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Application of regulations to the European bison conservation process in Spain

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Abstract Two regulatory frameworks are presented: An option favorable for conservation and expansion of the species and regulation unfavorable for species conservation but possible.

Friendly framework

- 1) European bison included into the category of *Bovidae* livestock, compatible with other land uses like hunting grounds, livestock breeding etc.
- 2) Health & disease surveillance compatible with species conservation
- 3) Individual identification compatible with species conservation.
- 4) Project exhibition permitted for the conservation of the species through guided tours and allowed for livestock species as is in the Livestock law.
- 5) Possibility of elimination of selected individuals and commercial use of meat for human consumption and sale.

Possible frame

- 1) Not being considered as cattle. It would require guidelines from the Health and Environmental authorities to all Regional Governments.
- 2) E. bison maintained in Zoological Nucleus. Necessary are guidelines for authorization of Zoological Nucleus for *ex situ* conservation in Spain to facilitate approval by the District Agricultural Offices. Compatibility of Zoological Nucleus with other stakeholders within the same territory as hunting enterprises, livestock farming and other traditional land users.
- 3) Disease surveillance in accordance with Directive 92/65 CEE with the classification as authorized centers.
- 4) Identification of an individual compatible with rules for the conservation of the species - application of Directive 92/65 CEE.
- 5) Project exhibition permitted through guided tours as the contribution to the conservation of the species. Always, presentation of animals must be connected with education about species and its conservation.
- 6) Possibility of elimination of selected individuals and commercial use of meat for human consumption and sale

Key words: European bison, proposal of species management, conservation



Background

The support and conservation of a wild species, *Bison bonasus*, need clear and feasible rules for its captive breeding. *Ex situ* breeding was a basic measure in the process of preventing its extinction, and still remains very important for this threatened species existence on the Earth. The species was recently reintroduced to Spain so actions that do not comply with its conservation and promotion in the country, should be avoided.

The European bison is listed in Habitats' Directive-Annexes II and IV- as specially protected, also regarding Spain, and is considered a protected species in the Bern Convention. Also nationally it is registered as Species of Community Interest in the Law Regulation for National Natural Heritage of Spain. The species is in the process of being included into National Catalogue of Extinct Species to be Recovered- according to "Natural Heritage and Biodiversity" Law. Only after its inclusion to this document, the procedures connected with its reintroduction can be initiated.

There is a Strategy Conservation Action Plan at world level by the International Union for the Conservation of Nature IUCN, and when it was prepared there was no information on E. bison from Spain. Nevertheless, Spain provides great opportunity for E. bison conservation, as there are still large wild areas suitable for the existence of this species.

At the moment there is a controversy whether to consider European bison in Spain among species bred for "production and reproduction" in application of the regulation for cattle 64/432 CEE or among other species, for which the regulation 92/65 CEE is applied that includes: registration of location of issued license, individual identification system, surveillance and applicable sanitary program, and exhibition of animals.

This proposal aims to assess in Spain the situation of endangered species and activities necessary for its protection, conservation and promotion, accordingly with the existing European regulations.

Considering that further conservation of the world population of this species requires an access to large areas and an increase of its numbers, and taking into account the biological characteristics of the species, a feasible framework for legal rules is proposed, pertaining to currently existing regulations. In this paper presented are clear guidelines to be introduced in Spain, that would facilitate participation in conservation of this species for potentially interested regions, and should contribute to stimulation of development of such regions. Those rules should be clear and favorable for further species' conservation, like in other countries of UE.

The aim of the proposal:

Use a livestock regulation model linked to the conservation strategy of the species as a framework for the strategy of *ex situ* breeding and production centers.

Therefore, in order to facilitate the ownership and breeding of European bison in Spain, and clarify the situation to the Autonomous Communities for the sake of already started as well as future projects, we request the following actions towards establishing clear guidelines:

