

The role of the European bison breeding center in the species restoration in Russia

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The work on the European bison restitution started in the USSR in the year 1946, after arriving the first five (3 males, 2 females) pure European bison from Polish reserves. The program prepared by M.A. Zablotskiy for future European bison restoration, later successfully carried out, included the following points and tasks (Zablotskaya 2004):

- The increase of European bison number in Breeding Centers according to specially designed scheme of the breeding and mating of animals (Groeben, Żabiński, Zablockiy). This stage proceeded for 15 years.
- The settlement of the European bison within the former area of the species in the habitat adequate for its biological requirements (started in 1961).
- The creation of the local, geographically separated European bison populations necessary for genetic variability increase of restored species as a result of various causes like genetic drift, mutation and selection processes different within each populations (Dubinin, Romashev 1932; Wright 1932; Dubinin, Glembockiy 1967). The creation of many local populations assured future species conservation in case of separate group destruction, epizootic and other reasons.
- A reconstruction of natural population structure in a process of transferring, joining, separating populations and in consequence achieve certain level of panmixia due to gene flow.

The establishment of European bison breeding centre in the Prioksko-Terrasnyj reserve was caused by the necessity to preserve one of the most valuable representatives of a wild fauna on the European part of Russia. On the beginning there were many question how to organize reserve to fulfill needs of species preservation. In the first period the priority was to create center for European bison breeding, which assures guard for animals, condition for reproduction and lack of intervention into natural “wild” way of life. The process of captive breeding was needed to reduce the losses of the genetic variability and to develop the European bison population for reintroduction. The problems (tasks) listed below appeared for breeding centre:

- Relation between breeding and studying of pure European bison.
- Conservation and dissemination of the gene pool of the species.
- Keeping pedigree information and animals dispatching to other breeding centers, free herds.

- Adaptation of animals brought from the zoos of Western Europe for reintroduction into free herds.

In years 1948–1951 seven (3,4) European bison arrived to Breeravka. On the beginning the herd in reserve was increasing and later surplus animals were sent to other places: Breeding Centre in Okskiy State Preserve (1959), to “Nauyamistis” in Lithuania (1969), European bison park “Cherga” SO AN Russian Federation on Altai (1982). The process of forming free living herds of the European bison within the limits of former natural habitat begun in 1961. On the territory of the former USSR 25 free roaming herds were created. In years 1951 to 1992 for the reintroduction purposes in Prioksko-Terrasnyj Breeding Centre animals were prepared using the method of the free rearing named “school for wild life” without interference with people. This preparation was necessary for animals released to freedom in new places.

Only few European bison for the purpose of inbreeding reduction was transferred to the Breeding Centre from abroad. Only two males from Riga zoological garden were moved in 1965 and 1967 and in 1968 two males from Rotterdam. Also there were E. bison calves delivered from breeding centre “Avesta” in Sweden in 1978, 1982 and 1985. During the next 15 years the population was isolated. It resulted in the decrease of birth-rate and the calves viability as well as the decline of the resistance. There were noticed deaths of European bison in 1,5–2 years aged and also some genetic degeneration. Later only in November 2000 and in 2001 was realized transfers of 7 European bison from the Western Europe countries in purpose to enrich the gene pool of population.

It should be noted that up to 1990 there was a very difficult situation in consequence of the enclosures overpopulation and of gradual impoverishment of pastures on the area. This is obvious, that on the limited area of enclosures the lack of food could appear because area is unable for providing food for long time. The possibility of the natural forage resources renewal on the condition of permanent presence of herbivores, turned into providing valuable food to cover animals requirements and to make equipment necessary for the breeding centre, like station to provide hay, mixed fodders and branches and organize artificial watering place. These conditions affected European bison etiology and caused changes of epizootic danger in some areas of enclosures because of animals concentration and easier transmission of parasites from external environment.

