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Analysis of the State of Bosnian Mountain Horse in the Borike Stud Farm

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Abstract

In the last fifty years the number of horses in the Balkan Peninsula has been falling significantly, especially the Bosnian Mountain Horse. In B&H there is a decreasing tendency in terms of the total number of horses as well as the extremely poor quality of racial composition. The most famous Balkan horse is the Bosnian Mountain Horse, which is the only indigenous breed in B&H. The most comprehensive program for the conservation of the Bosnian Mountain Horse was carried out at the Borike stud farm (near Rogatica) founded in 1893. An empirical research was conducted through a survey with the Ministry of Agriculture, Forestry and Water Management of the Republic of Srpska. It is noted that the number of horses over the years has been constantly decreasing and that it is necessary to launch an action plan and to provide adequate measures designed to safeguard their future.

Key words: animal genetic resources, conservation, Miško, Barut

Introduction

Over the centuries, numerous domestic, national and international breeds of domestic animals have been created. Because of their specific characteristics of breeding, productive abilities and adaptability to the environment, they take a significant place in the agricultural production. Autochthonous and protected breeds of domestic animals represent a unique genetic heritage that has been created for hundreds of years.

They also represent security for sustainable food production in the future, and in the process of adaptation to a certain area, they have become an important part of the genetic and cultural heritage (Adilović & Andrijanić, 2005). The loss of some races and strains has a negative influence on the gene pool which adversely affects the variability within the species. Autochthonous races that have been developed during the long evolution process and in specific breeding conditions represent a valuable gene fund. Resistant and well-adapted to the given conditions of cultivation, in the future they can be an important source of variability which should prevent their disappearance as well as the uncontrolled introduction of genes of other races and their populations (Adzić et al., 1997). In the last fifty years the number of horses in the Balkan Peninsula has been falling significantly, especially the Bosnian Mountain Horse. In B&H there is a decreasing tendency in terms of the total number of horses as well as the extremely poor quality of racial composition.

The most famous Balkan horse is the Bosnian Mountain Horse, which is the only indigenous breed in B&H (Katica et al., 2004). The Bosnian Mountain Horse is an internationally acknowledged ancient breed developed through a cross between the tarpan (*Equus caballus gmelini*) and the Asian wild horse (*Equus caballus prsewalskii*). The strong body constitution, resistance and endurance are the features of the Bosnian Mountain Horse created as a result of an open-air life and a diet that involves the use of what is available in nature. Bosnian Mountain Horses inhabit plains, mountainous, hilly, forests and karst lands (Karvan, 1934). Ogrizek and Hrasnica (1952) state that the Bosnian horse is a descendant of the autochthonous Balkan horse and the southern Russian horse that came to the Balkans with Slav migration. It is also stated that its constitution is influenced by the Asian types of horses that came to these areas with Huns in the 4th and Avars in the 13th century. It was used in the past as a pack and riding horse. It is still important as a packhorse in the mountains and in the transport of fuel, wood and logs.

The most comprehensive program for the conservation of the Bosnian Mountain Horse was carried out at the Borike stud farm (near Rogatica) founded in 1893 and a stud farm in Han Pijesak. The stud farm in Han Pijesak no longer exists and the data about the current state of the Borike stud farm are the subject of this research. Stallions and broodmares have been controlled at the Borike stud farm by the state authorities. Until 2011 a set of very strict standards for stallions was applied to ensure that the strongest specimens were only allowed to breed and they were required to compete in performance tests (Ziga and Telalbasic, 2009).

There were three lines, namely Miško, Barut and Agan in the breeding of Bosnian Mountain Horse. The last one no longer exists (Katica et al., 2010).

Materials and Methods

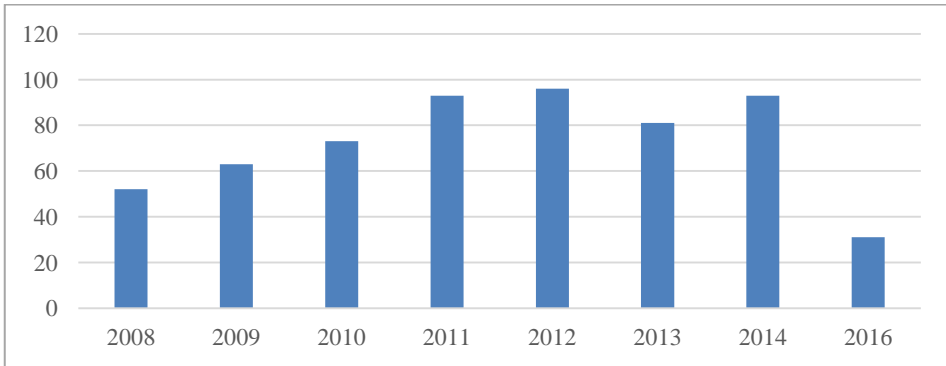
The Bosnian Mountain Horse was the subject of this research. Empirical research was conducted through a survey. The Ministry of Agriculture, Forestry and Water Management of the Republic of Srpska was interviewed for the survey which contained the following questions: the number of heads of Bosnian Mountain Horse and the herd structure of Bosnian Mountain Horse in the Borike stud farm (pepinier stallions, reserve stallions, broodmares, foal and gelding) during the eight years (2008-2016, excluding 2015).

