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STUDY REGARDING THE EVOLUTION OF SOME SEDENTARY GAME POPULATIONS IN GIURGIU COUNTY

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Abstract

The purpose of this paper is to analyse the situation of some native game species in Giurgiu County, based on official assessments, using data from the Ministry of Environment. The analysis of the official data from the evaluations of sedentary game will give the possibility to assess if the data presented at the evaluations are correct and if the hunters' fears are justified. The analyses also took into account the creditworthiness keys of the hunting areas in order to perform a comparative analysis between the real and the optimal number. Following the analyses performed, and the resulting conclusions, some recommendations were formulated, among which we mention: the active involvement of the administrator of the national hunting fund by participating and supervising the evaluation actions of the sedentary game herds, or the obligation of the managers of the hunting areas to maintain an ascending trend until the optimum number is reached.

Key words*: hunting, pheasant, sedentary game, wildlife.*

INTRODUCTION

After hatching, the young bee feeds on honey in the last decade hunters from all over the country have drawn attention to declining populations of game, especially for hare and pheasant populations (Hill & Robertson, 1988).

For a period of more than half a century, the hare was the main game in Romania, due to the important share it had in the total hunting harvest, due to both large numbers and the spread of the species throughout the country (Comșia, 1961; Cotta et al., 2008).

In the last decades, the number of hares has rapidly decreased, the situation being as obvious as possible, especially for those who enjoy the practice of this noble sport, respectively hunting (Weterings, 2018).

The situation is much more obvious in the plain areas of southern Romania, areas where intensive agriculture is practiced, as is the case of Giurgiu County. The causes that led to this are many and various. It is mentioned here the intensive agriculture (large share of monoculture on huge areas, the use of machines with impressive working widths, excessive herbicide etc.), climate change (late frosts, cold rains followed by frost even during birth etc.), and increasing of raptors populations (Babutia, 1964; Cukor et al., 2018). It seems that, at present, in Romania, the pheasant took the place of the rabbit, as the main game, but we must point out that in the case of the pheasant we are dealing with the same problems.

All over the world the hunter's associations and other organizations (scientific or not), collaborate in the direction of environmental protection implicitly for conservation of biodiversity and protection of wildlife. Of course, this conservation of the environment and biodiversity cannot be carried out without maintaining a prey-predator balance, a balance whose maintenance is hampered by the protection of predator birds (which have multiplied significantly). More than that, a new predator appeared and developed rapidly - the golden jackal, which also contributes significantly to the decline of prey game populations. However, the official data that formed the basis of the study shows a very good situation, which makes us ask some questions about the veracity of the information.

MATERIALS AND METHODS

The analysed material it is represented by two prey species - pheasant and hare - and two predators species - fox and the golden jackal. It was analysed the official data from Ministry of Environment, Hunting Department, more exactly the evaluation of sedentary game in Giurgiu County area, between 2016 and 2021 years.

In order to have a better view of situation it was calculated some statistics, like average population, standard deviation, error of average, and variability coefficient.

It was taken in to account the optimal population, the real population, the hunting harvest and the number of animals approved for hunting (quota). It must specify that the hunting areas in Giurgiu County total more over 300000 ha. All this hunting area is divided in 42 hunting funds (districts at over 5000 ha each), which are managed by National Forest Authority, hunter's associations and associations for conservation of biodiversity (as in the case of the Neajlov Delta reservation).

RESULTS AND DISCUSSIONS

The situation of hare population, in Giurgiu County, between 2016-2021, is presented in Table 1.

Table 1. Dynamics of hare population in Giurgiu County, in 2016-2021 period

Year	Evaluated population	Hunted	Approved for hunting (quota)	Optimal effective
2016	31003	2384	3240	28090
2017	29831	1705	3115	28090
2018	28707	1671	2640	28090
2019	28204	1432	1785	28090
2020	27332	1252	1775	28090
2021	25934	1514	1710	28090
X	*28501.83*	*1659.67*	*2377.5*	*28090*
St. dev.	*1795.3047*	*391.4295*	*709.4143*	*0*
Sx	*802.8847*	*175.0526*	*317.2593*	*0*
CV%	*6.3*	*23.58*	*29.84*	*0*

It is obvious a descendant tendency of population as it is showed by the variability coefficient. The biggest ambiguity is given by the relatively small differences between the optimal and real numbers as presented by the official data, and which do not correspond to the reality on the ground (Figure 1). The hunted and approved number of individuals for hunt creates same ambiguity also.

In 2016, the approved number of hares for hunt (3240 individuals) represent 10.45% from evaluated population, or the real number as it calls. From this number of 3240 individuals approved to be hunted, only 2384 was hunted (73.58%), which means a share of 7.69% from the evaluated effective.

