

Rules of capture and transport of wisents from Poland to other European countries

Magda Kaczmarek-Okrój¹, Małgorzata Bruczyńska², Marlena Wojciechowska¹, Daniel Klich¹, Krzysztof Głowacz³, Karolina Gajewska⁴, Wanda Olech¹

¹ Department of Genetics and Animal Breeding, Warsaw University of Life Sciences

² District Veterinary Inspectorate in Piaseczno

³ Department of Animal Environment Biology, Warsaw University of Life Sciences, Faculty of Animal Science

⁴ European Bison Friends Society

Abstract: Over 90 years after the appeal at the Congress in Paris about undertaking all necessary measures in order to protect the wisent population in Europe, the number of this species has risen to 6083 individuals (EBPB 2016). It demonstrates the success of numerous programs of reintroduction and protection; nevertheless, the wisent is still regarded as an endangered species categorized as Vulnerable D1 (Olech 2008a). The management of the wisent population is targeted at preservation of genetic diversity in existing herds and creation of new captive and free living herds. Such management method consists of capturing and relocating animals between breeding centers and free living herds. Transportation of animals requires appropriate preparation due to breeding and logistic reasons, as well as high investment costs. The necessity of publishing the transport rules results from the needs of people involved in protection of the wisent. This paper presents a collection of rules recommended by the European Bison Conservation Center concerning the wisent transportation with the application of best practices, such as carrying animals in wooden containers and loading animals to containers without the use of drugs.

Key words: *Bison bonasus*, transportation, capture, safety rules

Background of transport of wisents

Currently, wisent are kept in enclosure conditions (242 centers), semi-free conditions (15 centers) and as free living herds (39 localizations) (EBPB 2016). The main goal of the management of the existing population of the species is to preserve the genetic diversity of herds. Wisents kept in captive conditions represent nearly $\frac{1}{3}$ of the whole existing world population (EBPB 2016). The *ex situ* population is an object of a breeding program aimed at minimizing the inbreeding level among the offspring of the mated couples and it also forms the reservoir of genetic diversity (Pucek *et al.* 2004). However, even within this population, there are many enclosures where wisents are kept in small groups, mainly for exhibition purposes. This

poses a risk of mating in close relationship. In order to avoid an effect of inbreeding increase, there is a need for composing of establishment groups and proper management of the existing herds. At the stage of creation of a new herd, tested are simulation models to assess the impact of numbers of founder group on the genetic and demographic parameters of herds (Suchecka *et al.* 2014). After the analysis of genetic pool of animals in the enclosures, selected individuals are exchanged between centers in order to create the best breeding group.

An analysis of a genetic diversity of free living populations is carried out on the basis of the founders representation in the founding group of the population (Olech and Perzanowski 2002). The results obtained for free living herds of Lowland-Caucasian line demonstrated a significant genetic distance to the captive population – with the highest diversity among captive population (Olech 2008). In order to reduce this distance, implemented are reintroduction projects aimed at enriching the genetic pool of free living herds with animals originated from captive breeding, contributing the genetic material of the underrepresented founders (Olech 2008).

An example of actions aimed at increasing the rare founders contribution in free living conditions, are projects of introduction of selected animals from captive breeding centers (Scandinavia, Germany and other countries) to the population in the Carpathian Mountains. Enriching a genetic pool is a multi-stage process and each stage is connected to transportation of selected animals. Process of enriching the free living herds in the Carpathians was initiated in 2001. In total, 85 E. bison were transported to the herds in Poland, Ukraine, Slovakia and Romania, between 2001 and 2014 (Olech and Perzanowski 2016).

While selecting the group of transported animals, it should be remembered that a principle in breeding the European bison population is to maintain the separation of genetic lines: Lowland (LB) and Lowland-Caucasian (LC). The Lowland line is a closed line, meaning that only offspring of Lowland European bison may be classified as such. The Lowland-Caucasian line includes European bison with the only male representative of *B. b caucasicus* within the pedigree (Bołbot and Raczyński 2013). At the moment of selecting animals and relocation, the most helpful unit is the Editorial Office of the European Bison Pedigree Book, which possesses all information about centers with surplus animals and breeders interested in enriching their breeds with new individuals. A cardinal principle associated with displacements of wisents, associated with the proper management of the species, is transportation of animals individually registered in the European Bison Pedigree Book. A source of animals for relocation, usually with high quality pedigree material, are zoos, due to a limited space allowing for keeping a few females with calves and one dominant male (Bołbot and Raczyński 2013). Large captive enclosures have also a significant contribution to the restitution of wisents. In some countries such captive enclosures have got a status of the national wisent breeding centers (Poland, Russia, Lithuania). These centers are involved in wisent reproduction as a part of

national restitution programs (Bołbot and Raczyński 2013). Planning of an animal relocation between herds or creating new groups, with exchange of males or transfer of selected animals, based on the genetic analysis of local herds, is justified by the results of new molecular tests on wisent genome (Wojciechowska *et al.* 2012).

