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THE POPULATION OF RED DEER (*CERVUS ELAPHUS* L., 1758) IN TULCEA COUNTY (ROMANIA)

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Abstract. The presence of the Red Deer in the North-western parts of Tulcea County is an example of the natural expansion of a species spreading area. In North Dobrogea, this mammal first occurred only forty years ago. The first specimens were spotted on Cocoşul Hill (on the territory of Niculiţel area) in 1970. Peak numbers (68 individuals) were registered in the spring of 1987. The deer population (67 specimens in 2007) of this county extended along 10 km from West to East and 20 km from North to South over a total of 23,000 ha (55% of which was forest land) in the East of the Măcin Mountains and in the West of the Niculiţel Plateau.

Résumé. La présence du cerf rouge (*Cervus elaphus*) dans le nord-ouest du département Tulcea constitue un exemple d'extension naturelle de l'aire de distribution d'une espèce. Ce mammifère n'est apparu dans le nord de la Dobrogea que depuis 40 années. Les premiers exemplaires ont été observés en 1970 à Dealul Cocoşului situé sur le territoire de la commune Niculiţel. Le plus grand nombre en a été enregistré au cours du printemps de l'année 1987, quand on y a observé 68 exemplaires. En 2007 l'aire de la population de cerfs (67 exemplaires) du département de Tulcea s'étendait sur environ 10 km de l'ouest vers l'est et 20 km du nord vers le sud, en tout environ 23 000 ha (dont 55% de terrain forestier) à l'est des Monts Măcin et à l'ouest du Plateau Niculiţel.

Key words: fauna, mammals, Red Deer, Tulcea County, Dobrogea Plateau, Romania.

Origin and presence

Some forty years ago, a new mammal, the Red Deer (*Cervus elaphus* L., 1758) was added to the North-Dobrogea Plateau fauna (Geacu, 2004).

Its presence in this area is a telling proof of the natural penetration of a species from one region to another. It appears that the first specimens have originated from the Vrancea Subcarpathians (the Curvature Carpathians area between the Slănic (Buzău) and the Troţuş valleys), a region closest to North Dobrogea (110 km distance in straight line). The North-Dobrogea deer population is of exceptional cynegetic value, being a typical Carpathian species (Almăşan, 1990: 11), a view supporting our own opinion concerning its origin.

Both Barbu (1990) and Almăşan (op. cit.) uphold the idea that the Tulcea-based deer originate from the Curvature Carpathians. Murariu (2008) explains their presence in this county by the species habit to migrate in autumn to the plain, which, in this case, is only 100 km away.

The specimens are supposed to have migrated alongside the Putna and/or Milcov rivers and farther on through the forests lining the Siret and the Danube rivers (across which they swam or traversed on ice when the water was frozen) in the North-West / South-East direction. This assertion is sustained by the presence of a female deer seen for a few months in Torceşti Forest (600 ha) – Siret Floodplain, Galaţi County, in 1975 (it was for the first time that the species was reported in that county). Then again, a male appeared in 2000–2001, both specimens coming from the Măgura Odobeşti forests 40 km to the North-West.

In Tulcea County, the first animals were observed in 1970 on Niculițel hunting funds, close to Cocoș Monastery (Barbu, 1971; Almășan, op. cit.), average altitude 200 m (Fig. 1). Later on, they were spotted in the neighbouring zones to the West and South where they actually settled.



Fig. 1 - Red Deer specimens present in the North-western parts of Tulcea County. 1, Cocosul Hill, close to the homonymous monastery, where deer were first spotted in Tulcea County; 2, Maximum deer spreading area in North Dobrogea (1979-1991); 3, Current deer area; 4, Forests; 5, Settlements; 6, Upgraded road. In the box (A), probable deer migration route from the Curvature Carpathians to the North-western parts of Tulcea County.

In the vast forests that stretch out at the contact between the Niculițel Plateau and the Măcin Mountains (physical-geographical units separated by the Taița Valley), the Red Deer found a good ecological niche for survival. It is the quiet forested areas crossed by running waters that are favoured by the Red Deer, and this is just what North-Dobrogea offered them from West to East (10 km) and from North to South (20 km) basically compact, little circulated woods with no upgraded road running through them and only one village, Nifon (formerly Țiganca) that lies inside the forested area. The absence of water and the grazing

grounds of neighbouring areas prove restrictive for this mammal. The North-Dobrogea forests consist of: *Quercus pedunculiflora*, *Q. pubescens*, *Q. dalechampii*, *Carpinus orientalis*, *C. betulus*, *Tilia tomentosa*, *Fraxinus excelsior*, *F. ornus*, *Pinus* sp., etc.

The presence of the Red Deer in the north-western part of Tulcea County constitutes an example of animal migration on the vertical, from 700-1000 m in the Subcarpathians to 80-450 m in the North-West of Dobrogea.

Population dynamics

The exact information dates from the spring of 1971, when 11 deer (5 males and 6 females) were observed on the Niculițel funds. Shortly after, they would move 20 km southwards Atmagea funds, where 4 males and 3 females were numbered in March 1973. A note in the Ciucurova Forest Range of 1974 reads: „7 deer, whose origin is not precisely known, have been living for the last few years on this range” (p. 194).

