

Almost 50 years since European bison were released in a semi-wild condition at Eriksberg Nature Reserve

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Abstract: The paper presents information about a herd of European bison in the Eriksberg Nature Reserve. The animals live in an area of almost 1,000 ha together with other species native to Swedish forests. During nearly 50 years of European bison presence, 218 calves were born, and 24 of them were sent to other breeding centers and reintroduction projects in Poland, Romania, Germany, Switzerland, and Russia. A unique method using photographs for individual identification was developed and has proved highly effective.

Key words: European bison, Eriksberg Nature Reserve, photography

Introduction

Eriksberg is a coastal property in the Baltic Sea archipelago, consisting mainly of two large peninsulas enclosing a sea bay with a large island. This private countryside estate was converted from conventional agriculture to preserving the unique coastal environment as early as 1938 by the then famous author and photographer Bengt Berg and his Danish wife, Inger Illum.

At that time, the wild Swedish red deer population was almost extinct, and wild goose populations along the coast were badly damaged. Berg wanted to save them and the unique coastal environment at Eriksberg. In 1942, he began his experiments with deer at Eriksberg, which attracted a great deal of attention. One of his visions was to manage the natural ecosystem on the property. His vision is still alive today: to manage an ecosystem where red deer and other animals can live a natural biological life in harmony with humans.

The battle over the future of the large Eriksberg estate

When the owner, Bengt Berg, died in 1967, his son, Iens Illum Berg, wanted to continue his famous father's work and create a larger nature reserve where Eriksberg's renowned red deer and greylag geese could live in harmony with other wild herbivores. But it was a real battle. Even then, Eriksberg was classified as a national interest, and such a property could not be handled just any way. Many stakeholders had opinions on how the estate should be managed in the future. I had followed Iens Berg's six-year struggle against the authorities to obtain permission to realize his vision. The first European bison arrived at Eriksberg in 1978. At that time, there was very little knowledge about the behavior and needs of European bison.

Even then, I understood that this could be something very special to follow. Today, I have had the opportunity to observe the life of European bison at Eriksberg under four owners since Bengt Berg. After 2022, I have had the privilege of studying the European bison more continuously, thanks to the generous hospitality of Eriksberg's former manager, Per-Arne Olsson.

My long-term study of the European bison at Eriksberg and the studbook work with them, now nearly 50 years later, has become a life mission for me.

Nature at Eriksberg

Since 1938, nature conservation work at Eriksberg has aimed to recreate and maintain the original environment, which was once almost completely destroyed. Today, new forest has grown up and consists mostly of lush, natural, forest-like deciduous trees. The former meadows and arable land, the many wooded pastures, and the beautiful coastal meadows by the sea now serve as grazing areas for wild animals. The proximity to the sea also creates many rocky outcrops with sparse vegetation. On the western cape, a unique mosaic landscape has been preserved, which transitions into an older pine forest in the north. Within the nature reserve there are three freshwater lakes and several smaller marshes and ponds. Approximately 90 ha of the protected sea bay in the Baltic Sea form an important spawning area for pike and perch.

Inside the reserve there is rich birdlife, with more than 200 species, 60 of which are listed in the EU Birds Directive. There are nesting songbirds, geese, ducks, waders, most woodpecker species, and many rare birds of prey such as white-tailed eagles, eagle owls, peregrine falcons, and others. Of the 19 species of bat living in Sweden, as many as 17 live in Eriksberg, including one species that has not been observed anywhere else in the country. Several studies of plant and other animal life have been carried out in recent years and

are ongoing. Today, the biodiversity of Eriksberg's nature is considered to be of national interest to preserve.

In 1976, Eriksberg first became a nature conservation area, and in 2008 it was designated a nature reserve. The southeastern part of the nature reserve has been a Natura 2000 area since 1998. Today, Eriksberg is part of the UNESCO Biosphere Reserve "Blekinge Archipelago" and consists of two nature reserves: "Eriksberg's beaches," with hiking trails near the sea, and "Eriksberg's nature reserve," a 926 ha fenced reserve grazed mainly by deer and a group of European bison. The County Administrative Board monitors the management of the nature reserve with the help of a management plan. The work is carried out by Eriksberg. Priority conservation values are leafy deciduous forests and older, natural pine forests. Large areas with various red-listed insect species associated with the older deciduous trees and pines have provided these populations with good conditions for survival and preserved genetic variation. In the Natura 2000 areas, the wooded pastures and deciduous swamp forests are particularly worthy of protection. The many wetland meadows (6410a and 6410b) found in the area are of great importance for birdlife and are also important as grazing grounds for the European bison.

The soil in the area has a thin layer and is highly affected by whether conditions are dry or rainy. In nature, wild animals would periodically migrate under such conditions. Therefore, the animals must be given supplementary feed during prolonged droughts or in winter.

Today, in addition to the breeding group of European bison, there are also red deer, fallow deer, mouflon, and a breeding group of Chinese David's deer. Visitors can see the animals and the landscape on guided tours in safari jeeps and, in limited numbers, in their own cars.

At Eriksberg, the European bison have the opportunity to seek out seasonally appropriate food. In spring, when the first green vegetation sprouts, they move out into the wet meadows to graze. When the calves are born, the European bison cows seek shade in the forest and come out into the meadows only at dawn and dusk to feed.

