Studia Universitatis "Vasile Goldiş", Seria Ştiinţele Vieţii
Vol. 20, issue 3, 2010, pp. 81-85

THE EFFECT OF INDOOR BIGGAME KEEPING ON FOREST VEGETATION

Judit GYORI[1]*, Lajos JUHASZ[1], Laszlo SZENDREI[1], Karoly REDEI[1], Szilvia KOVACS[2]

[1] Department of Nature Conservation Zoology and Game Management, Faculty of Agricultural and Food Sciences and Environmental Management, University of Debrecen, Debrecen, Hungary
[2] Department of Plant, Science Faculty of Agricultural and Food Sciences and Environmental Management, University of Debrecen, Debrecen, Hungary

ABSTRACT. Game-preserves are the results of conscious human activity, where the goal is to develop a concentrated and more profitable game-management. On the other hand, according to the law, in the game-preserves the game bearing capacity is not the most important parameter, because in these areas the feeding is continuous. In practice this means that in game-preserves we find a much higher density of games than in the nature. This causes a relative big loading of the area (of the herbaceous and arboreal), where the game-preserves are located. Our aim is to make ecological and condition examination of forest- and game resources. The first steps of research are based on forest structure investigations (distribution of tree species, of forest age, of year classes etc.) using data of local forest management plans. The scenes of these works are game-preserves and forest resources (natural and artificial reforestation) in Nyírség region (East-Hungary).

Keywords: game-preserve, forest structure, forest management plan, loading, East-Hungary

INTRODUCTION

Currently the big game keeping is one of the most developing fields of game management, which satisfies modern hunting demands. The first data in Hungary related to game preserves are from the 13th century. In that period royal game preserves were established, functioning in a different way than they are nowadays (Csőre,1997). The most important causes of the growing number of game preserves in Hungary are the predominance of big games, the demand of the market, and intensive agriculture (Nagy, 2008). According to The National Data Base of Game Management (OVA) in 2008-2009 a vast number of big games in Hungary are kept indoors: 6,4% of red deer, 22,5% of fallow deer, 0,5% of roe, 28,2% of mouflon, and 19,2% of wild boar.

Game-preserves are the results of conscious human activity, where the goal is to develop a concentrated and more profitable game management. They can have a special role in reducing game damage and increasing the planning possibilities and efficiency of game management (Pechtol et al., 2010, Nagy, 2007).

On the other hand, according to law, in the game-preserves game bearing capacity is not the most important parameter, because in these areas feeding is continuous (Jánoska, 2002). In practice this means that in game-preserves we find a much higher density of games than in nature. This causes a relatively significant loading of the area (of the herbaceous and arboreal), where the game-preserves are located.

Examinations of the effects of game-preserves were started in Hungary only a few years ago (Jánoska 2002, 2003, 2007; Koltay, 2004; Koltay and Hegedűs, 2005), and they were related to areas in West Hungary. The results of researches in this topic are very diverse. Considering the structure of natural and artificial reforestation, in the locations of game-preserves higher game density caused changes, but we cannot talk only about negative effects. According to Koltay (2004) in the examined wild boar preserves there was not significant degradation in the health of the forest, just in the very close area of wallows and feeding troughs. Whereas the survey of the herbaceous and shrub-layer showed more negative effects in many ways. He states that using the same area as the location of a wild boar preserve for more than 15-20 years is not advisable.

We have to mention that the related bibliography is hard to be applied in areas with different ecological conditions and forest structures. As we have already mentioned, the main part of the data are from game-preserves in West Hungary. Our aim is to set up permanent measuring points and standpoints, to be able to make long term examinations in lowland forestations as well (East Hungary). The study of game-preserves which have similar forest stand structure, but were founded in different years, can give us a good picture of the effect caused by the passing of time.

Our work is mainly the ecological and conditional examination of forest- and game-resources in three different game-preserves, which were established in different years. In this paper we are describing the method of our examinations.