Subsequently, the population of the Atmagea hunting funds kept growing, so that in 1976 they had 18 deer (10 males and 8 females), a figure maintained over the next year, too. As a matter of fact, most North-Dobrogea deer lived on these funds until 1980.

In 1975, it was for the first time that 4 deer (one male and 3 females) had reached the forests South-East of Greci Village (the homonymous hunting funds). In March 1977, a pair from Atmagea would go back to Niculițel, and was spotted on the Alba-Celic funds (lying in-between the above two); the next year they arrived in the forests South of Niculițel, where number of deer kept growing in the following years up to 18 specimens (6 males and 12 females), in 1982. The annual number of individuals on the Greci funds was no higher than 4-6 animals along 1975-1982 (Tab. 1).

The 1981 Game Assessment Report of the former Tulcea Forest Inspectorate mentioned the following: „definite mating sites could not be singled out, because foresters on the ground usually do not recognise the sounds which males use to emit at mating time”.

Table 1

Red Deer effectives in the hunting funds over 1971-2006 (specimens).

Year/Funds	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981
Niculițel	11	3	1	-	-	-	2	2	2	6	9
Atmagea	-	-	7	10	16	18	18	15	15	13	9
Țiganca	-	-	-	-	-	-	-	-	3	3	3
Greci					4	4	4	4	4	5	5
Total	11	3	8	10	20	22	24	21	24	27	26

Year/Funds	1982	1983	1984	1985	1986	1987	1988	1990	1992	1993
Niculițel	18	6	10	7	23	20	10	17	-	-
Atmagea	21	20	15	7	8	3	10	8	6	9
Țiganca	3	16	19	19	28	38	17	15	45	31
Greci	6	5	6	6	6	7	7	7	7	7
Total	48	47	50	39	65	68	44	47	58	47

Year/Funds	1994	1995	1996	1997	1998	1999	2000	2001	2003	2006
Atmagea	11	10	12	10	6	-	-	-	-	-
Țiganca	46	23	30	24	34	15	22	22	23	47
Greci	7	7	7	9	9	6	14	15	18	20
Total	64	40	49	43	49	21	36	37	41	67

In Tulcea County, from 11 deer in 1971, numbers rose to 27 in 1980, they becoming 2.4 times more numerous. Nearly half of them lived in the Atmagea area. While in 1971, deer used to be seen only on the Niculițel hunting funds, in 1980 they were spread out on 4 funds (Niculițel, Atmagea, Țiganca and Greci).

In the next decade (1981-1991) the deer populated the same 4 funds being 4.3 times more numerous in 1982 than in 1971. Here it is the distribution of the 48 specimens: Atmagea – 43.7%, Niculițel – 37.5%, Greci -12.5% and Țiganca – 6.3%.

The findings revealed the following:

- the growth rate was the highest: at Țiganca 3 individuals in 1982 and 38 in 1987 (12.6 times more);

- numbers fluctuated between 6 and 23 at Niculițel with a peak in 1986 (11 males and 12 females). The last year of their presence here was 1991 (some 20 individuals, afterwards they migrated to Țiganca);

- numbers fell down to 3 at Atmagea (2 males and one female) in 1987;

- there were between 5 and 7 specimens at Greci;

- the slight numerical decrease on Niculițel and Atmagea funds was due to the heavy winter of 1984/1985.

The maximum number of the North-Dobrogea deer population was registered in the spring of 1987: 68 specimens, 56% of which lived on the Țiganca hunting funds.

In 1990, Almășan mentioned having seen over 20 deer horns on the ground. In the Fântânică Brook Valley (Cerna Forest Range), the horns he found weighted more than 9 kg and were 110 cm long, which was a valuable trophée (235 points CIC). Those found close to Niculițel had 7.5 kg (215 CIC points). He put forward a proposal for „a forest-hunting complex in North-Dobrogea destined to the intensive management of the Red Deer as main species, with Roe Deer and Wild Boar as by-species”.

No more deer on the Niculițel and Atmagea hunting funds in 1992 and 1999, respectively. An exception made one male accompanied by three females seen in the forest located North of Atmagea in March 2005.

At Țiganca the population fluctuated between 22 (in 2000-2001) and 47 specimens (in 2006); at Greci, it would grow after 1997 up to 22 individuals in 2005 (6 males and 16 females).

In the spring of 2006, Tulcea County had 67 deer (14 males and 53 females), which represented a six-times increase compared to 1971 only on the Țiganca and Greci funds.

Murariu (2008) identified this mammal (by footprints, faeces and hair) in the Măcin Mountains National Park (in the Seaca Valley, in the maize fields East of Cerna, on the path linking the Călcata Peak to the Lupilor Hill, and in the Piatra Roșie and Fagilor valleys) approximating the number of deer roaming in the Park area to 20. In 2007, investigations conducted within the Park by Murariu and Geacu confirmed the presence of the species in the forests stretching out North-West of

Nifon Village (Forest Unit IV of the Cerna Forest Range), deer footprints and bones being found in parcel 27 and 53, respectively.

