

Study on wild animals' dynamics on 65 Giera hunting area from Timis County

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Abstract

After Romania joined the European Union, the hunting populations must be managed much more carefully, ensuring a much increased vigilance. The animals' population can be characterized by the observed size, which is opposed to the genetic size, being given by the number of individuals from all animal categories and by the total number of males and females participating in the production of the descendant generation. This study aimed to analyze the quantitative evolution of 13 wildlife populations taking into consideration the environmental conditions, on the background of hunting 65 Giera, between 2018 and 2022, thus contributing to the knowledge of the hunting heritage in Timiș County with a total area of 12.386 ha, for sustainable management and conservation. Thus, this study recommends the revival of the existing population in this hunting area, through "blood refreshing" actions, as well as the permanent monitoring and limitation of populations from the *Canidae* family, especially of the Jackal (*Canis aureus* L.) species, and the Red Fox (*Vulpes vulpes* L.) species.

Key words: observed size, hunting animals, hunting population, hunting area

1. Introduction

The observed size of an animal population, as opposed to the genetic size, is given by the number of individuals in all categories as well as by the total number of males and females participating in the production of the descendant generation.

The EU integration of the Romania is imposing a special attention to the populations of wild

animals for hunting. The hunt was always a spring of rich in our country, not only by the large number of animals but also by the variety of species. The hunt represents the oldest occupation, before all others humans were hunter and gatherer. As old as man, the hunt evolved with the humans and with the development of the society. In this domain, man made the first observations, research and discoveries, also the first inventions. After extended study of the Paleolithic hunters, it was proven that there were domesticated animals [1]. The discovery of the spear, bow with arrows, perfecting the tools and hunting methods were the first and most important inventions of the

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primitive era, which lead to an increase of the success of the hunt [2,3].

Romania is one of the few countries in EU, that still have pools for aquatic hunting, large forest for roe deer, bears and other big game. The duty of hunters is to know the environmental requirement of the game and to contribute to its preservation.

The hunting terrain with the constructions makes up the hunting patrimony [4].

Starting from the year 1948, all over our country, the hunting terrain becomes state propriety. From that date, since there was no private propriety, large hunting terrain could be established. The management measures applied to a hunting terrain depends of the species that populate it. Presently, in Romania, after the institute of the Law 103/1996, the number of the hunting domains is 2.227 [2]. Main developmental conditions for a hunting domain and existence are: food, shelter and quiet.

There is considered that the hunt density is optimal when a sufficient number of individuals exist according to biogenic capacity [5]. Exceeding the optimal density can cause damage to other economical arias and also can affect the specie in cause, through lack of food, shelter and

rapid expansion of diseases and other detrimental factors [6].

The purpose of the present paper was to study the evolution of the observed sizes of the hunting population for 13 species of animals in the period 2018-2022, on 65 Giera hunting areas, from Timis County with a total area of 12.386 ha.

2. Materials and methods

The studied hunting area – 65 Giera, has a total area of 12,386 ha, and is bounded to the north by the Lanca-Birda canal, from Ghilad to the Timiș river, to the east by the Banloc-Ofsenita communal road, the Ofsenita dirt road - Ghilad, to the south of the national road Banloc-Livezile-Giera-Toager-Grăniceri, and to the west of the Timiș river from the Lanca-Birda channel to the village of Grăniceri. The 65 Giera Cinegetic Area is managed by the ROMSILVA National Forest Directorate, through the Timiș Forestry Directorate, respectively the Lunca Timișului Forestry Bypass.

In Table 1 we present the total cynegetic area (hunting area) of 65 Giera, Timis County, divided into categories.

Table 1. Hunting area 65 Giera divided into categories

The cynegetic productive area for:							
Aquatic animals land			Other hunt species			Unproductive land	Total
UM	Water length	Forest	Agricultural land	Grazing field	Total		
Ha	361	54	8,921	2,513	11,489	537	12,386
%	2.9	0.43	72.05	20.29	95.67	4.33	100

From table 1 we can observe that from the total area of the studied area (12.386 ha) the area inhabited by the Aquatic animals represents 361 ha (2.9%), while other species have 11.489 ha (95.67%), from which agricultural land represents 8.921 ha (72.05%), grazing field 2.513 ha (20.29%), and forest land 54 ha (0.43%). The cynegetic non-productive area is represented by 4.33%, respective 537 ha.

