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**BIRTH RATE OF EUROPEAN BISON
(BISON BONASUS BONASUS L. 1758)
IN ROMANIA IN THE 2004 – 2020**

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ABSTRACT

European Bison population in Europe decreases due to the habitat damage, deforestation and lack of food. The males in the wild are usually most reproductive at an age of 6 to 12 years. As to females, they normally reach maturity by the age of 3 years. Reproduction intensity depends much on the amount and quality of food. The reproduction time slows down by the lack of food. Biological mechanism inhibits reproduction of the young that are not able to get food for survival that is for the good growth and right development. This mechanism works vice versa: the reproduction potential comes to the fore when there is plenty of food.

The data from the European Bison Pedigree Book (EBPB) were used to analyse the natality of the European Bison in Romania. There were examined the total European Bison number, the gender ratio with number of born calves. The gender ratio of new-born calves was also analysed.

There were 1.684 European Bison in Romania at the observed period of time. 912 of it were females (54,16%), and the rest of population were males (45,44%). The females number for the year of 2019 is not complete, and in the official EBPB document for the Armenis Forest, where European Bison live in the wild, females and males number is not indicated at all. Based on these incomplete data, the proportion of male calves is 55,07% and female calves is 44,93%.

Key words: European Bison, reproduction, population, natality rate.

INTRODUCTION

The males in the wild are more active in the sense of reproduction at an age of 6 to 12 years (Krasinska Malgorzata, Krasinski A.Z., 2008). There might be exceptions. The authors state that there was a 17 years old reproductive male registered in Białowieża national park in Poland. As to females, they usually reach maturity by 3 years old age. Calving of 2 years old females have been also known. The authors state that females keep reproductive quite longer than males. It was noted that cows calve at an age of 19 and 22 years old (Koch 1956, cit. Krasinska Malgorzata, Krasinski A.Z., 2008).

According to Krasinska Malgorzata, Krasinski A.Z. (2008) 63-91% of females calves every year. They say that there was a female that calved every year for 14 years.

Reproduction intensity depends much on amount and quality of food. In case of its lack the reproduction time slows down. Biological mechanism inhibits reproduction of the young that are not able to get food for survival, that is for the good growth and right development. And reproductive potential is quite high when there is plenty of food.

Having studied the European Bison natality in two herds in Germany (Urošević, Mandić, Dameski and Stanišić, 2022) in the years 2000 – 2018, they learned that females mating in the first group occur at an

average age 42,54 months with variation interval from 23 to 84,5 months. The average age in the second group was 31,67 months with variation interval from 39,5 to 66,93 month. The average calves number in the first group was 7, and in the second group 13. As to the gender ratio: 16 males (48,48%) and 17 females (51,51%) were born in the first group. 16 males (40,0%) and 24 females (60%) were born in the second group.

While studying wisent population in Caucasus at the period from 1960 to 1989, Trepet (2008) says that the adult females ratio in the population is 46% – 58,8%.

MATERIALS AND METHODS OF THE STUDY

The data from the European Bison Pedigree Book (EBPB) were used to analyse the natality of the European Bison in Romania. There were examined the total European Bison number, the gender correlation with number of born calves. The gender ratio of new-born calves was also analysed.

RESULTS AND DISCUSSION

Table 1 shows the total European Bison number and gender by years for the research period from 2003 to 2020 in Romania. Animals number correlation 1.1. by years.

Tab.: 1. Total European Bison number and gender correlation

Year	Total animals	Females	%
2003	5	2	40,00
2004	7	5	71,43
2005	6	4	66,70
2006	15	8	53,33
2007	16	8	50,00
2008	59	35	59,32
2009	69	40	57,80
2010	81	47	58,02
2011	86	49	56,98
2012	97	56	57,73
2013	102	57	55,90
2014	124	63	50,81
2015	128	74	57,81
2016	157	88	56,05

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2017	166	93	56,02
2018	167	94	56,29
2019	186	103	55,38
2020	213	86	40,37
Total	1.684	912	54,16

There were 1.684 European Bison at the observed period of time. 912 of them were females (54,16%), that means 45,44% males of the total number. The females number in 2019 is not complete, and in the official EBPB document for the Armenis Forest, where European Bison live in the wild, females and males number is not indicated at all.

The total calves number born in the observed period of time and gender correlation are given in the Table 2.

Tab: 2. Total calves number and the number of calves by gender

Year	Total calves born	Male	Female
2003	1	-	1
2004	-	-	-
2005	-	-	-
2006	1	-	1
2007	5	1	4
2008	3	-	3
2009	1	-	1
2010	-	-	-
2011	6	4	2
2012	5	3	2
2013	10	8	2
2014	6	3	3
2015	10	6	4
2016	7	5	2

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2017	5	3	2
2018	9	5	4
2019	3	-	3
2020	6	4	2
Total	69	38	31

It is evident from the incomplete data, as it was mentioned above, that the rate of male calves is 55,07% and of female calves is 44,93%.

It is quite clear from the first glance at the Table above that there was something wrong with the reproduction. It is not possible to analyse the reasons for this phenomenon now, we can only state the fact.

The following Table shows the correlation of the females number with the total calves number.

Tab.: 3. Total females number correlation with the calves number

Year	Total females	Calves number	%
2003	4	1	25,00
2004	5	-	-
2005	4	-	-
2006	8	1	12,50
2007	8	5	62,50
2008	35	3	8,57
2009	49	1	2,04
2010	47	-	-
2011	49	6	12,24
2012	56	5	8,93
2013	57	10	17,54
2014	63	6	9,52
2015	74	10	13,51
2016	88	7	7,95
2017	93	5	5,38

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2018	94	9	9,57
2019	103	3	2,91
2020	86	6	6,98
Total	912	93	10,18

During the survey time there were no calves natality registered in 3 certain years. For the years 2004 and 2005 it might be explained so that only few European Bison females were kept in the Zoo then, but the situation in 2010 when there were 47 females is not quite clear.

CONCLUSION

For the survey period of time from 2003 to 2020 the European Bison reproduction in Romania was on quite unsatisfied level. Natality rate for calves was 10,18%. Similar results were also received in the other countries. Krasinska Malgorzata and Krasinski A.Z. (2008) state that the lowest natality rate 9,9% was registered in Poland in 1986, whereas in 1961 it was 32,3%.

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