In 2017 the evaluated population has decreased with 3.78%. The number of approved individuals for hunting decreased with 3.86% which highlights the interest of the national authorities to maintain a well balanced management plan. From 3115 approved individuals to be hunted, it was harvested only 1705 which means only 54.74%. Transpose to the real (evaluated) population we talk about a share of just 5.72% in comparison with 7.69% in 2016 year.

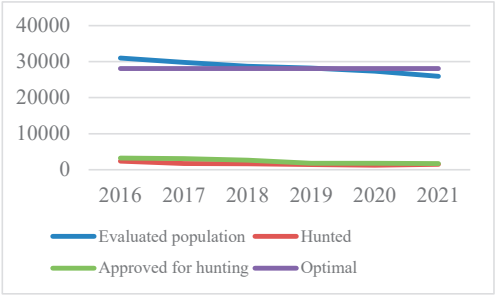

Figure 1. Hare population situation, in Giurgiu County, in 2016-2021 period

In 2018 year, the number of hunted hares decrease again with 2%, and the evaluated population with 3.77%. The share of hunted hares represents 63.30% from approved quota and 5.82% from evaluated population. At the level of 2019 year, hunted individuals represents a share of 80.22% from quota and only 5.08%. The population records a decreasing at only 1.75%.

The descending trend continue in 2020, when the population became smaller with 3.09%. The number of hunted hares is the smallest number for entire analysed period, 1252, and represent 70.54% from quota and 4.58% from real population. In 2021 it registered the smallest effective - 25934 hares, the lowest quota but not the lowest number of hunted hares - 1514 (88.54% from quota and 5.84% from evaluated

effective). This entire situation presented above, regarding hunted individuals in relation with quota and evaluated effective is much more visible in Figure 2.

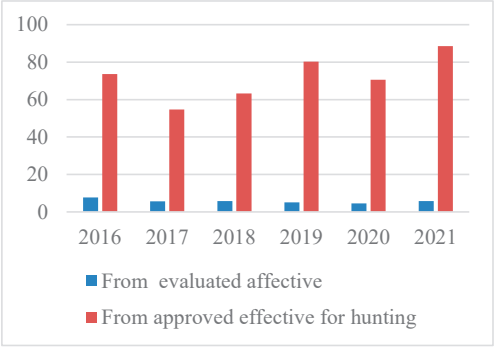

Figure 2. Situation of hunted hares as a share from quota and from evaluated effective

The pheasant dynamic situation during 2016-2021 period is presented in Table 2, and the graphic representation is presented in Figure 3.

Table 2. Dynamics of pheasant population, in Giurgiu County, in 2016-2021 period

Year	Evaluated population	Hunted	Approved for hunting (quota)	Optimal effective
2016	12843	2661	3765	3570
2017	12678	1946	3758	3570
2018	12553	2335	3630	3570
2019	12399	2709	3731	3570
2020	12243	2431	3513	3570
2021	11135	3355	3756	3570
X	*12308.50*	*2639.67*	*3625.33*	*3570*
St. dev.	*611.8143*	*611.3917*	*163.7030*	*0*
Sx	*273.6117*	*273.4227*	*73.2102*	*0*
CV%	*4.97*	*23.16*	*4.52*	*0*

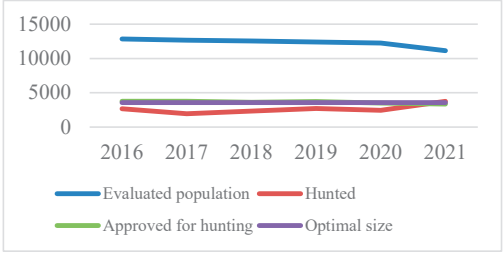

Figure 3. Pheasant population situation in Giurgiu County, in 2016-2021 period

The strangest thing comes from the enormous differences between the evaluated effective and the optimal number of pheasant. It looks like the real effective it is 3.5 times bigger than the optimal effective. In the same time, if it considers 3570 pheasant in 300000 ha it means that it is possible to see a pheasant in 100 ha (1 square kilometre) which is hilarious if it compared with what happens in other countries (Castiov, 2010; Gheta et al., 2020). It is obvious that the ranking keys for establishing the quality of hunting territories must be change at least for some species (Maftei et al., 2017).

In 2016 year, it is registered, the largest evaluated effective from entire analysed period. The hunting harvest (2661 individuals) representing 70.68% from quota and 20.72% from evaluated population. In 2017 year, the evaluated population decrease with only 1.3%. The number of hunted individuals represent 51.78% from quota and 15.35% from entire evaluated population. Year 2018 year continue in the same style: the real effective decrease insignificant with only 0.99%, the hunting harvest represents 64.33% from quota and 18.6% from evaluated population. Same indicator, hunting harvest, in the real effective (evaluated) decree se in 2019 year with 1.23% and the hunting harvest represent 72.61% from quota and 21/85% from entire evaluated population.

