

First demographic assessment of the European bison in the Iberian peninsula

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Abstract: The European bison (*Bison bonasus*), which was already extinct in the wild, was recently introduced to the Iberian Peninsula under semi-free conditions. Despite concerns about its adaptability to the Mediterranean environment and the lack of fossil records, recent evidence suggests that the species can survive in these ecosystems. We present here the first demographic assessment of the Iberian herds. In 2025, the population comprises 184 individuals, with 52 births and 40 deaths recorded since 2018. Mortality was mainly caused by epizootic hemorrhagic disease (25%) and intraspecific fights (22%). Birth and fertility rates (18% and 33%, respectively) were related to those reported in northern Europe. Remarkably, some herds survived without supplemental feeding. These results demonstrate the species' adaptability to Iberian ecosystems and highlight its potential role as an ecosystem manager, contributing to biodiversity conservation and wildfire mitigation.

Keywords: conservation, diet, European bison, Iberian peninsula, rewilding, wisent

Introduction

In recent years, small groups of European bison (*Bison bonasus*) have been (re)introduced to the Iberian Peninsula under semi-free conditions. These initiatives pursue two complementary objectives: the protection of the species and the conservation of traditional grazing landscapes. However, there are still major doubts about the establishment of populations in complete freedom or in protected areas (Nores *et al.* 2025). In addition to legal restrictions, two main arguments are usually cited: the alleged difficulty of adapting to the Mediterranean climate and the lack of fossil evidence on the peninsula. The first objection has been refuted by nutritional analyzes confirming that the southernmost Iberian herd is able to successfully exploit the resources of the Mediterranean forest (Bartolomé *et al.* 2024), even after the wildfire that

struck the area in 2024. The second was challenged by genetic findings: The discovery of European bison DNA in northern Spain (Gelabert *et al.* 2024) suggests that the species was present in the area in the past. In this context, the collection of demographic data is crucial for the assessment of population dynamics. This paper provides the first overview of the demographic status of the main Iberian herds.

Results and Discussion

The current Iberian population comprises 184 individuals, of which 146 are located in six large recipient areas (Fig. 1; Tabl. 1). Since 2018, a total of 52 births and 40 deaths have been recorded. Epizootic hemorrhagic disease (EHE), which has severely affected red deer in recent years, was responsible for 25% of the recorded deaths. Injuries resulting from intraspecific fighting were the second most common cause of death (22%), a proportion comparable to the 25% reported for the population in the Białowieża Forest (Kraśnińska

