An overview of damages caused by big game to agriculture

One of the most serious problems of the Hungarian game management is the damage caused to forests and agriculture by big game species. Game damages are issues in forest management, agriculture and wildlife management, especially when these economic branches belong to different groups. These problems need long term solutions but in spite of all efforts of the past 60 years the debates regularly recurred about the unbearable consequences of game damages related to the overabundant big game populations.

In the last five years forest damage was about HUF 200 million/year on average, while the agricultural damage reached HUF 1.5 billions/year. Because of the large amount of money, agricultural damage has become the centre of attention for 10 years. Value of game damage notably changed in the last 50 years, from the end of the eighties the agricultural damage increased significantly in terms of nominal value of money (Figure 1).

In order to reduce agricultural game damages a reduction of deer populations was initiated in Hungary several times, but the expected result of declining game damages was not reached. Agricultural game damage continued increasing in nominal value after 2000.

During the last decades several studies were conducted to get a better understanding of factors affecting game damages. Mostly, overabundance of big game is considered as the main factor. As early as in 1940 it was described as follows: The extremely overabundant deer population nibbled off forest sections, plantations as a gang of greedy marauders, and since animals are not full, they began to appear on agricultural lands every night and strip sown plants. The many deer hinds not only cause fatal damage in the forests and on agricultural lands, consequently people hate deer population, but deer population began to degenerate (Nikolits, 1940).
Figure 1: Change of big game damage in nominal value between 1957 and 2010 (data obtained from OVA)

In the next 50 years, the deer overabundance was considered as a fact, independently of the reported ("estimated") number of deer or number of deer bagged. For example, red deer population was estimated about at 20000 in 1940, at 36000 in 1971, at 54600 in 1985, at 77000 in 2000 and at 92000 in 2010, and it was always stated that red deer was "overabundant".

According to the most general opinion significant reduction in the number of deer is the obligate solution to the problem of increasing game damage. Of course there are different opinions. Many people thought that the situation should be studied in details in order to reveal another factors, which can influence the trend of game damages. At the end of the 1960s Professor Lajos Bencze called the attention to the fact that sylvicultural characteristics (e.g. transformation of stock of planted trees), as well as agricultural production at the edge of forests and on agricultural lands extended between forests, and the rate of the cultivated plants influence the tendency of big game damage.
According to other authors big game damage probably increases parallel with increasing yield, even if deer numbers are constant. Changes of the market prices of agricultural products are considered as an important factor, because if the product is more expensive, the big game damage “costs” also more (Koller, 1971).

Statistical analysis of the data after 2000 revealed that agricultural game damage is not a countrywide problem. Large differences could be found between areas and the highest level of big game damage is observed in the Trans-danubian counties (Map 1). In those counties, the amount of money paid to the compensation of big game damage can reach or even exceed 20% of game management expenses.

In this paper, we present the change of agricultural big game damage from 1994 to 2010. In this period, the amount of compensations has increased considerably and solving the situation of big game damage remained a hot issue. Our aim is to represent the situation of the amount of big game damage and its change in the last 17 years. Data were obtained from the National Game.

Deers. (Capriolus capriolus) Photo by Norbert Bleier.
Management Database (OVA). We took the annual inflation rate into consideration based on data of the National Bank of Hungary (MNB). The base year of calculations was 1994. We determined the real value of damage after 1994 adjusted the nominal values of big game damage paid in the current year with removing the effects of the inflation annually. With the removal of the effects of inflation we expected to get a better approximation of the “real” amount of the damage.

A significant difference was found between in the inflation-adjusted tendency of damage and tendency of damage presented in nominal value (Figure 2). Based on the nominal value an intensive increase was shown between 1994 and 2002. When we removed the effect of inflation the agricultural big game damage fluctuated gently, in the last five years the values were close to the value of the base year. So, the amount of game damage (determined in the biomass consumed) did not increase, although in this period the estimated number of big game increased significantly (both the number of wild boar and number of red deer roughly doubled).

After the political regime change of 1989/1990, the big game damage began to rise suddenly. It is explained as a probable consequence of the breakup of the agricultural cooperatives. Thereafter more and more land-owners began to appear. At the end of the eighties, the amount of big game damage did not increase drastically, although it is shown by data, it became known because of changing of proprietary construction and consequently, farmers’ sensitivity to game damage was growing. Amount of damage caused by big game species increased in the nineties. Its reason may have been the general depreciation.

It is worth putting the importance of big game damage in another light. We used the data of the year 2010 in the next example (in this year was the biggest damage in current value), and we supposed that all the damage occurred on a maize-land:
- Agricultural game damage was 2.14 billion forints in 2010.
- This meant 57837 tons crop failure calculated with the prize: 37000 forints/ton
- Average yield was 6.57 tons/hectare in 2010, so it meant 8800 hectares maize area.
- That area (8800 hectares) is less, than 0.1% of agricultural land sown with maize in Hungary and it is less, than 10% of agricultural land sown with maize in Somogy county.

The problem exists, since people engaged in game management have to pay for damage yearly. According to our studies the problems of big
game damage are the most serious in those counties where the number of big game is the greatest (e.g. Somogy, Zala). This fact by itself is shown by the relationships of big game harvest density and big game damage on Map 2 and 3. Efforts to reduce the big game populations failed and in the spring of 2010 the largest red deer population size was reported.

To propose more sound solutions to the problem the tendency of factors playing a role in the changes of game damages should be modelled and this approach should be completed with economic calculations. These calculations can serve as a basis for adequate recommendations. The aim is to exploit big game population as a renewable natural resource and that process shall also be economically sustainable.

Literature:


OVA: Országos Vadgazdálkodási Adattár (Hungarian Game Management Database). www.ova.info.hu