In 2020 and 2021 years, the population has reduced with 1.26% respectively 9.05% (biggest values registered in decreasing of population from one year to another). The hunting harvest represent 69.2% from quota and 19.86% from evaluated population in 2020 year. In 2021 year, the same indicator had a share of 89.32% from quota and 30.13% from evaluated population. This entire dynamic it is represented in Figure 4.

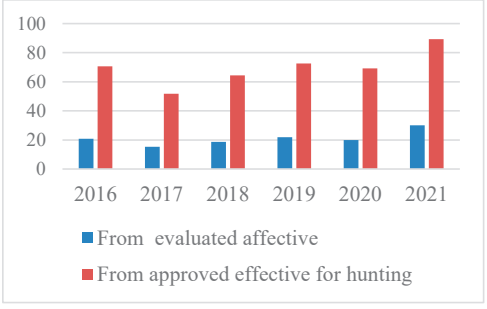

Figure 4. Situation of hunted pheasants as a share from quota and from evaluated effective

The situation, presented so far, would be just a simple presentation if we did not analyse the

evolution of most important mammal predators: gold jackals and foxes.

The evolution of fox population in Giurgiu County is presented in Table 3 and in Figure 5. From 2016 year, until 2021 year the fox population increased with 141.97%.

Table 3. Dynamics of fox population, in Giurgiu County, in 2016-2021 period

Year	Evaluated population	Hunted	Approved for hunting (quota)
2016	641	321	589
2017	899	422	775
2018	831	494	736
2019	905	583	771
2020	877	455	870
2021	910	569	877
X	*843.83*	*474*	*769.67*
St. dev.	*103.5073*	*97.7548*	*105.2533*
Sx	*46.2899*	*43.7173*	*47.0707*
CV%	*12.27*	*20.62*	*13.68*

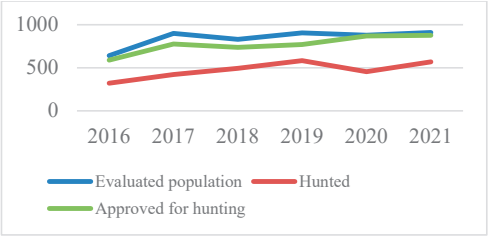

Figure 5. Fox's evolution in Giurgiu County, in 2016-2021 period

The hunting harvest represents, as an average, only 61.64% from admitted quota and just 56.17% from evaluated population, in the conditions when the hunting harvest must represent 91.2% from real (evaluated) effective.

The situation becomes more complex when it considers the number of golden jackals (Table 4, Figure 6).

The hunting harvest is negligible compared with quota. Analysing just the average value it founds a hunting harvest, which represents only 50.91% from quota and just 49.25% from entire evaluated effective, instead of 91.68%.

The situation of analysed predators and prey populations is presented, separately, in Figures 7 and 8.

Table 4. Dynamics of golden jackal population, in Giurgiu County, in 2016-2021 period

Year	Evaluated population	Hunted	Approved for hunting (quota)
2016	261	111	223
2017	300	145	261
2018	294	195	290
2019	377	193	318
2020	388	102	372
2021	400	197	388
X	*336.67*	*157.17*	*308.67*
St. dev.	*58.589*	*43.8744*	*63.7986*
Sx	*26.2018*	*19.6212*	*28.5316*
CV%	*17.4*	*27.92*	*20.67*

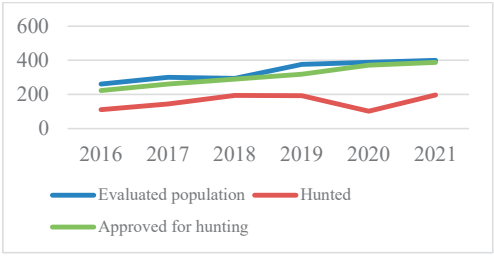

Figure 6. Golden jackal evolution in Giurgiu County, in 2016-2021 period

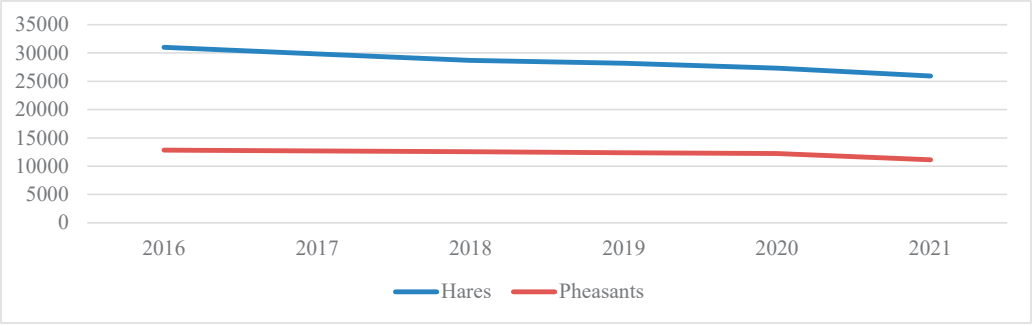

Figure 7. Evolution of analysed non-predator populations in Giugiu County, in 2016-2021 period