Results and Discussion

According to the results of the survey conducted with the Ministry of Agriculture, Forestry and Water Management of the Republic of Srpska about the number of heads and the herd structure of Bosnian Mountain Horse in the Borike stud farm during the eight years (2008-2016, excluding 2015), the current situation is not promising in terms of continuation of this breeding programme and conservation efforts. The number of heads of Bosnian Mountain Horse in the farm during the eight years fluctuated considerably (Graph 1). From 2008 to 2012 the number of heads of Bosnian Mountain Horse was rising and the highest number of heads was recorded in 2012 when there were 96 heads of Bosnian Mountain Horse in the stud farm. In 2013 the number of heads of Bosnian Mountain Horses fell to 81 in total, but during 2014 there was an increase amounting to 93 heads in total. There are no data available for 2014, but 2016 saw a sudden triple decrease (total 31 heads).

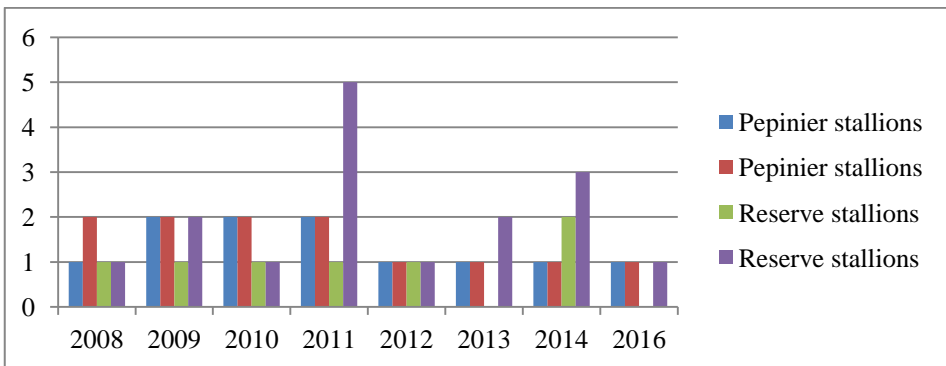
The number and the structure of stallions has been decreasing over time as well. There are two lines of pepinier stallions in the Borike stud farm, Miško and Barut. During the eight-year period, in 2008 there were 2 heads of Miško and one head of Barut. During 2009, 2010 and 2011 Miško and Barut were represented by two heads. There was just one reserve stallion head of Barut in the Borike stud farm between 2008 and 2012, there were two heads in 2014, but in 2013 and 2016 there were not any heads of Barut (Graph 2).

Data about geldings in the Borike stud farm were only available for Miško heads for three years, and there were two heads per year (2010-2012). As regards the Barut line, there were four heads in 2013 and one head in 2014. Starting from 2008 there were 10 lines of broodmares on the stud farm, whereas eight are kept today. The Mica and Luna lines disappeared; Mica was kept until 2014, while Luna disappeared as of 2010.



Graph 1. The number of heads of Bosnian Mountain Horse in the Borike stud farm during eight years

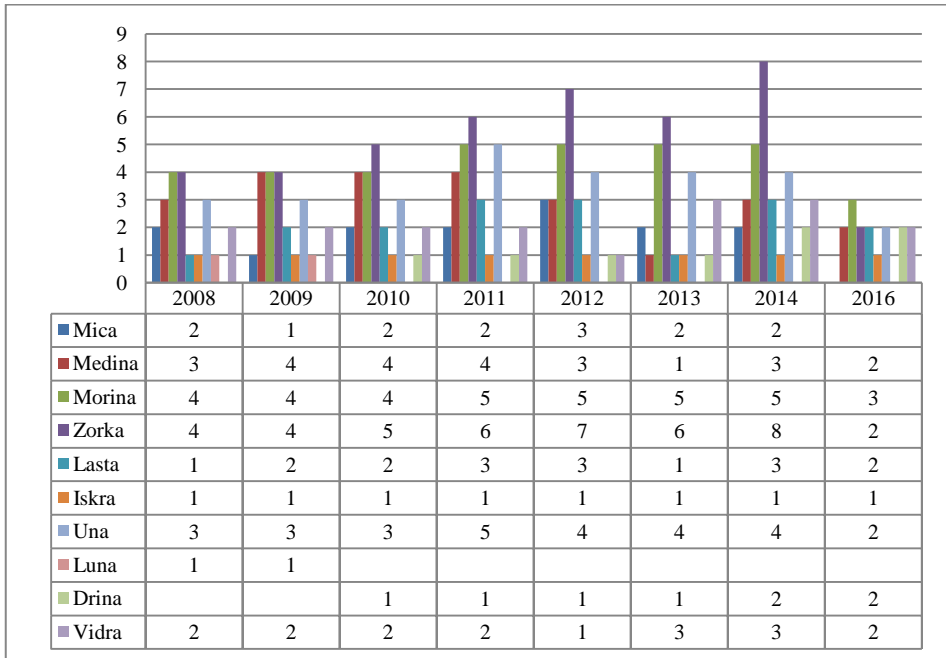
Број грла босанског брдског коња у ергели Борике током 8 година