The population's sex-ratio was variable (Tab. 2).

Table 2

Sex-ratio values of the Red Deer population in Tulcea County (1971-2006).

Year	1971	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982
M/F	1/1.2	1.6/1	1/1.5	1.2/1	1/1	1.1/1	1/2.1	1/2.1	1/1.9	1/2.3	1/2.5
Year	1983	1984	1985	1986	1987	1988	1990	1992	1993	1994	1995
M/F	1/2.6	1/2.5	1/2.3	1/2.4	1/2.8	1/2.4	1/2.4	1/1.1	1/1.7	1/1.2	1/1.8
Year	1996	1997	1998	1999	2000	2001	2006				
M/F	1/1.4	1/1.8	1/3.1	1/2.5	1/1.2	1/1.3	1/3.7				

There were years when males outnumbered females, e.g. in 1973 (5 males and 3 females) and 1975 (11 males and 9 females).

In 2006 the sex-ratio appeared to be completely unbalanced: 53 females and only 14 males.

Along time, few deer have been harvested from North Dobrogea. The first specimens were one female which came from Niculițel hunting funds and one male from Atmagea funds. In 1978, another male was harvested from the latter funds.

In 1982, 3 deer (one male and 2 females) were found dead at Atmagea. A female, presumably arrived from the Atmagea forests, was running over on the Măcin-Babadag highway (1988), not far from Căprioara tourist stopover (Horia Commune). On January 3, 1995, they found dead deer on parcel 27, Forest Unit IV of the Cerna Forest Range. In 1997, a 378 kg-deer was harvested not far from Hamcearca Village. Between 1992 and 2004, a number of 9 deer were hunted down in Țiganca hunting funds (one in each of the 1992, 1998 and 2002 years, and 2 in each of the years 2001, 2003 and 2004).

It should be remembered that until the early 1980s, the North-Dobrogea ecosystems had been inhabited by wolves, jackals appearing one decade later. It is highly probable that these two carnivorous species have, in time, contributed to some of the numerical fluctuations registered in the deer population. For example, in 2008, the remains of a female deer eaten by wolves were found at Țiganca.

Investigations on the ground revealed variously-sized groups of deer, e.g. 23 specimens on Țiganca hunting funds. Since the deer effectives were not very large, the damaged they caused was quite insignificant. Nevertheless, peeled off elm bark was frequently seen at Țiganca.

In 1992, a few deer, originating from the Măcin Mountain woods, were spotted eastwards as far as the Danube Floodplain in Brăila County (at a distance of 12 km).

Conclusions

The presence of the Red Deer in the North-western parts of Tulcea County is an example of the natural expansion of a species spreading area. In North Dobrogea, this mammal first occurred only forty years ago.

In the beginning, the deer arrived from the Niculițel Plateau (1970) on the homonymous hunting funds; in 1973, they migrated to Atmagea funds (Babadag

Plateau), a place which registered the highest number of these animals throughout the county until 1980. From 1975, some specimens were seen also on the Greci funds, others returned to Niculițel (1978); from 1979 on, they were signalled at Țiganca as well. No deer occurred at Niculițel since 1992, nor at Atmagea, since 1999.

So, it is only at Țiganca and Greci funds, with a richly forested environment and the quiet needed by the species to survive, that deer have been living over the past decade.

Approximating the species spreading area in terms of the size of the hunting funds they had been recorded on, we could say that their area kept enlarging from ca 8,000 ha (out of which 5,300 ha (66%) forest land) in an early stage (1971, Niculițel funds) to 44,000 ha (out of which 23,500 ha (53%) forest land) over 1979-1991 (when 4 funds existed: Niculițel, Greci, Țiganca and Atmagea). Since 1992, the species area amounts to some 23,000 ha (out of which 12,500 ha (55%) forest land), representing only Țiganca and Greci funds. Thus, while the area extended by 5.5 times from 1971 to 1979, values remained rather constant over 1979-1991, only to shrink by 1.9 times beginning with 1992.

In 2007, the Tulcea County area of the deer micro-population (67 individuals) covered about 10 km from West to East and 20 km from North to South, extending in the eastern part of the Măcin Mountains and in the west of the Niculițel Plateau.

POPULAȚIA DE CERB COMUN (*CERVUS ELAPHUS* L., 1758) DIN JUDEȚUL TULCEA (ROMÂNIA)

REZUMAT

Prezența cerbului comun în nord-vestul județului Tulcea constituie un exemplu de extindere naturală a ariei de răspândire a unei specii. „Vechimea” acestui mamifer în nordul Dobrogei este de numai 40 de ani. Primele exemplare au fost observate în anul 1970 pe Dealul Cocoșului de pe teritoriul comunei Niculițel. Maximul populațional s-a înregistrat în primăvara anului 1987, când s-au constatat 68 de exemplare.

În anul 2007 arealul populației de cerb (67 exemplare) din județul Tulcea se extindea pe aproximativ 10 km de la vest către est și 20 km de la nord spre sud, în total circa 23000 ha (din care 55% păduri) în estul Munților Măcin și vestul Podișului Niculițel.

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