MATERIALS AND METHODS

The scenes of the examination are the following (Fig.1):

***Correspondence:** Judit Győri, University of Debrecen, Faculty of Agricultural and Food Sciences and Environmental Management, Department of Nature Conservation Zoology and Game Management, no. 138 Böszörményi St., 4032 Debrecen, Hungary, tel.: +3652508444/88281, fax: +3652413385, e-mail: gyorijudit@agr.unideb.hu*
Article received: May 2010; published: August 2010

1. Bagamér game-preserve (NYÍRERDŐ Plc., Haláp Forestry)
2. Nagyerdő game-preserve (NYÍRERDŐ Plc., Debrecen Forestry)
3. Kökényes game-preserve (NYÍRERDŐ Plc., Gúth Forestry)

1. Bagamér game-preserve
2. Nagyerdő game-preserve
3. Kökényes game-preserve

Fig. 1 The location of the examined game-preserves
Source: National Data Base of Game Management (OVA)

Bagamér game-preserve

About the configuration of the terrain of this area we can say that it is lowland, the average height is 150 m above sea level. It belongs to the Turkey oak-sessile oak forest climate, the annual precipitation is 600mm, the mean temperature in July is 20 °C. In this area we can find different soil types: humous sand soil, meadow soil, brown forest soil. The water supply of the game preserve is provided by some artificially established water pipes. The feeding of the games is continuous during the whole year. There is no feeding ground available, so green food should be artificially replaced.

The establishing of this game-preserve was started in November, 2008, and was finished in May, the following year. There is 170 wild boar and 23 red deer on 775 ha.

Nagyerdő game-preserve

This area is lowland too, the average height is 200 m above sea level, belongs to the Turkey oak-sessile oak forest climate. The soil types of this land are humous and chernozem sand soil, meadow soil, brown forest soil. The water supply is solved by storage lakes, feeding is supplemented by cultivating feeding grounds. (13,6 ha).

The game-preserve was starting up in December, 2000. We have the 2004 data about the number of games in this area: 185 wild boar, 130 roe deer, 49 red deer on 465 ha.

Kökényes game-preserve

The average height of this area is 150 m above sea level. It belongs to the Turkey oak-sessile oak forest climate. The typical soil types in this land are: humous sand soil, meadow soil, brown forest soil. Water supply is provided by the Léta-brook, which crosses the game-preserve.

The game-preserve was established in 2009 on nearly 200 ha.

In the beginning of our research we make forest structure survey from the data of the actual local forest management plan to determine the main stand-forming tree species in the area of the game preserves.

RESULTS AND DISCUSSIONS

Using the data of the local forest management plans we can have a survey of the examined game-preserve's forest structures. It is important in many ways; on the one hand for the selection of sample plots, on the other hand for the evaluation of the changes of forest structures. These graphics are representing our results (Fig.2-4).

Using the data of these diagrams we determined the main target stands (Black locust, Pedunculate oak, Poplar, Scotch pine) where we have to establish measuring points. The following diagrams show the age class structure of the mentioned tree species (Fig. 5-8).

Studia Universitatis "Vasile Goldiş", Seria Ştiinţele Vieţii
Vol. 20, issue 3, 2010, pp. 81-85

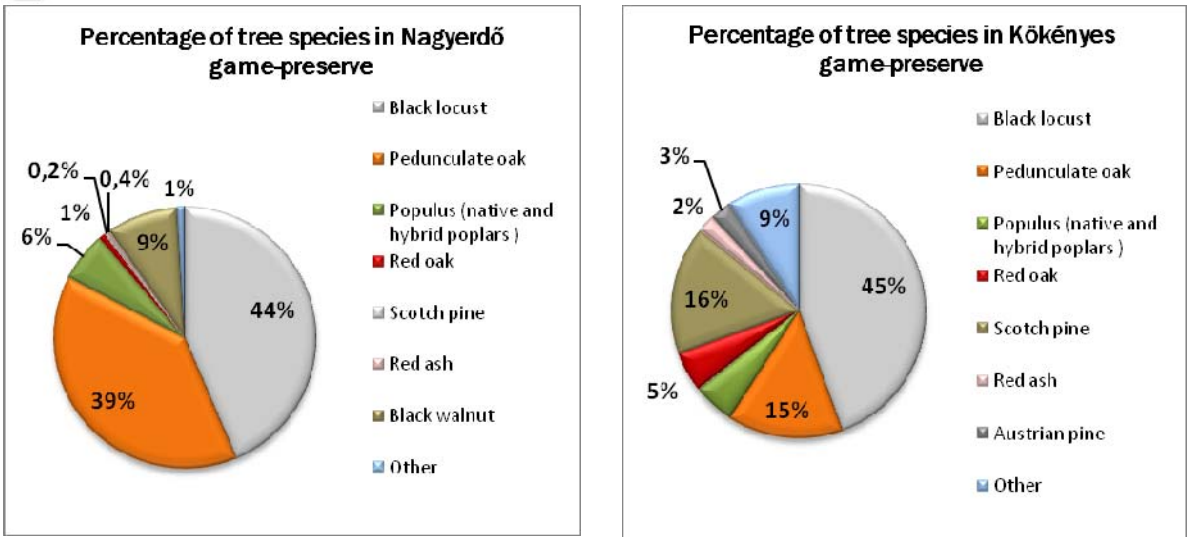

Fig. 2,3 The percentage of the tree species in the examined game-preserve: Nagyerdő (left side), Kökényes (right side)

