SPECIALIZED STUDY FOR THE SUISTAINABLE MANAGEMENT OF WILDLIFE IN WILDLIFE AREA NO. 22 CALLED INEU

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Abstract

Hunting has existed since the dawn of human evolution and developed in parallel with human society, keeping it company in various forms to the present day.

The hunting man was forced by his environment to develop his intellect and perfect his methods in order to ensure his existence. Up to the first great social divide between land cultivators and livestock farmers, the products obtained from hunting were the main source of existence for both settled or migratory human communities.

Key words: wildlife, hunting, wildlife species

INTRODUCTION

Wildlife management takes into account all the factors in wildlife's coexistence with man. For each species there is a characteristic type of management, for some absolute protection is enforced while others are hunted in sustained fashion in some wildlife areas, but these are essentially two sides of the kind of management that is applied.

The force of firearms and hydrocarbons ensured man a unique predatory position, capable, in theory to exploit to extinction any other species on Earth.

The increasingly strong emphasis placed on the production funtion of forest ecosystems, the development and intensive enlargement of agricultural crops, the industrial and infrastructural development of human society, the development of mass tourism, all result in the reduction and impoverishment of the natural habitats of wild game.

MATERIAL AND METHOD

The study and detailed observation of game species and their habitats in wildlife area no. 22 called Ineu to ensure their sustainable management during the management contract and a 10 year forecast.

The administrative-territorial situation

Administrative classification

Wildlife area no. 22 called Ineu is located in Bihor county in the range of Ineu, Tileagd, Osorhei and Sacadat communes, and in terms of

forest administration it is on Forest Range Oradea, UP II Husasău, D.S. Bihor.

Statistical data show that this wildlife area covers 1817ha of forest, 7406ha arable land, 855ha grassland and 50ha water. It must be mentioned that the rather large area represented by arable land and grassland has a positive influence on the growth and development of game animals.

Of the total surface, 40ha is unproductive and 10,128ha is productive from a wildlife point of view.

Presentation of site conditions

Geomorphological conditions The territory on which the wildlife area is located includes various geomorphological, pedological and climatic forms.

There are two geomorphological forms:

1. The West Plains, with an altitude of 80 – 190 m, consisting of: the Divagation Plain (Cris Plain) and Piedmont Plain.
2. The western piedmonts with altitudes between 200 and 500 m consisting of the hills of Oradea and Padurea Craiului and Padurea Codrului forests.

Conditions in the low hills and geomorphological forms are favorable to the breeding and development of the wildlife of interest in wildlife area no. 22 called Ineu.

Climatic conditions Under the influence of a climate characterized by an average annual temperature of around 10.5^{O}C, and annual rainfall of 650 mm.

These are average values for variations between 9.7 and 11.6^{O}C.

Temperatures lower than -15^{O}C are rarely recorded, and only once in 10 years the temperature dropped under -20^{O}C.

The data above shows that the average annual temperature as well as the absolute highs and lows have a positive influence on game head count.

Edaphic conditions Forests of deciduous trees, mostly quercine, the soil evolved towards brown illuvial clay.

Humus content is above 1% up to a depth of 80 cm.

The agropedological research carried out in the wildlife area identified 5 types of soil, the predominant one being brown illuvial clay.

So the existing soils in the wildlife area, their granulometric structure and the deposits of macro and microelements offer ideal conditions for the wildlife to prosper.

Hydrological conditions

Along with the other climatic factors, precipitation has a very important role in the propagation and normal development of wildlife species of interest.

The main river artery is the Crisul Repede river from which the

Crisul Mic emerges and connects it to the Barcau.

The data provided by the Oradea weather station shows an annual precipitation average of 635 mm . The uniform distribution of rainfall over time, characteristic to this area, is determined by the unevenness in pluviometric factors.

On average seasonal rainfall is distributed as follows:
- winter 116.6 mm – 19%; spring 186.3 mm – 26%; summer 235.0 mm – 30%; fall 165.9 – 25%

Because the amount of rainfall and its fairly uniform distribution throughout the year indicate quite high values, it can be stated that wildlife of interest has optimal conditions from this point of view.

Vegetation conditions

In terms of vegetation, it is an oak vegetation area.

Spontaneous woody vegetation, found in existing forests, consists of the following species: *Quercus petraea* (Sessile Oak), *Quercus cerris* (Turkey oak), *Fraxinus excelsior* (European Ash), and less often, towards the base of the slope, we find *Salix alba* (White Willow), *Populus nigra* (Black Poplar).