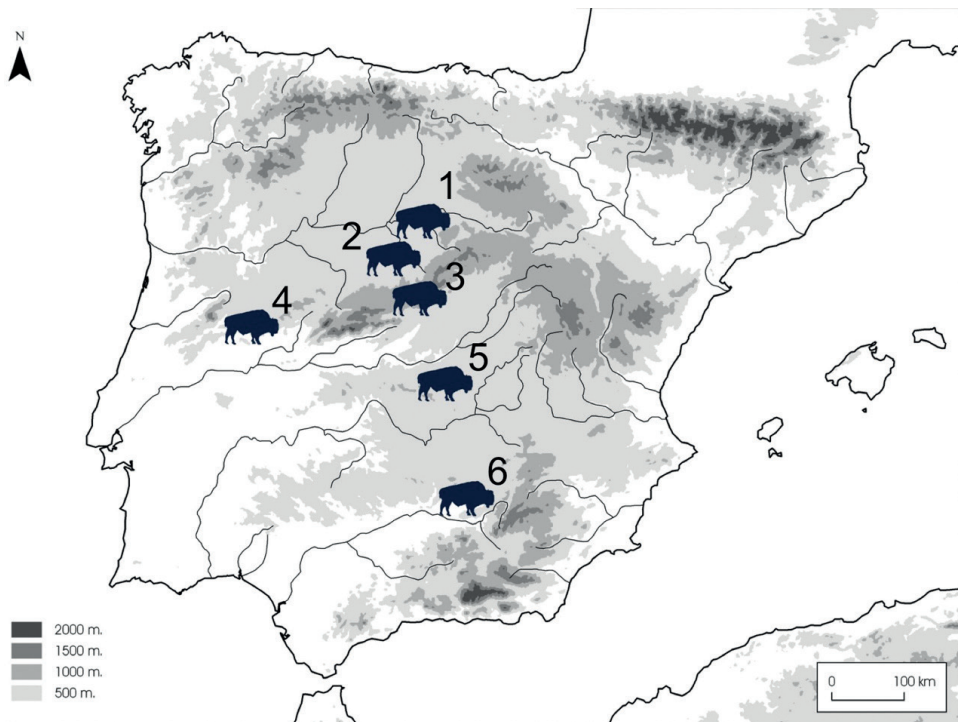


Figure 1. Location of semi-free ranging European bison herds in the Iberian Peninsula. Numbers are related to data in Table 1.

& Krasiński 2013). The study of the two longest-standing herds (established seven years ago) shows a birth coefficient — defined as the number of calves in relation to the population size in a given year — of 18%, which is almost identical to the 17% documented for Białowieża. In contrast, fertility rates are comparatively low: 33% in Iberia compared to an average of 58% in northern European herds (Kaczmarek-Okrój & Olech 2022). Finally, it should be noted that some of these populations survive without supplementary feeding (Tabl. 1).

Table 1. Characteristics of the Iberian enclosures where European bison herds are kept under semi-free conditions. SP: Spain, PO: Portugal

Enclosure		Year of introduction	Area (ha)	Habitat	Supplemental feeding	# males introduced	# females introduced	# Births	# Deaths	Population size
1.	Los Porretales (Segovia, SP)	2018	300	Pastures with ash trees	No	1	4	18	6	23
2.	Las Hoyadas (Segovia, SP)	2022	200	Open pastures	No	4	8	9	7	21
3.	La Serreta (Segovia, SP)	2018	800	Pine forest, oak grove and pastures	In winter	9	12	14	10	35
4.	Herdade do Vale Feitoso (Castelo Branco, PO)	2023	8000	Mediterranean scrubland	In summer	7	11	0	4	18
5.	El Allozar (Ciudad Real, SP)	2023	3000	Mediterranean scrubland	In summer	9	11	4	9	24
6.	El Encinarejo (Jaén, SP)	2020	1000	Dehesa and pastures	No	7	11	7	4	25

Conclusions

These results confirm the adaptability of the European bison to Iberian ecosystems. Apart from its conservation value, its grazing activity contributes to the management of ecosystems by clearing forests and scrubland, creating a more heterogeneous landscape. This process increases the availability of microhabitats and promotes biodiversity, while reducing the fire load and mitigating the catastrophic effects of forest fires. These functions reinforce current initiatives to promote the occurrence of this species.

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Pierwsza ocena parametrów demograficznych populacji żubra na Półwyspie Iberyjskim

Streszczenie: Żubr (*Bison bonasus*), który wyginął na wolności, został niedawno wprowadzony na Półwysp Iberyjski w warunkach półwolnych. Pomimo obaw dotyczących jego zdolności adaptacji do środowiska śródziemnomorskiego i braku danych kopalnych, najnowsze dowody sugerują, że gatunek ten może przetrwać w tym ekosystemie. Przedstawiamy tutaj pierwszą ocenę demograficzną stad iberyjskich. W 2025 roku populacja liczyła 184 osobniki, przy czym od 2018 roku odnotowano 52 urodzenia i 40 upadków. Śmiertelność była spowodowana głównie krwotoczną gorączką jeleniowatych (25%) i walkami między osobnikami (22%). Wskaźniki urodzeń i płodności (odpowiednio 18% i 33%) były podobne do tych odnotowanych w północnej Europie. Co ciekawe, niektóre stada przetrwały bez dokarmiania. Wyniki te dowodzą zdolności adaptacji gatunku do ekosystemów iberyjskich i podkreślają jego potencjalną rolę jako inżyniera siedliska, przyczyniając się do ochrony różnorodności biologicznej i obniżania prawdopodobieństwa pożarów lasów.