- 1) Strengthen (as it is already mentioned in Annex I of the National Stockbreeding and Farms Registration Law) the consideration of European bison as support for all species included in *Bison* genus in State sector regulations, clarifying that there is no contradiction with the fact that *Bison* is listed in National Natural Heritage Law as species "of Common interest" with its captive breeding or "*ex situ*" conservation, since such actions are also promoting conservation of the species.
- 2) Develop a technical report by Ministry (based on IUCN recommendations, this document and annexes), that would include as strategical need linking of this 'productive' (understood as a production of animals, not as production of meat or derivatives) model as basic for the conservation strategy of the species.
 - pure extensive regime of breeding (even if breeding is performed within few hectares),
 - electrical fencing is recommended, but as it is in livestock farms, the owner is responsible for maintaining the animals within farm area,
 - limiting stress factors as much as possible (a priority issue is the sanitary control of the species according to National Animal Health Strategy but adapted to species' characteristics and endangered status),
 - identification based on the global identification of the species consisting of individual ID (microchip) and registration of individual numbers in Pedigree Book of the species. Imported animals should have both types of identification. Newborn animals are registered in EBPB with date of birth and sex, parents name and number. They are fitted with microchip in case of transfer or capture. Annual photographic records allowing for individual identification if possible, are recommended.

European bison registration

Below given are results of the analysis of existing possibilities to breed European bison in Spain, considering advantages and disadvantages of each available option.

European bison can be maintained in

- 1) Livestock production and reproduction enterprises included in *Bovidae* register.
- 2) Zoological Nucleus (breeding enclosure for non-domesticated species).
- 3) Zoological Park.

Table 1. Advantages and disadvantages of each of three options for European bison breeding in Spain.

	Advantages	Disadvantages
Livestock production farm	Easy to obtain permit	Routine check up by a veterinarian, like for cattle
	Simple infrastructure	Eartagging
	Culling and meat	Possible
Zoological Nucleus	No routine check up by a veterinarian	Harder to obtain permit
	Sanitary surveillance	More infrastructure
	No eartags	No culling, no meat
Zoo park	Exhibition	Even harder to obtain permit
	No routine check up by a veterinarian	Even more infrastructure
	Sanitary surveillance	Specialized staff
	No eartags	No culling, no meat

Optimal combination of rules that would make ex-situ, semi-free and extensive breeding of European bison in Spain the most easy, is given in Table 2.

Table 2. Recommended rules for E. bison breeding in Spain

To choose	Easy to obtain permit
	Simple infrastructure
	No routine check up by a veterinarian
	Sanitary surveillance
	No eartags
	Project presentation
	Culling and meat

Easy to obtain permit: Establishing a common livestock breeding center is simple and well understood procedure by the involved authorities like City Hall, the Agricultural Regional Office etc. A pure extensive livestock breeding permission requires an access to owned or leased area, minimal facilities, available drinking water, and submission of simple business plan, signed by authorized vet and one owner or responsible legal representative. The owner becomes responsible for animals' welfare, proper feeding, and maintaining of animals within allowed area, and any other issue related to the presence of animals. Failing to follow rules brings about legal sanctions.

Establishment of a zoological nucleus is much more complex. Because of the lack of experience with European bison officials are reluctant to authorize something

unknown, which leads to issuing such obligations like mandatory premises “*buildings, facilities and equipment to provide care and hygienic environment, defend and facilitate animal health hazard actions*” (Decree 42/1995 Extremadura). Such requirements included in the rules for zoological nucleus are so nonspecific that anything can be demanded to comply with them. Therefore, establishment of such enterprises is often denied.

Infrastructure: An extensive breeding of livestock (*Bovidae*) generally does not require any facilities. In some regions you need a barn or some permanent structure marked on a map to be able to reference the farm. No infrastructure is required because the owner is responsible for the care of the animals, for maintaining them within declared location, health care, identification and facilitating necessary actions including de-worming, mandatory control or sampling.

There are no regulations regarding the fencing, since it is the owner's problem that animals are kept within the authorized zone. In order to minimize possible problems of damages due to escapes of animals, the owner purchases an insurance and keep the enclosure in good condition, periodically monitoring integrity and repairing gaps done by his own or strange animals.

In the zoological nucleus an adequate enclosure is required, without specifying its parameters according to animal species. Construction details are usually left for the decision at the discretion of technicians who may not know anything about species of concern. Requirements for this type of facilities are nonspecific and regarding the European bison in many cases unnecessary, like mentioned above “*Constructions, facilities ... to provide hygienic environment, defend animal health hazards and facilitate actions*” or: “*Rooms or cages easy to wash and disinfect for isolation, capturing and observation of sick or suspected animals*”. Since such problems can be solved using movable cattle fences.

Unfortunately, even when the application is accompanied with a technical opinion indicating particular aspects of breeding and conservation of the species, issued by one of European bison experts, relevant officials do not accept this, still demanding those non-specific measures.