The crops consist of: winter wheat, barley, maize, potato, sunflower, rye and oats.

The meadows are productive both qualitatively and quantitatively, except in rainy years, when the valleys are flooded and the accumulating mud lessens the quality of the hay.

The diversity of forest and agricultural vegetation also has a positive influence on the wildlife species, facilitating the manager's duty to set up additional crops for game animals.

RESULTS AND DISSCUSION

Study of wildlife of interest
Presentation of the wildlife

Table.1

Study of wildlife

Year		Species							
		Deer	Roe Buck	Wild Boar	Hare	Pheasant	Partridge	Wildcat	Wolf
Count	M	18	51	34	140	220	120	4	2
	F	23	71	-	-	-	-	-	-
Total		41	122	34	140	220	120	4	2
Approved quota / intervention plan 2011 / 2012		5	15	30	70	200	0	0	0

Table 2

Comparative statistic of approved harvest quotas / intervention plans and the achieved quotas during the last hunting season

Specifications	Approved harvest quotas		Achieved harvest quotas	
Species	M	F	M	F
Deer	3	2	2	2
Roe Buck	15	11	4	7
Wild Boar	30	-	30	-
Hare	70	-	70	-
Pheasant	200	-	200	-
Partridge	0	-	0	-
Wolf	0	-	0	-
Wildcat	0	-	0	-

Table 3

Study of actual counts compared to optimal counts

Specification	Species							
	Deer	Roe Buck	Wild Boar	Hare	Pheasant	Partridge	Wildcat	Wolf
Actual counts 2011	41	122	60	500	500	35	4	2
Worthiness category	II	III	II	III	III	-	IV	-
Optimal counts	15	40	25	400	250	50	2	0
Differences	26	82	35	100	250	-15	2	2

Theoretical calculation of harvest quotas

Table 4

Species DEER

Season (Years)	**Actual count (pcs.)**	**Optimal count (pcs.)**	**Natural growth (pcs.)**	**Harvest (pcs.)**
2011-2012	41	15	6	12

Table 5

Species ROE BUCK

Season (Years)	**Actual count (pcs.)**	**Optimal count (pcs.)**	**Natural growth (pcs.)**	**Harvest (pcs.)**
2011-2012	122	40	18	51

Table 6

Species WILD BOAR

Season (Years)	**Actual count (pcs.)**	**Optimal count (pcs.)**	**Natural growth (pcs.)**	**Harvest (pcs.)**
2011-2012	60	25	15	32

Table 7

Species HARE

Season (Years)	**Actual count (pcs.)**	**Optimal count (pcs.)**	**Natural growth (pcs.)**	**Harvest (pcs.)**
2011-2012	500	400	125	175

Table 8

Species PHEASANT

Season (Years)	Actual count (pcs.)	Optimal count (pcs.)	Natural growth (pcs.)	Harvest (pcs.)
2011-2012	500	250	125	262

Improving the network of constructions, installations and utilities for game animals

In wildlife area no. 22 called Ineu the minimum number of wildlife utilities is covered, even slightly surpassed, and in the future a consistent growth in their numbers is expected.

The minimum number of constructions, installations and utilities at wildlife area no. 22 called Ineu.

Table 9

Installations Constructions as of 2011	Existing, required for actual counts and required for optimal counts											
	Deer		Roe Buck		Wild boar		Pheasant		Hare		Partridge	
	Ex.	Act./ Opt.	Ex.	Act./ Opt.	Ex.	Act./ Opt.	Ex.	Act./ Opt.	Ex.	Act./ Opt.	Ex.	Act./ Opt.
Feeding grounds	2.2	2.2/20	2.2	2.2/20	2.2	2.2/20	-	-	-	-	-	-
Paths	25	25/25	25	25/25	25	25/25	-	-	-	-	-	-
Baths	25	25/8.2	25	25/24.4	25	25/6	-	-	-	-	-	-
Drinkers	12	12/4	12	12/12	12	12/6	-	-	-	-	-	-
Salt supplies	24	24/8.2	24	24/24.4	24	24/6	-	-	-	-	-	-
Feeders	24	24/8.2	24	24/24.4	24	24/6	-	-	-	-	-	-
Hunting spots	12	12/10	12	12/10	12	12/10	-	-	-	-	-	-

Table 10

Calculation for required additional food

No.	Species	Count	Grain	Concentrate	Succulents
1.	Deer	17	1275	425	127.5
2.	Roe Buck	88	2200	-	-
3.	Wild Boar	34	-	2040	612
4.	Hare	150	225	-	-
5.	Pheasant	250	-	1500	-
6.	Partridge	125	-	750	-
7.	Total	-	3700	4715	739.5
8.	50 %	-	1850	2375.5	369.75

Feeding grounds for game animals

Due to the diversity of natural vegetation and agricultural crops such as grain, clover, alfalfa, there is practically no need to set up other crops for game.

