MONITORING THE CINEGETIC BIODIVERSITY WITH SPECIFIC INDICATORS TO MARAMURES COUNTY

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Abstarct: The main objectives of this paper are the description of hunting funds from Maramures region, analysis of wild stocks in the study area and to identify specific biodiversity of the region with the use of modern tools for monitoring wildlife in the forest seven funds. It also seeks regional wildlife biodiversity assessment and implementation of prospective studies on the development of wildlife biodiversity in the region studied. Methods used for the study of the biodiversity of this paper are: species richness, heterogeneity, anthropogenic factor. Also, we used appropriate methodology for calculating the indicators used in accordance with the generally recognized internationally. As a method for determining the regional wildlife biodiversity systematic study has used cross methods, aiming issues, phenomena and processes at a time and longitudinal methods, seeking processes, while issues. After the number of units taken so we used both statistical methods and methods casuistry (case study, monograph, etc.). Methods of data collection was mainly quantitative, it is an objective method, deductive and generalized in the period of 2 year (2011-2012). -The forestry funds Cisla, Bistra Petrova and Chioarului Valley, fauna biocenosis is the largest heterogeneity in the studied area. The heterogeneity of the largest deer is the smallest Bistra Petrova is Ruscova forest resources (Simpson index). Equitability highest recorded in the hunting Remetea. The animal genetic resources far exceeds their current use because they provide options for the future, a species of wild animals, which is of little importance today can be extremely valuable in the future to improve specific traits of resistance to diseases, adjustment,

Key words: cinegetic biodiversity, indicators, forestry funds

INTRODUCTION

Agricultural biodiversity is particularly important for food production and food security and livelihoods, the result of interactions between the environment, genetic resources, management systems and practices used. Biodiversity is in turn influenced by climate change, but also biodiversity can reduce the effects of climate change on population and ecosystems [1, 2]. Impact of climate change on vulnerable systems observed (mountain ecosystems, polar) showed greater vulnerability due to temperature increase. The IPCC report shows that about 20-30% of plant and animal species assessed so far are at increased risk of extinction if global average temperature increase of more than 1.5-2.5 ° C above from 1980 to 1999. There are recent concerns regarding the loss of biodiversity due to the expansion of agricultural land irrigated lands irrigated land less productive and homogenization of farming systems. In this regard, there are two major concerns, namely:

increasing the genetic vulnerability and genetic erosion. Genetic vulnerability occurs when a widely used variety or species are sensitive to changing climatic conditions. Genetic erosion is the loss of genetic resources by the disappearance of a species of animal or plant variety. Climate change and increased climate variability may increase genetic vulnerability and genetic erosion increased [3]. Without proper management of agricultural biodiversity, some key functions of the agro-ecosystem would be lost (nutrients, water cycles, regulation of pests and diseases, pollination and soil erosion control).Requirements humanity beyond Earth's natural resources and environmental deterioration in the global food production are serious phenomena profound effects on society as a whole [4]. Our global civilization today is an impossible economic direction supported by the environment, a direction that guides us toward economic decline and eventual collapse. The problem of animal

genetic resources was discussed extensively by the international community with the adoption of the first Global Action Plan, which includes 23 priority strategies, aimed at combating erosion of animal genetic diversity and sustainable use of resources zoo technical genetic. He fired a warning since the past six years have gone 62 livestock animal species, one species each month, and if it continues at this rate it will reach a serious situation worldwide. Our country has the largest biogeographically diversity of European countries, including 5 of the 11 existing European biogeographically regions [7]. Europe grows more intense economic and human benefits this brings, risks, risk is increasingly becoming a continent artificial nature to lose and everything to gain by her man has. Europe strives to maintain current nature in all its diversity and to promote economic activities that do not harm biodiversity. We could say that they try to reconcile two needs of the people, both vital, namely: the need to earn income and the need to keep nature alive [5,6].Currently practicing "environmental economy" idea accepted by Lester Brown in his book "Eco-Economy" which refers to an economy that can grow in the long term without affecting its support system (environment), the eco-economic approach to phenomena, especially social sustainability is the main premise of eco-economy being directly related to ecosystems