Routine veterinary checkup: reasons for a special health management control

The European bison, unlike the American bison bred for meat production, is a non-domesticated wild animal. There are still some individuals of American bison living in the wild (about 10,000, e.g. in Yellowstone) but most of those that exist and are maintained in captivity are hybrids with cattle, and remain for more than 100 years under the regime of livestock management.

When they were hunted for extinction, as a tool of war against the Native Americans, it was common for the young to join the herds of cows. In an effect there

are now hybrids of American bison with cattle in various proportions, maintaining generally the bison phenotype but being accustomed to procedures used in management of the cattle like: capture, confinement, feeding. That is why American bison at farms can be managed as livestock, with sleeves, moved through corridors or blocked in squeezes. There are currently more than 200,000 American bison hybrids in livestock production in the US but also in farms in Europe, mostly in France.

Such confinement methods cannot be applied to the wild American bison, or the European bison. They cause a fatal stress for the animal, decreasing immune defenses, and increasing the possibility for incidence of diseases or cardio-respiratory arrest.

Even animals born and living in zoos display such stress. The European bison is generally calm when it may keep a distance to people, but when confined, its reactions may be very violent.

Therefore, in order to treat, identify or obtain blood samples from this species, complete sedation is required, which involves additional risk of death of the animal and is quite expensive.

The European bison, is not mentioned in Directive 64/432 EEC, listing species subject to obligatory veterinary checkup, because in the generation of this directive participated countries where European Bison occur. Therefore in whole Europe no regulations exist regarding the routine checkup in connection with eradication of bovine diseases. However in some countries like Germany, European bison are recorded and treated as other bovine species regarding animal production and reproduction. The epidemiological surveillance programs of Directive 64/432 EEC are not developed because of the characteristics of the species and its sensitivity to stress.

In all European countries however, the actually applied Directive is 92/65 EEC.

Surveillance

A priority for the strategy of recovery and conservation of European bison and compatible with European health surveillance is minimizing of the stress but also the control of the population, in compliance with EEC regulation 92/65 and with the OIE's recommendation for control, which requires avoidance of excessive management by maintaining a surveillance range according to the occurrence of zoonoses in these animals (almost none throughout Europe).

Recommended actions are as follows:

1. Mandatory tests for brucellosis and tuberculosis performed 30 days prior to transport for all animals transferred to Spain from other countries, even those with the status of being free from livestock diseases.
2. Such mandatory tests 30 days prior to transport for all E. bison transferred between locations in Spain or exported abroad.

3. Determination of the cause of death, control of mandatory declaration on diseases, and sampling for serological analysis.
4. Control of every individual captured or killed by any reason, veterinary check up and sampling for serological analysis.
5. Maintaining of the register of all performed analyses, including identification of individuals and results to determine their sanitary status.
6. Limiting compulsory check up to those cases where there is a health emergency in the area or if tests for incidence of diseases give positive results for any of maintained individuals.

On the other hand, any test, (exception is the sanitary emergency) in which it is necessary to anesthetize the bison for sampling, must be performed in winter, to avoid high temperatures that are fatal for sedation and subsequent recovery, because the loss of thermoregulation may cause a heat stroke that can be mortal.

With respect to health surveillance, two additional actions are also feasible:

1. Introduce a cow or an ox into the area where E. bison already occur, and perform blood tests on such animal once a year as test control to check health status of the herd.
2. In years with no transport, death or capture, one animal per every 10 living in the area should be randomly tested. Optimal choice are animals in the age between 12 and 18 months, being easier for sedation and much better recovering from anesthesia.

Individual identification without use of ear tags

Fitting of an ear tag is a management action that requires immobilization of the animal. In Europe three methods for individual identification are used.

1. Microchip assigned at birth and fitted during the capture or with a dart gun
2. Individual registration in the European Bison Pedigree Book
3. In some cases - photographic identification.

Germany is the only country in Europe that records European bison as livestock. For every newborn assigned is an individual passport and ear tag, which however is not actually fitted to animal due to animal welfare.

The world register of E. bison is carried out since 1932 by the effort of the EBPB (European Bison Pedigree Book). This register, allowing to track kinship among particular individuals, is the most important management tool to avoid one of the worst threats to this species - the loss of genetic variability. The census of European bison, even in free ranging herds, is usually very accurate, because those animals are relatively easy to observe due to their daytime behavior.

