

## STUDY REGARDING THE EVOLUTION OF WILD BOAR IN ROMANIA - DOBROGEA AREA, BETWEEN 2018 - 2021

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### Abstract

*The aim of this study is to reveal the massive involution of wild boar herds in Romania and especially in Dobrogea area. Everybody knows about the effects of the African swine fever on wild boar herds, but no one talks about the impact it has on the environment. In the current conditions, there would have been the possibility to intervene and to populate with animals raised in these hunting complexes. The study focused on the Dobrogea area because it was the first and most affected area of the country. We analyze the official data from national evaluation of sedentary game in Dobrogea area, more exactly Constanta and Tulcea County. Hunting territories in these two counties are managed by National Forest Authority, county associations of hunters and other associations for conservation of biodiversity and management of hunting territories. We analyze wild boar real effective between 2018 and 2021 by counties, by sexes, and in comparison with optimal effective (maximal number of individuals who can leave in a hunting area, without causing damage to the agricultural fields or in the forest).*

**Key words:** African fever, hunting, wild boar.

### INTRODUCTION

The characteristics of the species have made the wild boar widespread in Romania. The wild boar is a forest animal, but in the studied area it lives and feeds with pleasure in the reeds and on the plains by the lakes and on the natural channels of the Danube Delta and not only.

The African swine fever has greatly affected the wild boar populations from Romania, and especially the counties from the south of the country. The most affected area was Dobrogea, more precisely the territories of Constanta and Tulcea counties. A very important factor in the late detection and spread of this disease was the prohibition of hunting in the Danube Delta Biosphere Reservation. Lack of control of population of sedentary game species, especially of predators, absence of observations that normally are helpfully for management of hunting areas, and ignorance of biosphere reserve administrators by lack of organization of actions to control raptors and maintain ecological balance, led to the rapid spread of the disease, the consequences being those that we

will present in this paper. Although there are many non-governmental organizations that advocate for environmentalists, teaching us about bears or duck species, but none of these organizations have noticed the negative impact of reducing wild boar numbers to near extinction.

### MATERIALS AND METHODS

We analyze the official data from national evaluation of sedentary game in Dobrogea area, more exactly Constanta County and Tulcea County. Hunting territories in these two counties are managed by National Forest Authority, county associations of hunters and other associations for conservation of biodiversity and management of hunting territories, and Danube Delta Biosphere Reserve. Within this reservation area no hunting can be organized except by the administrator of the protected area. We analyse wild board effective between 2018 and 2021. We use some statistics like average, standard deviation, error of average, and variability coefficient in order to have a better overview of

the situation. The data was collected from Ministry of Environment which is the national authority for conservation of biodiversity and hunting.

## RESULTS AND DISCUSSIONS

In table 1 is presented the evolution, or better the involution, of wild boar effective in Constanta and Tulcea Counties and for all Dobrogea region. The situation is catastrophic between 2018 and 2019. The most affected County is Tulcea, the situation being presented much more clear in figure 1. Constanta County (figure 2) was also affected but not at the same level as Tulcea County.

At the level of Constanta county, the number of wild boar population decreased by 78.31% (957 individuals from which 721 was hunted), while at the level of Tulcea county the decrease was slightly smaller, of only 76.82% (1074 individuals from which 735 was hunted).

Table 1. Evolution of wild boar population in Dobrogea Region, between 2018 - 2021

County/area	Year	Evaluated population	Hunted	Optimal effective
Constanta County	2018	1222	721	285
	2019	265	150	285
	2020	261	205	285
	2021	370	303	285
	<b>X</b>	<b>529.5</b>	<b>344.75</b>	<b>285</b>
	<b>stdev</b>	464.42	258.69	0
	<b>Sx</b>	268.13	149.36	0
	<b>CV%</b>	87.71	75.04	0
Tulcea County	2018	1398	735	647
	2019	324	187	475
	2020	262	195	475
	2021	298	42	475
	<b>X</b>	<b>570.50</b>	<b>289.75</b>	<b>518.00</b>
	<b>stdev</b>	552.25	305.05	86.00
	<b>Sx</b>	318.84	176.12	49.65
	<b>CV%</b>	96.80	105.28	16.60
Dobrogea area	2018	2620.00	<b>1456</b>	<b>932</b>
	2019	589.00	<b>337</b>	<b>760</b>
	2020	523.00	<b>400</b>	<b>760</b>
	2021	668	345	760
	<b>X</b>	<b>1100.00</b>	<b>634.50</b>	<b>803.00</b>
	<b>stdev</b>	1015.07	548.38	86.00
	<b>Sx</b>	586.05	316.61	49.65
	<b>CV%</b>	92.28	86.43	10.71