and biodiversity, where more often discussed the need to ensure fairness between generations, and within them [8]. Lester R. Brown stated that for the earth on to future generations a cleaner with an appropriate living environment and development to be sustainable, it must first be economically efficient, equitable socially, environmentally harmless aspects missing in the current economic life, which gives very little respect for the man and his natural environment[8,9]. Natural ecosystems and anthropogenic semi and socio-economic system elements include providing material, energy and information, which can be transformed by physical, biological and social resources to create a flow from one environment to another. Today there is an ecological approach that is targeted on various links on multilevel, including the link between people and their environment, and the numerous factors that impact health and nutrition.

The main objectives of this paper are the description of hunting funds from Maramures region, analysis of wild stocks in the study area and to identify specific biodiversity of the region with the use of modern tools for monitoring wildlife in the forest seven funds, which are in the area of Maramures region. It also seeks regional wildlife biodiversity assessment and implementation of prospective studies on the development of wildlife biodiversity in the region studied.

MATERIALS AND METHODS

Methods used for the study of the biodiversity of this paper are: species richness, heterogeneity, fairness. Also, we used appropriate methodology for calculating the indicators used in accordance with the generally recognized internationally. As a method for determining the regional wildlife biodiversity systematic study has used cross methods, aiming issues, phenomena and processes at a time and longitudinal methods, seeking processes, while issues. After the number of units taken so we used both statistical methods and methods casuistry (case study, monograph, etc.). Methods of data collection was mainly quantitative, it is an objective method, deductive and

generalized in the period of 2 year (2011-2012).These quantitative approaches were made in the methods concerned. Cross-sectional studies provide an overview of the situation in wild animal populations Maramures region is primarily descriptive, bringing a large amount of quantitative data that have been processed to obtain synthetic studies overall. Were used as sequential methods, where each method (quantitative or qualitative) research has been addressed in the same turn, and theoretical and methodological triangulation method for determining the specific indicators of biodiversity. We have also used the methods of investigation in order to achieve a qualitative correlation

between the classification-connection description. Have been described based on detailed qualitative analysis of biodiversity hunting situation at regional level, using the relations between the various principles and techniques, all aimed at building a global vision. As a technique of qualitative method was used systemic observation, which refers to behaviors in the organization of the subjects in our case study area wildlife biodiversity of Maramures. This information can be found in ethological descriptions of different species of wildlife. Analysis of natural biodiversity (including its dynamic evaluation) is based on the species, the basic taxonomic unit. Genetic diversity in wildlife usually is assessed as not so much from the standpoint of genetic fund for later use, but rather determining the stability of the species existence. In the economic field in the final biological resources are analyzed taking into account the concept of species. There are 3 types of dimensions of biodiversity, species related to 1) richness, 2) specific diversity, 3) the number of staff of the species. Research Methods wealth of species used in this paper are: the index k, the index α (Fisher, Margalef) Menhinick index. Term indicator of biodiversity assessment in many cases do not apply to species, but the species groups. Systems different criteria for assessing the usefulness contain contradictions related taxa tend to have a unique set of indicators for monitoring taxa in a region or related to the tendency to emphasize the importance of endemic species. Large animals are used as indicators of integrity. Structure indices fauna as basic dimensions of biodiversity, is limited to the number of species number, specific richness and diversity. Specific wealth