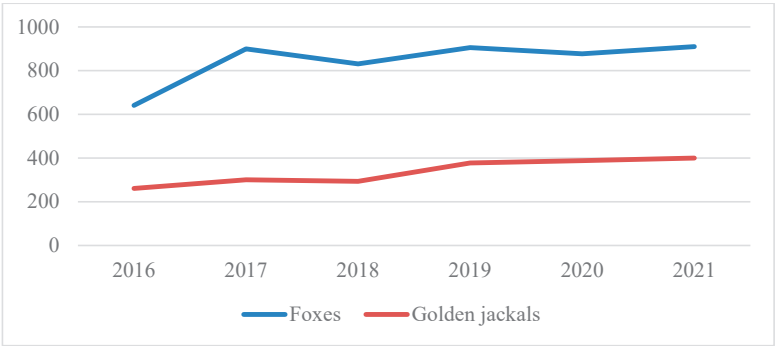

Figure 8. Evolution of analysed predator populations in Giurgiu County, in 2016-2021 period

It is obvious that the decreasing of hare and pheasant population is influenced directly by the increasing of predators populations, in this case fox and golden jackal populations. Achieving hunting quotas for these predatory species, in a share of only 50% of the quota, can be a good explanation for the decrease in hares and pheasant populations, especially if it analyses the percentage of hunting extraction compared to the quota granted to prey populations analysed in this study (72.81% for pheasant, and 69.81% for hare). That this percent of hunting harvest from quota, for analysed pray populations, it is only at this level because the situation on the ground is different from the one reflected in the evaluation works, and presented as official data by the relevant ministry. Due not forget something very important about the golden jackal: it is a fox competitor and, due to superior physiological and morphological characteristics (Micu, 2004). It became the predominant predator, from plain and hill area, where the wolf is missing, for small game but also for the roe deer and even red deer, preferring the youth, but not getting back in front of the mature specimens, especially in the case of roe deer (Maftei et al., 2017).

CONCLUSIONS

Unfortunately, the official data from evaluation of wild animal populations is unclear. The hare is almost absent in free hunting area or, in a better case, is very low represented.

According to official data, the evaluated hare population, at the level of 2021 year, for Giurgiu County, represents 92.32% of the optimal herd. Moreover, if analyse the average values calculated in the present study, we can conclude that the real average population, calculated for the analysed period, is even 1.46% higher than the optimal size of population calculated for the same period. All this situation is inappropriate in the conditions in which we observe a decrease of the hunting harvest related to the granted quota. And no, the preferences of hunters have not changed, hare being the most wanted game for over 80% from hunters, but the real population only that the actual numbers are much smaller than those on the paper.

Regarding the pheasant population it is very clear that an optimal population at 3570 individuals, for all Giurgiu County (over 300000 ha) is very small even if we subtract from the total of this surface the unproductive areas from the hunting point of view. The pheasant is a species that adapts to intensive agriculture, and this fact is presented in numerous specialized scientific papers, especially in the USA but also in Europe.

The predator species have an ascendant trend, populations growing rapidly due to the lack of interest in achieving the quotas. The situation reveals two aspects: on the one hand, the lack of interest of hunters for harvesting these species, and/or the disinterest of the administrators of the hunting funds to keep these predators under control, implicitly to ensure a balance of prey-predator.

Regarding the analysed situation, the following are recommended:

- Reanalysing the criteria for ranking of hunting funds;
- Elaboration of a hunting management plan at national level;
- Active involvement of the administrator of the national hunting fund in the evaluation of the populations of hunting interest;

- The entrustment of the hunting area after the elaboration of a management plan, the sustainability of which will be verified by the administrator of the national hunting area, and which must be in accordance with the national hunting management plan;
- Active involvement and reward of hunters participating in the hunt for foxes and golden jackals (and not only);
- Introducing the obligation, for managers, to maintain populations at the optimal level;
- Making fence areas intended exclusively for the population from free hunting area;
- Modification of specific legislation in the direction of easier accessibility to European funds.

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