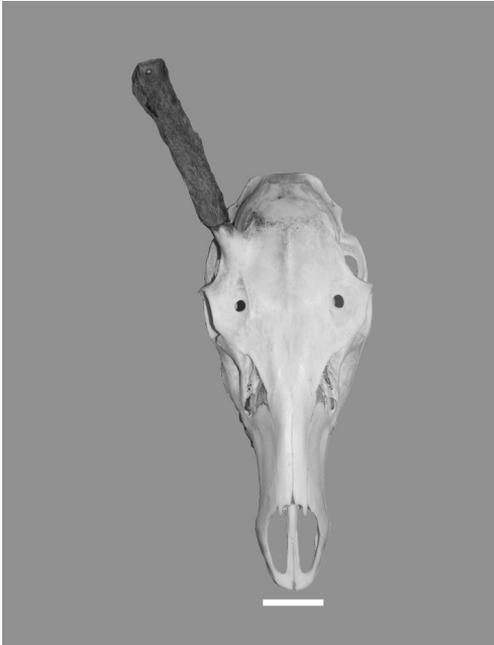


Fig. 1. Skull of female Red deer (*Cervus elaphus* L.) with the right antler.

Note: Scale bare – 5 cm. Photo: Gradimir Gruychev.

antler was covered with velvet and was not changed. In 2014, the hind gave birth to a normally developed female yearling. The female deer was shot in November 2015, and the length of antler was 18 cm. It was at age of 10 according to Aydman method (Botev and Ninov 1992). The internal organs were normal in appearance and an embryo in the uterus was found formed. In the skull there are no signs of trauma or old injuries that can cause the appearance of the antler. Craniometrical measurements (Table 1) of the skull fall in the average ones, measured for Bulgarian populations (see Botev 1981, Markov 2014).

The appearance of antlers in hind of Red deer is associated with higher testosterone levels (Mattioli 2011). Growth antlers in female Red deer are achieved after continuous testosterone treatment every

Table 1. Craniometrical measurements of the skull.

| Craniometrical measurements | Value, mm |
|-----------------------------|-----------|
| Total length | 382.7 |
| Condylobasal length | 377.0 |
| Basal length | 353.1 |
| Total breadth | 159.4 |
| Zygomatic breadth | 148.5 |
| Interorbital distance | 120.3 |
| Rostrum length | 233.0 |
| Nasal length | 136.7 |
| Upper tooth row length | 107.9 |
| Neurocranium breadth | 95.6 |
| Mandible length | 317.2 |
| Lower tooth row length | 115.9 |
| Diastema length | 100.4 |

Note: Measurements adapted from Lowe and Gardiner (1974) and Peshev et al. (2004).

vvtwo weeks (Li et al. 2003). Increased of hormone levels in female deer in nature is caused by presence of genitals characteristic of males (Haugen and Mustard 1960, Mierau 1972), ovarian atrophy (Bubenik and Bubenik 1990) or tumors in the adrenal cortex (Goss 1983). The described case in this research is the first for Bulgarian Red deer population and probable cause of the antler is the occurrence of changes in hormone levels.

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