Our present study for research, developed in this paper aimed to evaluate the number of animals from 65 Giera hunting areas between 2018 and 2022 years, because without these hunting details,

a rational hunt of the animals would not be possible, and the ecosystem could be unbalanced in time. Knowing the number of animals helps in evaluation of the annual number and gender of animals that can be hunted, and also helps in calculations of the complementary food requirements during winter, and it also helps maintaining the sex ration [7]. The number of animals is crucial for achieving an optimal density and prevent de degradation of the trophies and the damages in forest an agricultural cultures. This is why this action to be made with responsibility by

the persons that know well the terrain and the biology of the hunted animals [8].

3. Results and discussion

In table 2, we presented the evolution of the spring effectives by species and number of individuals during the hole studied period. \

From Table 2 data, it can be observed that in the hunting area 65 Giera, the *Cervidae* family – which includes ruminants with deciduous horns, is represented by only 2 species, respectively Roe Deer (*Capreolus capreolus* L) and Red Deer (*Cervus*

elaphus L.). Black deer (*Dama dama* L.) species, were not identified in this hunting area, one of the reasons being the small area occupied by the forest, mode exactly 54 ha (0.43%). For the Red Deer (*Cervus elaphus* L) species, we registered at the beginning of the study (2018) a herd of 9 individuals, a herd that in 2019 increased to 10 individuals, so an increase of 1 specimen, which in relative value is 11.11%. For the rest of the studied years, namely 2019-2020-2021-2022, the herd of Red Deer (*Cervus elaphus* L.) remained at the same value of 10 individuals.

Table 2. The evolution of the spring effectives from the 65 Giera hunting terrain, in the period 2018-2022

Specie	2018	2019	2020	2021	2022
Red Deer (<i>Cervus elaphus</i> L)	9	10	10	10	10
Fallow Deer (<i>Dama dama</i> L)	-	-	-	-	-
Roe Deer (<i>Capreolus capreolus</i> L)	130	135	140	140	140
Wild hog (<i>Sus scrofa</i> L)	30	30	30	10	10
European hare (<i>Lepus europaeus</i> P.)	710	660	650	660	660
Weasel (<i>Mustela nivalis</i>)	5	5	5	5	5
Common Pheasant (<i>Phasianus colchicus</i> L)	890	840	830	1000	990
Grey Partridge (<i>Pedrix pedrix</i> L)	30	40	330	400	400
Tree marten (<i>Martes martes</i>)	-	-	-	-	-
Red Fox (<i>Vulpes vulpes</i> L)	20	20	20	15	15
Jackal (<i>Canis aureus</i> L)	3	4	6	4	4
Polecat (<i>Mustela putorius</i> L)	5	5	5	5	5
Muskrat (<i>Ondatra zibethica</i> L.)	5	5	5	5	5

Roe Deer (*Capreolus capreolus* L) species, another member of the *Cervidae* family, recorded at the beginning of the study, namely in 2018, a herd of 130 individuals, an observed size that increases in 2019 to 135 individuals, which in relative terms means an increase. of 3.85%. The increase in Roe Deer (*Capreolus capreolus* L) species continued in 2020, reaching the value of 140 individuals, i.e. an increase of 5 individuals (3.70%). This value of the herd of Roe Deer (*Capreolus capreolus* L) species, respectively 140 individuals, remained constant for the rest of the studied period, i.e. the years 2021-2022. The Wild hog (*Sus scrofa* L.) species, registered at the beginning of the studied period, namely the year 2018, a herd of 30 individuals – which remains constant during the studied period of 2019-2020. It should be noted that in 2021, the herd of Wild hog (*Sus scrofa* L.) species, records a significant decrease in the herd by 20 individuals, which in relative values represents 66.66%. In 2022, the population of this species – Wild hog (*Sus scrofa* L.), remains constant at the low number of 10 individuals. We estimate that the

decrease in the herd of the Wild hog (*Sus scrofa* L.) species, from level 2021, is mainly due to the appearance of some viral diseases in this 65- Giera hunting area.