The conditions for animals after building the infrastructure, connected to the chosen areas through limitation of pastures, organization places for feeding, development feeding rations, the methods for cleaning the manure resulted in the necessity of veterinary experts intervention. In the middle of 1994 was possible to disinfect one enclosure (animals were removed) but due to the special status of the reserve not allowed using the chemical agents and on the other side was the lack of money. In the empty enclosure grew some plants from legume family (*Fabaceae*) like Eastern galega (*Galega orientalis*) and others. Those plants were intensively used by European bison. It should be

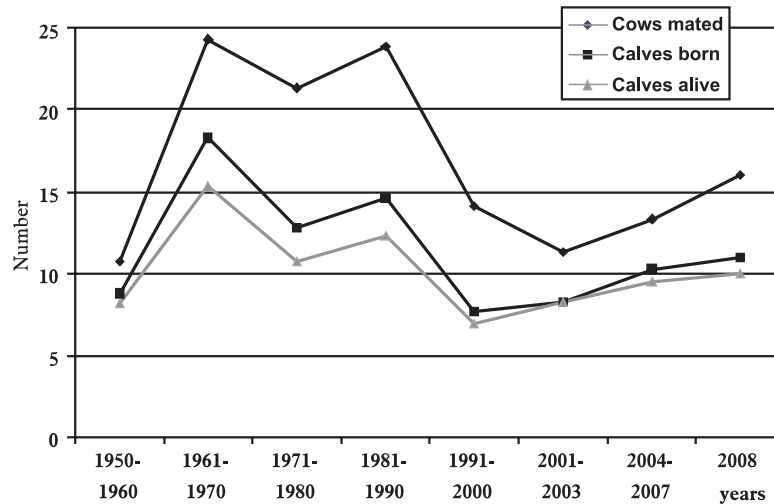


Figure 1. The number of adult cows, born calves and their survival in years

noted that in last time European bison do not experience lack of root crops which are given during fall-winter period.

Actually in Breeding Center there are 61 animals – 52 European bison and 9 American bison *Bison bison*. European bison stay in 50ha enclosure equipped with feeding station, where twice a day additional food is given to animals. Apart of natural pastures the European bison all year round have access to mixed fodder, branches (aspen and willow) and in winter to hay and root crops (carrot, beet). In every enclosure there is salt with minerals.

Due to the fact that in the last several years in the Breeding Center the number of animals approximately corresponds to the capacity of pastures it is possible to conduct systematic measures on prophylactic like giving vitamins, a dehelminations and others. It was observed sharp increase of the birth-rate – female gave birth practically every year, not like in free roaming herds (wild type) where is one calf per 2–3 years. The habitat in enclosures improved which increased European bison disease resistance. Helminthes invasion sharply decreased and calves perinatal deaths had been eliminated.

The export of the European bison from the Breeding Centre

The export of the European bison with the purpose of a settling new places begun in 1951. Up to now more than 500 European bison (Fig. 2) were born and from them 80% (420 animals) were exported to different places of Russia and abroad. The destinations number equal to 30 free roaming population and 32 breeding center (captive). The sendings in last year's were to Orlovskaya area, Kaluzhskaya area, Vologodskaya area, Rostov, Vladimirskaya area and to the reserve of Caucasus (Table 1).

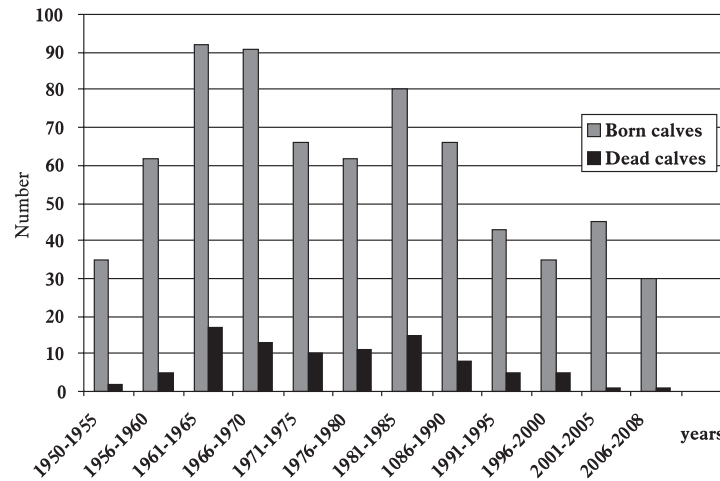


Figure 2. The survival of calves born in Breeding Center in years

With the assistance of the World Wild Fund (WWF) from 1996 there is carried out in the Breeding Centre the long-term program of the creation the free roaming populations of European bison.