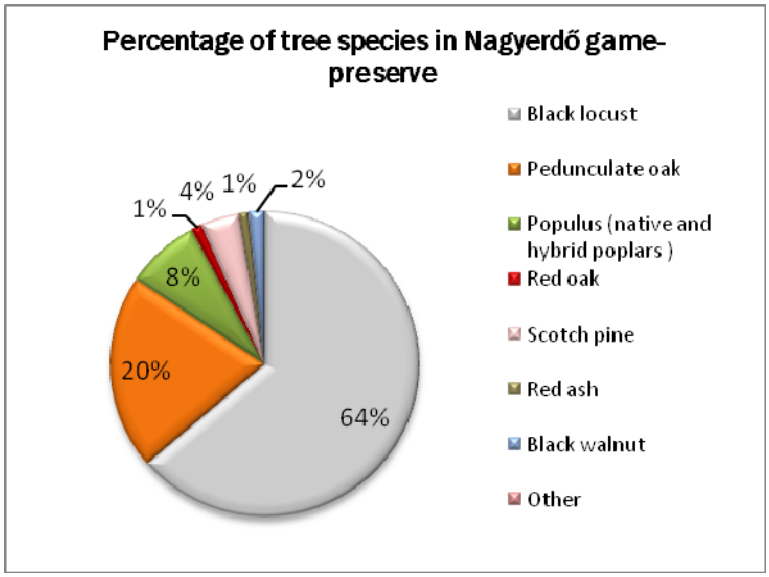

Fig. 4 The percentage of the tree species in Bagamér game-preserve

Analyzing these charts it can be ascertained, that we need measuring point in the following age classes:

In case of the Pedunculate oak measuring points are required in the:

- stand of the age 20-30
- stand of the age 50-60

In case of the Black locust measuring points are required in the:

- stand of the age 10-20
- stand of the age: 20-30
- stand of the age: 30-40
- stand of the age: 40-50

In case of the Popolus measuring points are required in the:

- stand of the age: 20-30

In case of the Scotch pine there is no overlapping of the age classes in the three game-preserves, we chose measuring points in the following ages:

- 0-10 age in the Nagyerdő game-preserve
- 10-20 age in the Bagamér game-preserve
- 20-30 age in the Bagamér game-preserve and Kökényes game-preserve

Considering the related bibliography and the expertise we stated the number of measuring points in the game-preserves:

- Bagamér game-preserve: 15 measuring point/775 ha
- Nagyerdő game-preserve: 10 measuring point/465 ha
- Kökényes game-preserve: 5 measuring point/ 185 ha

Our aim is to have enough sampling point in the three examined game-preserve, and that way gain a correct view of the structure and the changing of the vegetation of game-preserves.

The size of the sample plots are 25m X 25m, and in each point we make:

• forest stand examination (tree species, health state)

• survey of herbaceous and arboreal (changing in vegetation cover)

The age structure of forest stands in the different game-preserves can be important for the games as well. In different age classes the effect of game damage is distinct. We have to consider that the tree examined game-preserve were established in different years what cause differences in the appearance of the effect of games in these areas.