Even so, a 1ha alfalfa and 0.5ha grain crops were set up.

Year	Cultivated surface					
	Existing (ha)		Needed (ha)		Available (ha)	
	Grain	Alfalfa	Grain	Alfalfa	Grain	Alfalfa
2011 - 2012	0.5	1	5	15	0.5	1

Wildlife pest control

Wildlife pest control activities are carried out throughout the year, especially during the growing period of offsprings.

Harvested pests:

Table 11

Season	Specia					
	Stray dogs	Stray cats	Crows	Hooded Crow	Magpie	Jay
2011 - 2012	65	48	25	20	60	30

Due to the fact that lately the number of stray dogs as well as predators allowed/prohibited by law is on the rise, their numbers will be limited through shooting or trapping as allowed by the law.

CONCLUSIONS

Economic conclusions

Table no. 12 shows the income and expenses balance for this wildlife area:

Table 12

Contract period / hunting season	Total income	Total expenses	income/expenses balance
2011 – 2012	96,741	79,708	17.033

Conclusions on the applicability and outcome of the study

The data presented in this study shows that the natural conditions of wildlife area no. 22 called Ineu are favorable to wildlife of interest: deer, roe buck, wild boar, pheasant, hare, partridge etc.

As table no. 5 indicates, for an annual natural growth of 6, 12 specimens of species deer can be harvested.

As table no. 6 indicates, for an annual natural growth of 18, 51 specimens of species roe buck can be harvested.

As table no. 7 indicates, for an annual natural growth of 15, 32 specimens of species wild boar can be harvested.

As table no. 8 indicates, for an annual natural growth of 125, 175 specimens of species hare can be harvested.

The results, to date, of the management method used at wildlife area no. 22 called Ineu show that this wildlife area was well cared for.

This study highlights the following issues related to the wildlife area's capacity to support game animals and the possibilities for capitalizing on these opportunities through hunting:

- The area has average worthiness for deer, roe buck, wild boar, hare and pheasant.
- The area is equipped with the necessary installations, utilities and constructions in order to reach optimal counts and a substantial growth.
- Great attention must be paid to protecting the game and keeping under control the pests which reduce the annual growth and the count/harvest quotas, implicitly.

The application of the provisions of this study will result in an increase in the level of capitalization of this wildlife area's capacity and in the level of satisfaction of the hunters.

Quantitative, qualitative and value indicators

The effectiveness of the provisions of this study can be highlighted by the raise that some indicators will show, compared to their current level

- *Quantitative indicators by species*

If we consider, for example, the number of specimens harvested on 1,000ha of wildlife area, an increase will be seen, as follows:

- for deer, the number of pieces harvested will stay at 0.5 per 1,000 ha of forest
- for roe buck, the current annual harvest will stay at 0.5 per 1,000 ha of forest
- for wild boar, the number of pieces harvested per 1,000ha can be increased from 2 to 3 specimens
- for hare, the number of pieces harvested per 1,000ha will stay at 7 specimens /1000 ha productive area.
- for pheasant, the number of pieces harvested will stay at 19 specimens/1000 ha productive area.

- *Qualitative indicators by species*

On this wildlife area 4 roe buck trophies were harvested.

To this date no award-worthy trophies were harvested on this wildlife area, from any species of interest.

Through the measures proposed in this study, it is anticipated that, at least during the last part of validity of the study, at least one deer award-worthy trophy and 1-2 roe buck award-worthy trophies will be harvested.

Also, the hunters' satisfaction will increase, thanks to the number of pieces that will be harvested in a day.

- *Value indicators*

The expenses incurred for 1,000 ha wildlife area amount to 9,514.26 Ron.
The income for 1,000 ha wildlife area amounts to 7,839.1 Ron.
The income/expenses balance for 1000 ha is 1,675.15 Ron.

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