concentration index adequately reflects diversity and is applicable to vertebrate animals, but rarely, and invertebrate animals. Two specific indices of wealth - Margalef and Menhinick depend heavily on sample size. Richness and diversity are related to the probability of the presence of species in one place or another and, therefore, their employment potential numerically [7,8]. For each species, it is determined by the amount of resources available food chain. Wildlife biodiversity survey of the study area with biodiversity analysis of the seven funds hunting.In this work we studied the wildlife area, taking into account its division as sharing funds used by AJVPS Maramures Inspectorate for Forestry and Hunting - Baia Mare, Baia Mare branch. Studies were conducted in the following areas of forestry funds 4 - fund Viseu, 8 - Ruscova 9 - Bistra Petrova, 10 - Cisla, 42 - Valley Chioarului, 43 - Chioar, 44 - Remetea. The number of species in a habitat - or richness of species - is at first glance the easiest highlight the biodiversity component. In this respect the objectives pursued in this study were: to identify the area of wildlife animal species present way of life and behavior in each season and location.I n the region of 82 species of birds inhabit forest (9 species are considered endemic or rare), of which 71 are sedentary or sedentary possible and 11 species are migratory. From the rich and varied diversity of large mammals, highlight herbivores: deer (Cervus elaphus), roe deer (Capreolus capreolus), wild boar (Sus scrofa) and large carnivores - bear (Ursus), wolf (Canis lupus), lynx (Lynx lynx).

RESULTS AND DISCUTION

Sustainable management of wildlife hunting manager will consider the following: management of wildlife hunting with the management plan, principle of sustainability for 10 years provided the wildlife; ensure quality of food provided and served game, set in the management plan, or at least that specified in the management contract, thus preventing damage agriculture and livestock;

ensuring sustainable peace by combating hunting wildlife pest hunting, wild and feral, present hunting grounds and especially in forests: wolves, foxes, and feral cats and dogs wandering, crows and magpies; making buildings and installations hunting at least at the level established in the management plan and their location in areas of concentration of game, given the evolution of the structure

stands; improve the quality of the game by improving the age and sex of the species bearing trophies, artificial selection is applied correctly and proper feeding.

Berger –Parker Index

$d = S / \log N$, where: S is the number of species in the sample and N is the total number of individuals in the sample to be analyzed.

d_4 Vişeu = $10/\log 361 = 3,91$ - the presence of 10 specific species studied area (Figure 1).

d_8 Ruscova = $12/\log 430 = 4,55$ - with the presence of 12 species specific area studied (Figure 2).

d_9 Bistra Petrova = $14/\log 626 = 5,01$ - with the presence of 14 species specific area studiedb (Figure 3).

d_{10} Cisla = $15/\log 382 = 5,81$ - with the presence of 15 species specific area studied (Figure 4).

d_{43} Chioar = $8/\log 231 = 3,38$ - with the presence of 8 species specific area studied (Figure 5)

d_{44} Remetea = $12/\log 886 = 4,07$ -with the presence of 12 species specific area studied
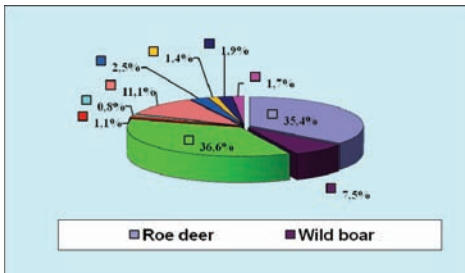

Figure 1. Species biodiversity in hunting fond Viseu

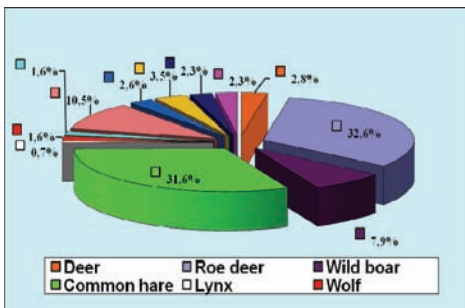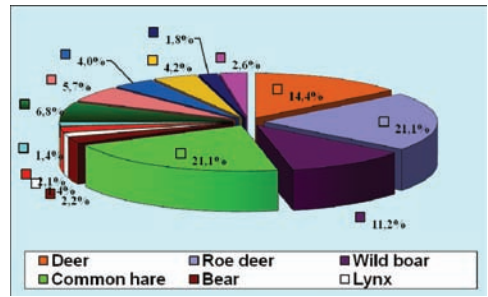
Figure 2. Species biodiversity in hunting fond Ruscova