Both genetic lines (Lowland or Lowland Caucasian) are distinguished in EBPB, each individual has its number (in most cases also a name) and information on its

mother and father, place and date of birth. Separately are listed herds maintained in semi-free conditions or in freedom, for which only the number of individuals in the herd and sex ratio are given. Currently for a number of E. bison performed was an individual genetic study including the calculation of the proportion of founder genes born by a given animal. In addition in whole Europe, the accepted individual identification is the microchip associated to data included in the EBPB.

In some areas, there is also available an individual photographic identification that has to be updated year after year. Diurnal and calm behavior of the species, together with the ease of daytime observations, and gregarious spatial distribution of these animals make such identification feasible.

Therefore, on the basis of data from the Pedigree book, the IUCN and the European Bison Conservation Center (EBCC) are able to make decisions regarding lines, individuals, or blood refreshing, in order to generate the best and possibly diverse populations, and to minimize losses of genetic variability (already very low due to the two bottlenecks suffered by the species as an effect of two wars: in 1919 and 1945).

This genetic management of the species is fundamental for its conservation, and is developed together by breeders, projects and IUCN in different countries in the cooperation with relevant authorities.

Solution to be applied in Spain

Since the European bison is not mentioned in Directive 64/432 CEE, it should not be subject to the requirement of an individual passport. Such identification also makes it necessary to identify the mother which is problematic in large enclosures.

We propose as obligatory: log book of the farm, individual record linked with microchip assigned at the birth, and its placement if captured, in case of transportation or for other reasons.

If possible, such microchip could be fitted from a distance with a dart gun in winter, at site with supplementary feed.

Additionally, it is compulsory to register an animal with the European Bison Pedigree Book and obtain individual number.

Exhibition of animals/Project exhibition

Some regional regulations in Spain limit the exhibition of animals to the certain number of days per year. If more than 7 of such days, such enterprises should be registered as a Zoological Park.

A European Bison Conservation Center should be a place where animals are protected but also should work forward species promotion. That should include active development of environmental education and dissemination of knowledge on endangered species. It should contribute to breeding of new individuals and to

education of the society in identification and knowledge on the species. This would help the European bison to find more suitable locations including those in freedom all around Europe.

If society will know the species, it will love and promote such animal.

On the other hand, such center usually need to raise funds to sustain and maintain the equipment and people who work and control the animals, enclosures, secure food for animals and cover costs of all necessary activities. Therefore organization of guided tours to the project is a way of obtaining funds, and in the same time helping the species.

The visit must be authorized to the conservation project, where the visitor must receive oral and/or written information on the conservation status of the species, its situation, biology, distribution, history etc. in order to increase the knowledge of society on the species, and increase acceptance of E. bison by the public.

Such rule will assure that exposition of animals will be accompanied with educational issues which will not be contradictory to rules for ZOOs, and will allow for organization of guided visits to the project, to comply with the Law 19/1995 of July 4 Modernization of Farms, which states in its explanatory memorandum II:

In the new context of more open markets, agriculture will not only fulfill their traditional productive role of food and raw materials, but must diversify to satisfy new social demands related to the conservation of the environment and the economy Leisure in the countryside.

As a consequence, the modernization of agricultural holdings must consider productive restructuring, as a means of sustaining and increasing the ability to compete in the markets, but also the diversification of activities that will allow the acquisition of incomes in the future of the new booming sectors.

The breeding of European bison combines provisions of this explanatory memorandum as it provides conservation of endangered species, biodiversity promotion, environmental management, tourism and additionally meat production, if a given population is selectively culled.

That is why adequate legal regulations and simplified procedures should be introduced, clarifying what is already in national legislation, since the genus *Bison* is listed in the Law of Farm Registration (without specification of species *B. bison* or *B. bonasus*, but as genus, and because of that it requires individual identification and is not currently subject to annual order of livestock sanitation.

At present, options for exhibition of this species are limited because of reasoning that “if there is exhibition, it must be a Zoological Park”.

Currently, the possibilities for introduction of European bison to a new site are restricted if such project does not have the means to develop a commercial activity to allow future maintenance of the project.

People of Spain should be allowed to approach European bison through guided tours, through free access, or access to facilities, viewpoints etc. without a need to establish a Zoological Park. In some cases such areas are open free to public, in others they a fee is charged for the service.

Solution for Spain

Enable the possibility of guided visits to the project with the obligatory educational program about the species and its situation, without being mandatory to register as Zoological Park.