The basic aspects of the Program are as follows:

- The monitoring and management of existing population
- The cooperating with international organizations (*MSOP*)
- The technical help for European bison breeding centers
- The creation of the free roaming populations

The first step of this program was creation on the guarded territory for proliferating of population of the European bison trough movement of large number of animals from breeding centers of Russia and from the zoos of western Europe. In 1997 with participation of the State Committee of Russian Federation was agreed and ratified by government creation on three areas (Orlovskaya, Kaluzhskaya, Bryanskaya) the meta-population of bison. According to Program of the Russian European Bison Conservation with the State Committee on Ecology of Russia in 1998 was established a working group, which was obligated to develop “Strategy for conservation of the European bison in the Russian Federation”. “Strategy” was created and ratified by Ministry of Natural Resources of Russian Federation on July 22, 2002.

Up to now was executed the first step of the European bison conservation plan – the threat of this rare species disappearance was decreased to zero in last time. Nevertheless, as the whole this species falls into a category “endangered (EN) – being in a state of threat” because of number reduction and isolation of the populations (IUCN 1996). On the territory of Russia according to Red Book of Russian Federation (1998) the European bison is involved in group 1 – being under a disappearances threat.

Table 1. The destinations for European bison exported from Breeding Centre.

Reserves and National Parks	ZOO's	Forests and hunting enterprises
Caucasian, Mordovskiy, Khoperskiy, Belovezhskaya dense forest, Askaniya-Nova, Sara – Chelekskiy, Tseyskiy, Okskiy, Teberdinskiy, Berezinskiy, Ismayly, Checheno-ingushskiy, Pripyatskiy, Kurgolovskiy reserve, Nadvornyanskiy reserve, Fominskiy reserve, Kruglovskiy reserve	Riga; Tallinn; Kaunas, Gauya, Kaliningrad, Grodno, Leningrad, St. Petersburg, Pekin, Krasnoyarsk, Chelyabinsk, Kiev; Kharkov; Crimea, Nikolaev, Grodno, Odessa, Kazan, Ufa, Cherkassy, Dushanbe, Chimkent, Tbilisi, Na'l'chik, Moscow, Yerevan, Cherga, Budapest, Rostov-on-Don, Vologda, Bol'shereich'e, Termez	Zavidovskoe, Nauyamestis, Bukovina, Assinskoe, Bakhchisarai, Na'l'chikskoe, «Zubrovitsa», Danevskoe, Millerovskoe, Petrovskoe, Torbovo, Kostromskaya station of IEMEZH, Sknyatinskoe, Ivano-Francovskoe, Velikoozerskoe, Ust'-Kubenskoe, Vyaznikovskiy

For the past from 1923 the situation of European bison radically changed as a result of the activity of the international scientific society. The European bison is the first and unique on the earth example for successful return the species to nature after full extirpation in wild and survival only in captivity. This success was thank to the long-term conservation of bison specialist in Russia and Europe. However this does not mean that European bison recovered. To follow the recommendation of IUCN it is needed to increase the European bison free roaming population up to two thousand what could assure the necessity for conservation in natural condition. The European bison can be considered safe only when all threats disappear.

Except for the task of breeding and exporting animals to other herds the Breeding Centre presently works out the methodology of adaptation of born in zoos European bison to the condition of roaming in nature. Such problem raised after releasing some animals born in zoos into freedom. European bison from zoos are not able to live in the freedom, but they are very important to enrich the gene pool of the species. For purpose of transfer the European bison from captivity animals born in Breeding Center are better because according experience after 6–10 months animals started to be wild and shy, avoid people and live independently.

The European Bison Breeding Centre plays a role of experimental station for advanced study on the problems of European bison restitution. Different research is done from morphology, systematic, genetic, evolution, ecology, etiology of European bison, to problems of its recovery, development methods of feeding, transport and economic use. To this place came many specialists and students and some practices are organize. The Breeding Center is well known and it is visited by famous zoologists and important people on conservation field from all countries of the world. Also the Breeding Center is regularly presented during many exhibitions in Moscow and in other regions of Russia.