With the help of the ID register, it is possible to track and document the movements and behavior of each European bison: how the females form smaller mixed groups and which cows are currently the leaders. This can change over time. Although many individuals may gather, it is easy for a trained eye to distinguish the different groups. One interesting behavior is that the cows act as babysitters for one another's calves when they need to go off to feed or during periods of heat, as it is dangerous for small calves to accompany them. Up to five calves have been observed in such a "kindergarten" group. On the individual record cards, notes are made each time a cow

is in heat, how she behaves at that time, and which of the bulls, besides the dominant bull, are present. The young bulls show more mobile behavior and often live together in small groups. Large dominant bulls are important for training young bulls to become mature adults while their mutual ranking is established.

Since Eriksberg is a fenced nature reserve, the numbers of large herbivores must be controlled by hunting. Several hunts are therefore carried out in the area each year. The meat from the deer is used in the restaurants on the property. The number of European bison is mainly reduced through participation in projects for restocking the wild or supplying other breeders. Individuals that cannot be used for further breeding and older animals are culled, and that meat is also used in the restaurants.

The number of animals

Since 1980, 218 calves have been born at Eriksberg. A total of 24 European bison (22 + 2) have been released in different countries. The European bison at Eriksberg are trained to hike and forage independently and receive social training. They quickly adapt to life in the wild. Eriksberg has had the opportunity to participate in reintroduction projects in the Bieszczady Mountains in the Carpathians in southeastern Poland, the Făgăraș Mountains in Romania, and the Eastern Caucasus in Russia (Tabl. 1).

Table 1. European bison sent from Eriksberg to reintroduction projects and breeding centers

No	Year	Destination	Sex, number and name
1	2006	Bern, Switzerland	M 10422 EN26 (Enrik)
2	2008	Bieszczady, Poland	M 10127 EN23 (long horn)
3			M 10541 EN28
4	2009	Damerower Werder, Germany	M 10691 EN30
5	2014	Bieszczady, Poland	F 11655 ENTRE
6			F 11656 ENERGI
7			F 11657 ENDORA
8	2017	Okskij zapovednik, Russia	F 12214 ENOLA
9			F 12552 ENGLA II
10			F 12555 ENDIVA
11			F 12556 ENNIE
12			F 12557 ENLITEN
13			F 12558 ENDORIS
14			F 12826 ENCHANT

No	Year	Destination	Sex, number and name
15	2017	Okskijj zapovednik, Russia	F 12870 ENERGEA
16			F 12871 ENADORA
17			F 13129 ENFREJA
18			F 13130 ENUDDE
19			F 13131 ENSWAN
20	2021	Făgăraș Mountains, Romania	F 13386 ENDAST
21			M 13387 ENVIS
22	2022	Făgăraș Mountains, Romania	F 14423 ENDYANN
23			F 14425 ENDYCINDY
24			F 14427 ENDYDIANA

Method of the European bison study

When the Forest Society took over ownership of the property from the Wendt family in 1978, my work began to register the remaining nine European bison at Eriksberg, and I have followed all the individuals since then. During the 1980s, there was widespread dissatisfaction that the studbook did not give breeders the support in breeding work that they wanted and that it was not published regularly enough to be a useful tool. At Eriksberg, Christian Wendt and geneticist Dr. Per-Erik Sundgren began developing an IT solution to improve the genetic management of the Eriksberg herd. Unfortunately, their work was interrupted early due to illness in both of them, and later they also died. The computer work was lost.

Thanks to the late Christian Wendt's will, his notes were sent to me so I could use them to identify the remaining European bison. This was the beginning of my individual ID register. Per-Arne Olsson's early notes have also been used in this work.

The method of identifying individuals in wildlife research using photographs was first developed by elephant researcher Iain Douglas-Hamilton when he began his studies of 500 elephants in Lake Manyara, Tanzania. A major source of inspiration has been following Dr. Erna Mohr's early documentation of individual European bison founders, and of course the age descriptions and studies of the European bison in Białowieża by Małgorzata Krasińska and Zbigniew A. Krasiński, which have provided valuable guidance.

Work on the European bison ID register at Eriksberg has developed more and more over the years, with individual cards, body condition assessments, interesting behaviors, and more. The photo register also makes it possible to carry out individual body condition assessments and health checks on ani-

mals in such a large population. As climate change has become noticeable at Eriksberg since 2018, with periodic drought and poor vegetation growth, the photo register is a good tool for identifying whether individuals or groups of animals need support. The ID register has also been used in selecting suitable individuals for various restocking projects in Europe.

However, the method is very time-consuming. Each individual must be documented several times a year. One of the biggest challenges in photographing individuals is finding the animals in the large nature reserve at all, and then being able to take good ID photographs of them as often as needed.

Together with Professor Wanda Olech, a genetic analysis of the individuals was carried out in 2009, and a breeding plan for the population at Eriksberg was developed. Originally, these European bison came from early breeding programs in Denmark and Sweden. Today, there are three female lines here, with genes from founder 147 Bismark. These females have been systematically mated with selected bulls with a high LC index, mostly with founder 100 bulls. Pedigree data have been checked and analyzed continuously together with Małgorzata Bołbot.

Prawie 50 lat obecności żubrów w warunkach półdzikich w Rezerwacie Przyrody Eriksberg

Streszczenie: W artykule przedstawiono informacje o stadzie żubrów w Rezerwacie Przyrody Eriksberg. Zwierzęta te żyją na obszarze prawie 1000 ha wraz z innymi gatunkami rodzimymi dla szwedzkich lasów. W ciągu prawie 50 lat obecności żubrów urodziło się 218 cieląt, z których 24 trafiło do innych ośrodków hodowlanych i projektów reintrodukcji w Polsce, Rumunii, Niemczech, Szwajcarii i Rosji. Opracowano unikalną metodę identyfikacji osobników z wykorzystaniem fotografii, która okazała się bardzo skuteczna.