Selective culling and use of meat

It should be possible to introduce the management for the conservation of the species with non-priority productive potential (meat), similarly like it is done in Germany, to comply with the requirements of the Habitat Directive. This would mean that the owner of E. bison after receiving an individual positive opinion from the IUCN/European Bison Conservation Center, could be able to eliminate by a shot (as it is done in the case of fighting bulls in Spain) individuals selected due to one of three reasons listed below:

- selective animals (defective, sick, injured/old etc.),
- superfluous because of very low genetic value for population,
- etologically problematic or aggressive.

After elimination, carcasses of such animals can undergo regular treatment in a slaughterhouse for the preparation and use of meat including relevant sanitary control.

As it already has been mentioned, one of the main problems regarding European bison is their low genetic variability. That means that breeding parents with the offspring should be prevented, so therefore it is necessary to periodically exchange males among herds or populations to supply the new blood.

In properly managed herds a male can act for some years as a reproducer, but after some period it has to be moved to another location or eliminated.

Obviously like in any other species at birth, the ratio of males to females is 1:1, so finally there are numerous males that should not participate in breeding. In the wild, such individuals would migrate or be not able to reproduce because of competition with other males. In captivity however, the elimination of such surplus males is necessary. For example in a small enclosure, less than 200 hectares, only one large reproductive male can be maintained. If there are two left, there will fight with each other and the loser being unable to leave, changes his behavior affecting other individuals. Such unnatural behavior may lead to considerable losses in the herd. Overall, selective elimination contributes to the good condition of the species, and if it provides also additional profit, it can be used to cover costs of species conservation.

For this reason, it is proposed that E. bison could be selected individually according to EBCC opinion, on a case-by-case basis, and such animals after being properly slaughtered may become a source of income similarly as fighting bulls at present time.

Such rules are applied in Germany, and Sweden, countries with considerable numbers of E. bison in Europe, taking advantage of the death of the bison for small and exclusive production of meat and even in some cases, offering the possibility of selective trophy hunting in enclosures of an adequate area.

In Germany, the selection remains at the discretion of the owner, and occurs in those cases in which the carrying capacity of a site is exceeded, and the owners do not find suitable sites to transfer surplus animals. Zoos that maintain large carnivores use dead E. bison to feed them, and those that do not normally transform the meat into consumer products, usually inlaid vacuum packed and sold it to the public at the area of the breeding center.

Propozycja uregulowań dotyczących ochrony żubra w Hiszpanii

Streszczenie: W pracy przedstawiono dwie propozycje uregulowań hodowlano-prawnych, tak dobranych aby umożliwić rozszerzenie hodowli żubra i jednocześnie spełniać wszystkie wymagania ochrony tego gatunku.

Przyjazne zasady:

- 1) Żubr włączony do kategorii hodowlanych zwierząt z grupy Bovidae, tak jak inne gatunki utrzymywane na terenach rolniczych lub łowieckich.
- 2) Ocena zdrowia i badania weterynaryjne odpowiednie dla gatunku żubr.
- 3) Identyfikacja osobników odpowiednio dla gatunku.
- 4) Prezentacja projektu ochrony gatunku w sposób zorganizowany zgodnie z przepisami dla zwierząt gospodarskich.
- 5) Możliwość eliminacji pojedynczych osobników i komercyjne wykorzystanie mięsa.

Możliwe zasady:

- 1) Żubr nie zaliczany do bydła. Wymagać to będzie zasad określonych przez państwowe urzędy ds. Zdrowia i Środowiska wspólnych dla wszystkich regionalnych rządów.
 - 2) Żubry utrzymywane w „Centrum Hodowli”. Niezbędne są zasady określenie „Centrum Hodowli” dla ochrony ex situ żubra zaakceptowane przez regionalne urzędy ds. Rolnictwa. Ważne też określenie relacji między „Centrum Hodowli” a działalnością łowiecką i innymi tradycyjnymi sposobami użytkowania gruntów.
 - 3) Ocena zdrowia zgodna z dyrektywą UE nr 92/65 dla klasyfikowanych autoryzowanych centrów.
 - 4) Identyfikacja osobników zgodna z zasadami ochrony gatunki – zastosowanie dyrektywy UE 92/65
 - 5) Prezentacja projektu ochrony gatunku dozwolona w grupach zorganizowanych z przewodnikiem. Prezentacja zwierząt zawsze połączona z edukacją i ochroną gatunku.
 - 6) Możliwość eliminacji pojedynczych osobników i komercyjne wykorzystanie mięsa.
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