The European hare (*Lepus europaeus* P.) species, records the following evolution of herds: 710 individuals in 2018 – herd that decreases to 660 individuals in 2019 (7.04%). The downward trend is also maintained in 2020, but much less pronounced – with 650 individuals actually registered (representing 1.15%). In the year 2021, the population of The European hare (*Lepus europaeus* P.) species, returns to the value of 660 individuals, i.e. an increase of 10 individuals (1.53%), an observed size which is maintained until the end of the studied period, i.e. the year 2022.

Common Pheasant (*Phasianus colchicus* L.) species, starts in 2018 with a herd of 890 individuals – herd that registers a decrease to 840 individuals in 2019 (5.61%), the downward trend being also recorded in 2020 – this being of 10 individuals, which in relative values (1.19%).

Common Pheasant (*Phasianus colchicus* L.) species, starts in 2018 with a herd of 890 individuals, herd that registers a decrease to 840 individuals in 2019 (5.61%), the downward trend being also recorded in 2020 – this being of 10 individuals, which in relative values represent 1.19%. In the year 2021, the size observed for this population of Common Pheasant (*Phasianus colchicus* L.) species, registers a significant increase with 170 individuals, i.e. an increase of 20.48%. In the last year of the study, namely the year 2022, the population of the Common Pheasant (*Phasianus colchicus* L.) species, records a slight decrease in the observed size again, reaching 990 individuals (1.0%). For 2018-2022, the increase in the pheasant (*Phasianus colchicus* L.) population in this hunting area was 11.23%.

Gray Partridge (*Pedrix pedrix* L.) species, recorded at the beginning of the study, namely in 2018, an observed size of 30 individuals, increasing to 40 individuals in 2019 (33.33%). It is worth noting the significant increase in the observed size of the population of Gray Partridge (*Pedrix pedrix* L.) species in this hunting area, in 2020, to 290 individuals, which in relative terms is an increase of 725%. The increasing trend is also registered in 2021, but much lower, i.e. an increase of 70 individuals (21.21%). The flock of Gray Partridge (*Pedrix pedrix* L.) species reached 400 individuals, a size that is kept constant in the last year of study, in 2022.

The *Canidae* family, which includes carnivores with elongated snouts and slender limbs, is represented in this hunting area by two species, respectively Red Fox (*Vulpes vulpes* L.) and Jackal (*Canis aureus* L.). Red Fox (*Vulpes vulpes* L.) species, recorded at the beginning of the study (2018), a size observed by 20 individuals on this hunting ground, a size that remains constant both in 2019 and 2020. It is worth noting the significant decrease in the population of Red Fox (*Vulpes vulpes* L.) species, in 2021 by 5 individuals, i.e. by 25% – which we don't think is correlated with the 50% increase in 2020 of the population of Jackal (*Canis aureus* L.) on this hunting area, knowing that the two species are competitors. In 2022, the observed size of the population of Red Fox (*Vulpes vulpes* L.) species the value of 15 foxes was maintained.

The presence of the Jackal (*Canis aureus* L.) species was noted on this hunting area, which

opened in 2014 when only 2 of them were recorded. In 2018, the starting year of this study, the population of Jackal (*Canis aureus* L.) species was 3 individuals, which in 2019 increased to 4 (+33.33%), and in 2020, the observed size increases significantly, respectively to 6 Jackals, which in relative value represents 50%. In the following year 2021, the population of Jackal (*Canis aureus* L.) species returns to the observed size of 4 individuals, a size that remains constant in 2022 as well.

We specify the fact that, of the 13 species inventoried on this hunting area, 3 species have maintained constant numbers throughout this 5-year study, respectively Weasel (*Mustela nivalis*) species, with a number of 5 individuals, Polecat (*Mustela putorius* L.) species, with 5 individuals, and Muskrat (*Ondatra zibethica* L.), with a constant population of 5 individuals.