Graph 2. The number of pepinier stallions and reserve stallions of Miško and Barut in the Borike stud farm (2008-2016, excluding 2015)

Број пепињерних пастува и станишних пастува Мишка и Барута у ергели "Борике" (2008-2016, искључујући 2015 годину)

Heads of all broodmare lines were decreasing (Graph 3). The Iskra line was represented by only one head during the examined period, thus she is quite endangered. Morina was represented by three heads in 2016, whereas the other lines such as Medina, Zorka, Lasta, Una, Drina and Vidra were represented by two heads in the Borike stud farm. The Zorka line had the highest number of heads during the examined period (eight heads) in 2014. Also, it is important to compare the number of male and female foals. In the 2010-2013 period, the Zorka line had the highest number of female foals (11 heads), followed by Morina (7 heads), Una (6 heads), Lasta (5 heads), Vidra (4 heads), Drina (3 heads), Iskra (2 heads), with Mica and Medina having the lowest number of foal heads (one head).



Graph 3. Number of broodmares in the stud farm "Borike" during 8 years
Број расплодних кобила у ергели "Борике" током 8 година

The total number of female foals for the four-year period was 36. The total number of male foals in the period of six years (2008-2013) was 42, 23 Miško and 19 Barut foals.

All results obtained are in accordance with the B&H state report for Animal Genetic Resources (AnGr) from 2003 which underlines that the breeding and conservation program for the Bosnian Mountain Horse has been seriously affected in post war period. The import of exotic breeds of horses did not have any significant impact on the Bosnian Mountain Horse. The results obtained from the Borike stud farm are very disappointing and it is essential to make an effort aiming at the revitalisation of this stud farm and to improve policy measures in order to preserve this breed and all other endangered animal genetic resources in Bosnia and Herzegovina.

Conclusion

Based on the information obtained from the RS Ministry of Agriculture, Forestry and Water Management, there is a lack of data concerning the number of individuals, the number of herds or the number of farms breeding any specific breed of AnGR.

In the Republic of Srpska, there is no Gene Bank for preserving AnGR or any other type of *ex-situ* or *in vitro* conservation (cryopreservation of blood, tissue, genes, semen, oocyte, embryos, DNA). The Borike stud farm represents a good example of how preservation of AnGR i.e. the Bosnian Mountain Horse should be done, although further investments are necessary in order to stop continuous decrease since this stud farm has been facing numerous problems for the past few years. The number of horses over the years has been constantly decreasing. The Mica and Luna lines have been lost forever, young horses have not been stamped and breeding conditions have become very aggravated. Due to that, further conservation actions for AnGR in the RS should be focused on developing the Strategy and Programs particularly relating to AnGR, at an entity level, that should define specific measures in a supporting scheme. Having in mind that farmers play a major role in local breed development and conservation, it is necessary to improve the entity policy in order to provide adequate subsidies for the sustainable use of genetic resources.

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Анализа стања босанског брдског коња у ергели Борике

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Сажетак

На Балкану, у посљедњих педесет година, изненадни пад броја коња је толико изражен да је постављено питање преживљавања ове врсте. У БиХ постоји тенденција смањивања укупног броја коња, као и изузетно лошег квалитета расног састава. Најпознатији балкански коњ је босански брдски коњ, који је једина аутохтона пасмина у БиХ. Најсвеобухватнији програм за очување босанског брдског коња се обавља на ергели „Борике“ (код Рогатице), основаној 1893. године. Проведена су емпиријска истраживања кроз анкету са Министарством пољопривреде, шумарства и водопривреде Републике Српске. Запажено је да се број коња током година стално смањује и да је неопходно покретање акционог плана и обезбјеђивање адекватних мјера усредсређених на заштиту њихове будућности.

Кључне ријечи: животињски генетички ресурси, конзервација, Мишко, Барут

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Received: November 23, 2017
Accepted: February 15, 2018