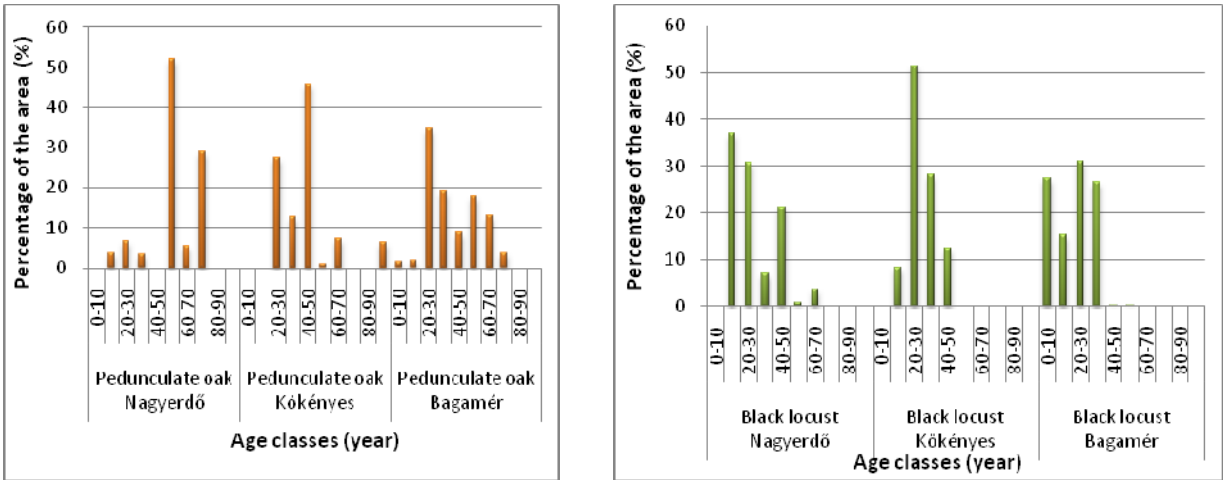

Fig. 5,6 The age class structure of Penduculate oak (left), Black locust (right) in the three examined game-preserve

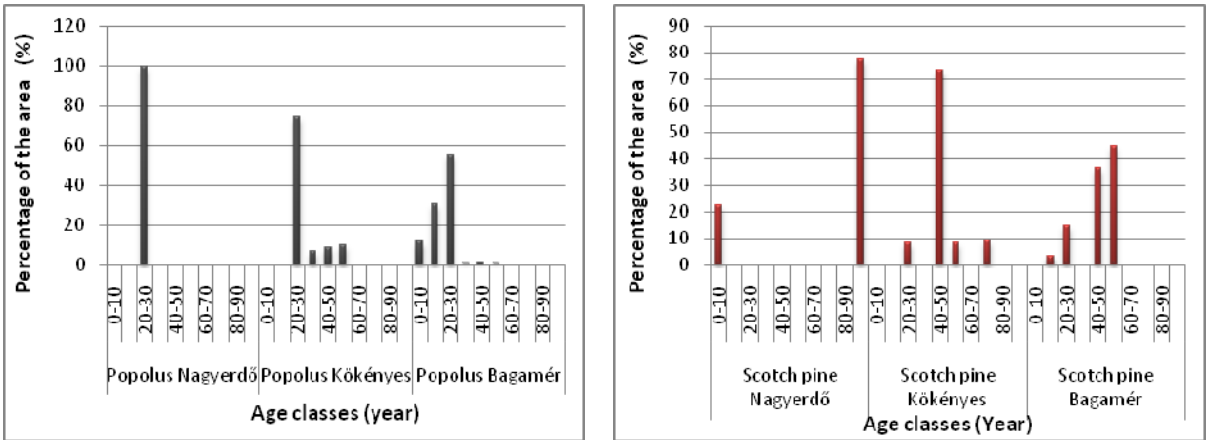

Fig. 7,8 The age class structure of Popolus (left) and Scotch pine (right) in the three examined game-preserve

CONCLUSIONS

To have an overview of the effects of game-preserves on the forest vegetation, as a first step we have to establish measuring points in the examined areas. To assure the results to be representatives it is important to have a method about the setting up of these sample points. In this paper we described the details of this method. We made forest structure survey to determine the main stand-forming tree species in the area of the game preserves (Kökényes, Bagamér, Nagyerdő) as well as to estimate the number of the measuring points.

The method that had been described above is the first step of a long term examination of the effect of game-preserves on forest vegetation.

REFERENCES

Csőre P.: Vadaskertek a régi Magyarországon, Mezőgazda Kiadó, Budapest, 1997

Jánoska F.: Környezeti Hatásvizsgálatok vaddisznóskertekben, EK TV-TK Konferencia Kiadvány, Sopron, 2007

Jánoska F.: Ökológiai vizsgálatok vaddisznóskertekben. Magyar Vadászlap Szakmai melléklete, 12,2, 8-9,2003

Jánoska F.: Vadaskertek szerepe a vadgazdálkodás jövőképében, Nimród Vadászújság, 90/6, 23-25, 2002

Koltay A.: Környezetromboló-e a vaddisznóskert? , Nimród Vadászújság, 92/5, 29-30, 2004

Koltay A.: Erdő vagy vaddisznóskert?, Erdészeti Lapok 140, 25-26, 2005

Koltay A. : Környezeti változások vizsgálata vaddisznóskertekben, Tájökológiai Lapok, 2/1, Gödöllő, 141-157, 2004

Nagy E. : A hazai vadkárok okai és hatása a vadgazdálkodásunkra bevezető előadás, A hazai vadkárok okai és hatása a vadgazdálkodásunkra A vadgazdálkodás időszerű kérdései 7., Vajdahunyad Vár, 6-11, 2007