From statistical point of view Tulcea County was less affected by the African swine fever because 9.93% from this decrease of wild boar effective was due to the African swine fever,

compared to situation from Constanta County (24.66% from total loss was due to the epidemic action).

We mention that during this period no cases of poaching or other accidents were reported. It is true, however, that this momentum overlaps with the outbreak of the epidemic. At the level of the Dobrogea region, the losses represented 77.52% (2031 individuals), and from these 28.31% was founded dead due to the action of same disease.

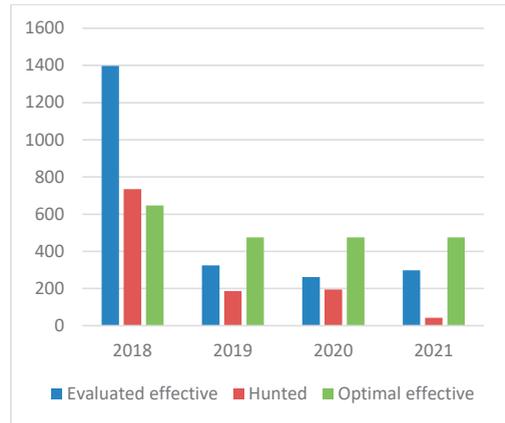


Figure 1. Wild boar dynamic in Tulcea County

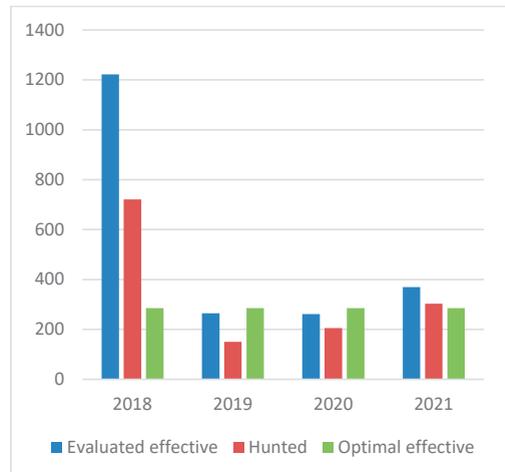


Figure 2. Wild boar dynamic in Constanta County

In 2019-2020 we start with an evaluated effective of only 586 wild boars, in entire Dobrogea Region (15588 km<sup>2</sup>, from which 7104 km<sup>2</sup> for Constanta County and 8484 km<sup>2</sup> in Tulcea County), which means only 22.48% from the

evaluated effective in 2018. This means that the most affected individuals was piglets and youths but also the reproductive nucleus. Only in this way can be explained such a decreasing of populations.

The situation isn't looks so bad if we will report to the evaluated effective from 2019. In period 2019 - 2020, the decreasing of wild boar effective was 11.21% in Dobrogea, from which only 1.51% in Constanta County, but 19.14% in Tulcea County. Number of hunted wild boars, in this hunting season represent 57.22% from evaluated effective which is a very important share. This situation can be explained by the measures taken by the authorities authorized to fight with the epidemic, the National Sanitary Veterinary Agency, one of these measures aiming at the complete hunting of wild boars in disease outbreaks.

We must also draw attention to the fact that in 2020 the optimal effective of wild boar, at the level of Tulcea county, was modified, decreasing by 172 heads, which represents 26.58% of the optimal effective of 2018. This decrease of the optimal effective was made without changes in the ecological diagnosis keys for wild boar (Tables 2 and 3), and in the

conditions in which, in the Danube Delta Biosphere Reserve (4178 km<sup>2</sup>) hunting has not been practiced for quite a long time and the natural conditions have not changed. It is impossible for us to believe that the factors that influence the creditworthiness of the hunting fields have experienced such a large depreciation and on a relatively small area of the county in order to determine the calculation of an optimal number so diminished.

