

The role of the Muraközi horse and conservation options today

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Abstract

The Muraközi (Murinsulaner) horse is a traditional Hungarian breed connected to the area called Muraköz. There was bustling trade in this area in the 18th century. This required horses with good trotting ability and high load-bearing capacity. The local smallholders owned 2-4 mares. These mares could be paired with a state or licensed private stallions. According to the description of the 1883 economic newspaper, Muraközi horses could be purchased in large amount at the fairs of Szentkereszt, Szentanna, Csáktornya, Perlak and Varsád during the autumn season. In the Muraköz region, horse breeding was the only noteworthy livestock breeding activity, which was so significant that it was considered the basis of the entire economic system. The farmers here insisted on the Nori-type horses, as they were excellently suited for both agricultural and yoke work. During the chaotic period after the World War I, the Muraköz was divided with the division of the country. The statistics of the Ministry of Agriculture in September 1945 states that 58 percent of the Hungarian horse population had been lost. The changes that came in the second half of the 20th century endangered our traditional breeds, including the Muraközi horse. At the same time, there was a necessity to save traditional breeds. Recognizing the traditional genetic values, the Directorate of the Órség National Park finally took on the task. In 2003, the regeneration of the Muraközi began. The Muraközi horse has almost disappeared by now in Slovenia, Croatia and Hungary, and is already completely extinct in Austria. Today, a significant number of horses

representing the breed can be found in Óriszentpéter, but fortunately, private breeders are once again starting to recognize the values of this breed.

Keywords: Muraközi horse, Murinsulaner horse, breed reconstruction

The history of the Muraközi horse

The Muraközi (Murinsulaner) horse was considered an extremely sought after breed, according to contemporary records. The Muraközi horse can be associated with the region called Muraköz, located between the Drava and Mura rivers. There was bustling trade in this area in the 18th century. This required horses with good trotting ability and high load-bearing capacity. This is how a type could develop, which was bred specifically for this kind of use (MIHÓK, 2017). According to the records, both breeders and wagoner paid large sums of money for a good Muraközi and specifically sought out this type of horse. The local smallholders owned 2-4 mares. These mares could be mated with a state or licensed private stallions. The farmers could not maintain many animals on their small farmlands, this is why they were willing to sell everything, except for their good mares of course, with which they could work with and sell their foals (MONOSTORI, 1894). According to the description of the 1883 economic newspaper, Muraközi horses could be purchased in large amount at the fairs of Szentkereszt, Szentanna, Csáktornya, Perlak and Varsád during the autumn season (ÓCSAG, 1995).

Keeping and breeding the Muraközi horse

Farmers used older mares for breeding (MONOSTORI, 1894). The horse was able to perform full-fledged work at the age of 3, and was considered mature at the age of 4 (MIHÓK, 2017). Hand mating was used at the age of 2-3. The mares spent most of their time with her foal in the stable and working around the farm. The farmer did not starve his horse if he could. The stables are said to have been simple, but not crappy. They were shared with other animals, like cattle or even sheep, but were airy, roomy and clean (MONOSTORI, 1894). When it comes to appearance, the Muraközi horse never showed a unified figure. We can get a closer picture if we look at the contemporary records. There were smaller ones, with a height of around 142 centimetres at the withers, measuring with a stick, more agile horses weighing approximately 400 kilograms, and larger, slower-moving horses weighing approximately 500 kilograms, with the heights between 150 and 162 centimetres at the withers (MONOSTORI, 1894).

The Muraköz region was the centre of the breeding of this traditional Hungarian horse breed, with nearly 9,000 horses in the late 1800s. The Muraközi horses found

here clearly descends from the Nori-type horses from Salzburg and Styria. In this region of the country, horse breeding was the only noteworthy livestock breeding activity, which was so outstanding that it was considered the basis of the entire economic system. The farmers here kept Nori-type horses, as they were excellently suited for both agricultural and yoke work (KOVÁCS-MESTERHÁZY and NÉMETH, 2023).