Figure 3. Species biodiversity in hunting fond Bistra-Petrova
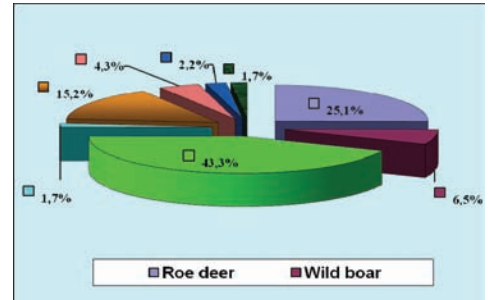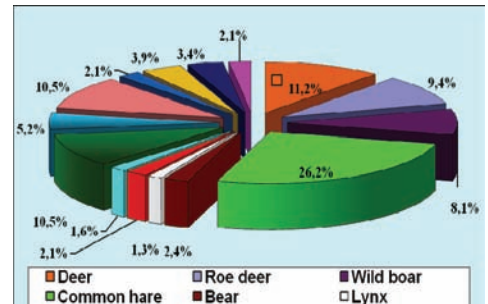

Figure 4.Species biodiversity in hunting fond Chioar

Figure 5. Species biodiversity in hunting fond Cisla

Simpson index (D, λ)

$\lambda = \Sigma\ ni\ (ni - 1) / N (N - 1)$

where Ni is the number of individuals of the species i and N the total number of persons / species in the test sample. The rule uses the form $1 / \lambda$, so that the index is directly proportional to diversity.

$1 / \lambda$ is even greater as greater ecological diversity.

λ_{10} Cisla (bears) = 0.34 1/0, 34 = 2,941

λ_9 Bistra Petrova (grouse) = 9.92 1/9,92

Cisla forestry fund, fauna biocenosis is the largest heterogeneity in the studied area.

Of the 7 funds hunting studied, the largest share of the fund meets pheasant Remetea 44 (89.3% with 460 ex.) And the lowest rate is found in the background Valley Chioarului 42 (3.9% with 20 ex.).

Of the 7 funds hunting studied, the largest share of deer meets Ruscova fund eight (23.8%, 140 ex.) And the lowest rate is found in 10 Cisla fund (6.1%, 36 ex.).

CONCLUSIONS

As a method for determining the regional wildlife biodiversity systematic study has used cross methods, aiming issues, phenomena and processes at a time, and longitudinal methods, seeking processes, while issues.

The method of data collection was mainly quantitative; it is an objective method, deductive and generalized. These quantitative approaches were made in the methods concerned. They used qualitative research methods to achieve a correlation between classification-connection descriptions. Have been described based on detailed qualitative analysis of biodiversity hunting situation at regional level, using the relations between the various principles and techniques, all aimed at building a global vision. Analysis of biodiversity (including its dynamic evaluation) is based on the species, the basic taxonomic unit. Genetic diversity in wildlife usually is assessed as not so much from the standpoint of genetic fund for later use, but

rather determining the stability of the species existence. In the economic field in the final biological resources are analyzed taking into account the concept of species

After calculating the index d, it appears that the fauna of biocenosis presenting the greatest biodiversity in the study area is forest funds Cisla and Chioarului Valley.

The forestry funds Cisla, Bistra Petrova and Chioarului Valley, fauna biocenosis is the largest heterogeneity in the studied area. The heterogeneity of the largest deer is the smallest Bistra Petrova is Ruscova forest resources(Simpson index).Equitability highest recorded in the hunting Remetea.

- The animal genetic resources far exceeds their current use because they provide options for the future, a species of wild animals, which is of little importance today can be extremely valuable in the future to improve specific traits of resistance to diseases, adjustment, etc

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