Regarding 2020 - 2021 period we record, for the first time after few years, a small evolution of wild boar effective evaluated in 2021. The most important evolution was recorded In Constanta County where the evaluated effective number has increasing with 41.76% (109 individuals). In Tulcea County these increasing represent only 13.74% (36 individuals). At the Dobrogea Region level this increase was 27.72% (145 individuals). The situation looks good if we refer only to the percentage values of this increase of population. It is gratifying that we have an upward trend, but if we translate this increase into the actual number of individuals with which the population has grown, we realize that this increase is almost insignificant.

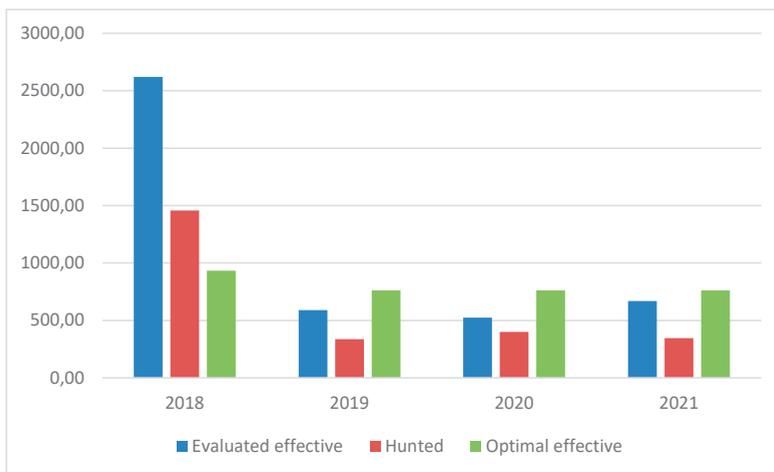


Figure 3. Wild boar dynamics in Dobrogea Region, between 2018 - 2021

Table 2. The ecological diagnosis keys for wild boar - abiotic and biotic factors

No.	The environmental factor	Station specifics	Score	Station specifics	Score	Station specifics	Score	Station specifics	Score
<b>A. ABIOTIC FACTORS - 200 points</b>									
1	Average altitude	0-400 m	30	401-800 m	20	801-1200 m	10	>1200	0
2	Average temp. in calving period	>3°C	50	2.1-3°C	45	1-2°C	30	<1°C	15
3	Precipitation during calving	<50 mm	30	51-65 mm	20	66-70 mm	10	>70 mm	0
4	The average thickness of the snow cover and the size of the snow cover period	Snow layer thickness <10cm; snowy period <30 days	60	Snow thickness 10-20cm; snowy period 31-40 days	40	Snow thickness 21-30cm; snowy period 41-60 days	20	Snow layer thickness <10cm; snowy period > 60 days	0
5	Hydrographic network	Uniformly distributed, accessible	30	Accessible on > 50% of the area	20	Accessible on 20-50% of the area	10	Accessible on <20% of the area	0
<b>B. BIOTIC FACTORS - 250 points</b>									
1	Percentage of afforestation	>50% of area	50	31-50% of the area	35	10-30% of the area	20	<10% of the area	5
2	The share of age classes	Classes I, V, VI on > 40% of the forest area	20	Classes I, V, VI on 35-40% of the forest area	15	Classes I, V, VI on 30-34% of the forest area	10	Classes I, V, VI on <30% of the forest area	5
3	Forest formations	>50% quercete and hillside	30	20-50% quercete and hill stalks	20	Beech and beech softwood mixtures	10	Pure sprouts	5
4	Undergrowth	On > 0.7 of the forest area	30	On 0.4-0.7 from the forest area	20	On 0.1-0.3 of the forest area	10	On <0.1 of the forest area	5
5	Agricultural crops	From > 8 species ha%	20	of 6-8 species / 100 ha	15	from 3-5 species / 100 ha	10	of <3 species / 100 ha	5
6	Vegetation outside the forest floor	Protective curtains, reeds, fences, brambles on > 10% of the surface of the hunting ground	50	Protective curtains, reeds, ditches, brambles on 7-10% of the surface of the hunting ground	35	Protection curtains, reeds, ditches, brambles on 3-6% of the surface of the hunting ground	20	Protection curtains, reeds, ditches, brambles on <3% of the surface of the hunting ground	5
7	Biomass accessible in winter (bulbs, rhizomes, etc.)	> 200 kg/ha	50	151-200 kg/ha	35	100-150 kg/ha	20	<100 kg/ha	5