Of the 13 species inventoried on this hunting area, 2 were not identified, respectively Tree marten (*Martes martes*) species and Fallow Deer (*Dama dama* L.).

4. Conclusions

Following the study on the dynamics of hunting populations, for 13 species, in the period 2018 - 2022, in the hunting area 65 Giera in Timis County, found under the management of D.S. Timiș through the Lunca Timișului Forest Bypass, we can conclude the following:

On this hunting area, the *Cervidae* family – which includes ruminants with deciduous horns, is represented by 2 species, respectively Roe Deer (*Capreolus capreolus* L.) species and Red Deer (*Cervus elaphus* L.) species, instead, Fallow Deer (*Dama dama* L.) species, has not been found.

It should be noted that in 2021, the herd of Wild hog (*Sus scrofa* L.) species, records a significant decrease in the herd by 20 individuals, which in relative values is a value of 66.66%. In 2022, the population of this species – Wild hog (*Sus scrofa* L.), remains constant at the low value of 10 individuals.

We estimate that the decrease in the herd of Wild hog (*Sus scrofa* L.) species, from level 2021, is mainly due to the appearance of some viral diseases in the 65 Giera hunting area.

It is very interesting the significant decrease in the population of Red Fox (*Vulpes vulpes* L.) species, in the year 2021 by 5 individuals, i.e. by 25%, which

we do not think is correlated with the 50% increase in the year 2020 of the population of Jackal (*Canis aureus* L), on this hunting background, having in view that the 2 species are competitors. It is recommended to permanently record, monitoring, and limit the populations of the *Canidae* family, especially the jackal species (*Canis aureus* L.), and the red fox species (*Vulpes vulpes* L).

It is also worth noting the significant increase in the observed size of the population of Gray Partridge (*Pedrix pedrix* L.) species, in this hunting area, in 2020, which is 290 individuals, which in relative terms is an increase of 725%. The growth trend is also registered in 2021, but much lower, i.e. an increase of 70 individuals (21.21%). The flock of Gray Partridge (*Pedrix pedrix* L.) species, reached 400 individuals, a size that remains constant in the last year of our study, 2022.

We specify that, of the 13 species recorded and monitored in this hunting area, 3 species have maintained constant numbers throughout this 5-year study, respectively Weasel (*Mustela nivalis*) species, with a number of 5 individuals, Polecat (*Mustela putorius* L.) species, with 5 individuals, and Muskrat (*Ondatra zibethica* L.), with a constant population of 5 animals.

Of the 13 species monitored in this hunting area 65 Giera, 2 were not found, respectively Tree marten (*Martes martes*) species and Fallow Deer (*Dama dama* L).

Usually, the climatic characteristics in the hunting area are not likely to lead to increased mortality in hunting herds. In late years, relatively high springtime temperatures associated with moderate rainfall should not result in high juvenile mortality. From nutritive point of view, the structure and composition of the vegetation in the hunting area provide very good nutritional conditions for the development of hunting herds. Livestock is an annoying factor for hunting animals, due to the ubiquity of herds on the same areas, which makes the hunting animals gradually retreat to quieter areas, because the herds are accompanied by dogs, often without yoke.

The existing biotope characteristics on the area of the hunting area are likely to provide the trophic and shelter necessary for the existing hunting species and herds. Also, the geomorphological conditions allow in this hunting area the installation of food lands, and the administration of complementary food.

All of these findings led us to the conclusion that in a hunting area there is a good relation between the number of individuals and the biogenic of the hunting area for all 11 recorded species.

In conclusion, we recommend the implementation of real and consistent management measures that will increase the productive hunting potential in this hunting area. The most relevant problems are related to the intensification of agricultural activities, the use of pesticides on a large scale, and not only these characteristics.

We also recommend actions to restore the biogenic potential of the hunting area by repopulation of some vanishing wildlife species of hunting interest or by populating new hunting species which can harness the free ecological niches.

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