In these regions there was a shortage of stud stallions. Due to the high steady demand, the foals were sold, and the low-grade quality foals were used for breeding at the age of two. The county committee was forced to issue a certificate of suitability for these two-year-old stallions, otherwise there would not have had enough stallions to pair the mares with. There was a widespread belief in the region that the quality of the foal was largely determined by the mare, so a good mare would produce a good foal even with a bad stallion. This belief was a problem in breeding, despite having a positive effect on the farmers' efforts to keep good mares. During discussions with breeders it became clear that good quality sires of the Nori type were needed to boost breeding in the region. Accordingly, in 1881, the Ministry of Agriculture established 10 breeding stations in the Muraköz where 20 state-owned stallions of exclusively Nori type were accessible to breeders (KOVÁCS-MESTERHÁZY and NÉMETH, 2023).

The decline of the Muraközi horse and efforts to save it

During the chaotic period after the World War I, the Muraköz was divided with the division of the country. As a result, the future of the Muraközi horses was placed in the hands of four countries. One part was enclosed to Austria, one part to Yugoslavia (today's Slovenia and Croatia) and one part to Hungary (MIHÓK, 2017). According to the 1942 animal draft, there were 900,434 horses in Trianon Hungary. The statistics of the Ministry of Agriculture in September 1945 states that 58 percent of the Hungarian horse population had been lost, which was considered average compared to other species (Table 1). However, the descriptions paint a notably bad picture of the remaining horses. The figures also only approximately cover the grim reality. The data could primarily be determined by estimation, since the majority of farmers did not own up to their assets accurately, mainly because of the fear of confiscation (DUNAI, 2024).

Table 1: War casualties in Hungarian horse population (after DUNAI, 2024)

in 1942	in 1945
900,434 horses	58 % loss
740,000 horse tacks	148,000 horse tacks

The continuance of every genetically important breed has a justification, since extinct breeds can no longer be resurrected and we cannot know what characteristics will be needed in the future (BODÓ, 2011). The changes that came in the second half of the 20th century endangered our traditional breeds, including the Muraközi horse. At the same time, there was a necessity to save traditional breeds from both a professional and cultural perspective. The Horse Breeding Department of the Animal Breeding Research Institute took on the task of saving the Muraközi horse. The program started in 1957 and lasted until 1972 (MIHÓK, 2017). By 1972, the results of the professional work seemed to be fruitful, as the Muraközi was recognized as an independent breed. The breed's right to exist was clearly confirmed. However, the success did not last long, the last decade of the 20th century almost completely wiped out the Muraközi, so much so that at the beginning of the 21st century it was questionable whether it could still be saved. The breeding took place within the confines of the Hungarian Cold-blooded Horse Breeding Association, but saving the breed was not among the goals. Recognizing the traditional genetic values, the Directorate of the Őrség National Park finally took on the task. In 2003, the regeneration of the Muraközi began. However, finding horses with the appropriate ancestry and appearance criteria was not an easy task. Eventually, 12 mares were selected that met the requirements of ancestry and appearance. The pairing was carried out based on a mating plan which was prepared taking into account the above criteria. The ancestry of the selected mares was traced back and then they were divided into families (KOVÁCS-MESTERHÁZY and NÉMETH, 2023). As part of the efforts to maintain the breed, the breeders contacted the Croatian breeders' association, and they also visited some Croatian breeders in 2004. A suitable mare was found, but not a suitable stallion, since the Croatian breeding goal was meat production. In 2005, a visit was also made to the Dobsina stud farm in Slovakia, where the breed called the Murányi horse has been bred for forestry work since the 1960s. The breed was developed by pairing local mares with Noriker stallions, but it would not have improved the Hungarian Muraközi stock in terms of appearance, so breeding stock were not imported (KOVÁCS, 2008).

Can the Muraközi breed be saved?

With the loss of our traditional breeds, our self-esteem would also be lost, and our almost unprecedented register in Europe, which we have been keeping for almost 200 years, would also come to nothing (MIHÓK, 2008). Recently, the efficiency of selection programs for different breeds and their increase have received more attention. Thanks to this, the use of molecular genetic methods has also become more frequent (CSIZMÁR et al., 2017). The preservation of the gene pool, which aims to preserve an endangered (small) population in an unchanged form, is a special area of animal breeding. Saving gene reserves is not economical in the short term, but

there are cultural and technical arguments in favour of it. One such argument is that our domestic animal breeds are the results of human work, similar to our buildings. From a professional perspective, we must take into account that we cannot know what humanity's needs will be in the near or even distant future. It is possible that methods of exertion that are now considered long lost or obsolete will come forth again. Good adaptability to extreme conditions may be needed or specific traits may be necessary in crossbreeding (BODÓ, 2011). In phylogenetic studies, the examination of mitochondrial DNA has a great importance in mammals, with which it was established, for example, that domesticated horses can be traced back to several maternal founders. Genetic markers can be used not only for pedigree verification but also enable the comparison of populations. Such a mitochondrial DNA examination was conducted, for example, on mares of the Hungarian cold-blooded breed (CSIZMÁR et al., 2017) or reconstructed stock of the Szekler horse breed (GÁSPÁRDY et al., 2023).