Table 3. The ecological diagnosis keys for wild boar - cynegetic management and negative anthropic factors

No.	The environmental factor	Station specifics	Score	Station specifics	Score	Station specifics	Score	Station specifics	Score
<b>C. Factors of cynegetic management</b>									
1	Land for winter feeding	> 5 ha/1000 ha from the surface	70	2.1-5 ha% from surface	50	1-2 ha% from surface	30	> 5 ha%. from surface	
2	Winter-fed food and distribution	Over the amount of instructions; evenly distributed over the snowy period, in the wintering territory	80	The amount of instruction; evenly distributed over the snowy period, in the wintering territory	60	The amount of instructions; distributed over > 50% of the wintering territory	40	Amount of instructio; distributed over <50% of the wintering territory	
3	Numerical ratio of natural predators / wild boar	> 1:30	70	1: 20 -1: 30	50	1: 10-1: 19	30	<1.10	
4	Wandering dogs /1000 ha	It does not exists	80	1-2 /1000 ha	40	3-4/1000 ha	20	> 4 specimens / 1000 ha	
<b>D. NEGATIVE ANTHROPIC FACTORS</b>									
1	Grazing	It is not practiced	90	It is practiced on <20% of the surface	60	It is practiced on 21-30% of the area	30	It is practiced on > 30% of the area	0
2	Poaching	There are no cases discovered	90	There is 1 case discovered	60	There are 2 cases discovered	30	There are > 2 cases discovered	0
3	Raising domestic pigs	In closed premises; domestic pigs are vaccinated	35	In closed premises; domestic pigs are not vaccinated	20	Accidental presence in the forest; domestic pigs are vaccinated	10	They feed on the productive surface of the hunting field, being unvaccin.	0
4	The density of the road network	< 1 km / km <sup>2</sup>	35	1-1.5 km / km <sup>2</sup>	25	1.6-2 km / km <sup>2</sup>	15	> 2 km / km <sup>2</sup>	5

## CONCLUSIONS

Following the analyzes performed and presented previously, we issued the following conclusions and recommendations:

**Conclusions:** Situation of wild boar population in Dobrogea Region is a little bit special than in the rest of the country. In Tulcea County we have an area of over 4000 km<sup>2</sup>, Biosphere Reservation "Danube Delta" in which the hunting it was prohibited. Even if at present moment the problem of hunting resumes, in this area, in some species of mammals, it is hard to believe that the administrator of this protected natural area has the technical and organizational capacity to do so. In this situation we will

continue to have an upward trend of the golden jackal population and a downward trend of other mammals. The presence of these raptors in large numbers will only increase the spread of the disease.

To hunt all wild boars from hunting fields it is impossible, even if some authorities want it.

The numerical evolution of the wild boar population, at the level of the studied area, is insignificant, even if their percentage expression shows a rosier situation.

The script modification of the optimal wild boar effective, in Tulcea county, was made without having a logic, a scientific basis.

Perhaps the most serious problem is the ignorance of the authorities and of the civil

society regarding the impact that the "disappearance" of the wild boar has on the environment.

Recommendations:

- Prohibition of wild boar hunting in the affected areas and in the surrounding areas;
- Rapid intervention on predatory species in order to maintain the ecological balance but especially to limit the spread of the disease;
- Reanalysis of the keys to the diagnosis of hunting funds;
- Population with wild boars from profile farms;
- Limitation of the extraction quota;
- The popularization of the impact that this drastic decrease, of the wild boar herd, has on the environment.

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