Pedigree analysis or genetic marker studies make it possible to learn about the genetic composition and background of populations based on pedigree data. By using indicators calculated with pedigree analysis, inbreeding can be kept at a low level in livestock (KLEIN et al., 2022). It is of great importance to know the genetic structure of populations as accurately as possible. This is also vital in the case of breeds with small populations in a situation similar to the Muraközi (KLEIN et al., 2022). A small population can be associated with the risk of losing genetic diversity. The main task of gene conservation is to save genetic diversity among livestock. The FAO (Food and Agriculture Organization) classifies breeds into categories according to the degree of endangerment, depending on whether the population size is increasing, decreasing or remaining unchanged (SCHERF, 2000). The decrease in genetic diversity is closely related to the effective population size, which is used to design gene conservation strategies in gene conservation (VOSTRÁ-VYDROVÁ et al., 2016). The effective population size expresses the population size that must be taken into account during inbreeding. The effective population size corrects the number of males and females in breeding to a 1:1 sex ratio, random mating (BODÓ, 2011).

Genetic diversity is crucial for adaptation and response to selection. Its reduction is associated with reduced individual fitness and, in the long term, has a negative impact on the longevity of the population. Pedigree analysis is an effective way to determine genetic diversity, especially in breeds with small populations where more expensive technology is not available. The estimates can be used to optimize breeding methods (ABLONDI et al., 2018). However, the challenges of modern times have brought changes that have resulted in a decrease in the number of horses and may lead to genetic erosion. To avoid this, the genetic diversity of horses must be preserved (LIU et al., 2024).

The current situation of the Muraközi horse

The Muraközi horse has almost disappeared by now in Slovenia, Croatia and Hungary, and is already completely extinct in Austria (POTOČNIK et al., 2011). Efforts to save the Muraközi horse have shown significant results after 14 years. In 2016, the Muraközi research program was launched in Óriszentpéter, with the clear goal of making the Muraközi an independent breed. By then, the initial population in 2003 had greatly increased, which gave room for selection. The success of the program is based on increasing the number of mares owned by private breeders (Table 2), which, despite the difficulties, shows very positive results (KOVÁCS-MESTERHÁZY and NÉMETH, 2023).

Table 2: Development of the number of association members and number of animals between 2018-2023 (after KOVÁCS-VÁRHELYI, 2024; n = number of animals)

Year	Association member	Horse owner's member	Broodmare (n)	Stallion (n)	Foal (n)
2018	17	11	46	7	21
2019	23	13	46	5	22
2020	50	49	76	7	21
2021	76	62	115	15	49
2022	90	75	128	16	74
2023	100	81	133	17	61

Conclusion and recommendation

Based on the literature review, we can say that the Muraközi horse was very popular in its time. The breed associated with the Mura region was ideal for hauliers. Their breeders held their horses in high esteem, putting the needs of their mares above all else. The Muraközi horse was almost completely lost in the storm of history. The realization that our traditional breeds are needed and must be protected has given the Muraközi horse a chance to regain its strength. Unfortunately, at the national level, experts pay very little attention to saving the Muraközi. Today, a significant number of horses representing the breed can be found in Óriszentpéter, but fortunately, private breeders are once again starting to recognize the values of this breed. These private breeders are brought together by the Muraközi Horse Breeding Association, established in 2018, which aims to carry out a breed reconstruction program to reconstruct the Muraközi horse, register the stock, register certificate, administer breed maintenance and performance testing tasks, and also works to popularize the breed even more widely. To this end, the association organizes various events, breeding reviews, professional days, exhibitions, publishes publications and books. Such events include the Muraközi Horse Day for school groups and the Muraközi

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Professional Day. In the Őrség National Park, visiting the Muraközi stud farm, which is unique in our country, or taking a horse-drawn carriage ride with Muraközi horses, has become a tourist destination. Since we see that the number of horses and breeders is continuously increasing, we can rightly conclude that it will continue to hold its own in today's modern world.

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