European Bison Conservation Center (EBCC), as the unit responsible for the coordinated management of the contemporary population of wisent, stays in cooperation with the European Bison Pedigree Book Editorial Office, and participates in the preparation of transport of wisent in both ways: advising breeders in determining the plans of matchmaking (European Bison Advisory Center) as well as directly participating in the transport of recommended animals. Establishing a set of rules on the transport of wisent in order to minimize potential losses of animals during international transport has been recommended in *European Bison Status Survey and Conservation Action Plan* (Pucek *et al.* 2004). Many good practices in this area appeared in print in Polish (Olech *et al.* 2008). This publication is the first condensed set of best practices for the transport of wisents, recommended for a broad range of international cooperation among EBCC.

Legal status of wisent in Poland and other European countries

The wisent is a species under legal protection in Europe, as included in the appendix of the Berne Convention. In the legislation of the European Union it is listed in the Habitat Directive (92/43/EEC) as a priority species (Annex II). However, in the individual EU member states and outside EU, the protection of wisent, recommended in the above mentioned Directive, is not implemented in an uniform manner. Each country establishes its own rules on ownership, management of species and interpretation of veterinary legislation in relation to the wild animals being under protection. Such diversity of legal status and lack of equal status for wisents is a reason why the transport of wisents is supposed to be organized under rules foreseen for cattle or regulations obligatory for exotic species (Moran 2011).

In Poland, the wisent is a species under strict protection (the Nature Conservation Act of 16 April 2004 – Journal of Laws 2015 item. 1651 with later amended) and the Regulation of the Minister of the Environment of 6 October 2014 on the protection of animal species (Journal of Laws 2014 item. 1384). Moreover, since 2007, principles of management in the implementation of protection of species are also included in the document “Strategy for the protection of *European Bison bonasus* in Poland”. Restrictions considering wild animals belonging to the species under strict or partial protection are defined on the basis of the above mentioned acts. Rules for transportation of such animals are also restrictive. The Act provides the right to withdraw from the above mentioned restrictions. The competent authority for a permit to waive the ban on the transport of wisents (captive breeding and free living populations) being under supervision of the national parks authorities, is

the Minister of the Environment. Wisents from breeding centers and living in free populations (outside areas of national parks) are legally under supervision of General Director of Environmental Protection and/or Regional Directors of Environmental Protection. Regional Director of Environmental Protection is a competent authority to permit to waive the bans (including transportation) within the area of its operation (voivodship). General Director of Environmental Protection may permit the prohibited activities (transport, export outside the country, import from abroad) in case when it regards the area beyond two voivodships, or if it regards the actions taken by the Minister of the Environment, including implementation of the program of sustainable use of biological diversity, conservation programs of endangered species or international agreements.

In other European countries legal status of the wisent is various. For example, in Germany and Romania, the European bison is a subject of a hunting law, but its hunting is strictly forbidden all year round (Glunz 2016; Deju pers. comm.). In Germany regarding transport and veterinary requirements wisents are classified as cattle. The owners of wisents can be a private person, a ZOO or a State Administration. Because of this reason decisions on transport could be made by the owners of animals and veterinarians. Within Germany it is possible to conduct transport of wisents without additional certificates. Needed are ear tags and the cattle passports (Glunz pers. comm.). In Romania individuals living in semi free conditions and captivity are privately and state owned (National Forest Administration and ZOO). Individuals living in free conditions are also state owned. The permission of transport and the list of the veterinary requirements are under the responsibility of Romanian veterinarian authorities (Deju pers. comm.). In Spain, the owners of wisents are private persons, Zoological Gardens and Zoological Nucleus (places with no exhibition). Wisent in Spain is also classified as cattle, thus transport within country is covered by veterinary rules regarding the transport of cattle (Moran pers. comm.).

Coordination and logistics of the transport

Each breeding center from time to time possesses surplus animals, and needs new individuals for breeding purposes. Cooperation between breeding centers is necessary to define the selection of transported animals and the rules of animal transfer. It is recommended to establish a coordinator of each transport (or exchange of animals) to ensure an efficient and punctual cooperation between interested parties. Transport coordinator secures the exchange of all necessary documents and information as well as veterinary supervision.

In practice the whole procedure of wisent transport consists of several phases:

1. determination of the set of animals selected for the transport (number, gender, age, origin, ownership),

2. determination of centers involved in animals exchange (centers should sign the agreement regulating the manner and sources of financing to cover all necessary cost) (Olech 2008),
3. determination of the list of tests required by appropriate veterinary legislation and obtainment of results of all necessary tests,
4. determination of the list and obtainment of all necessary administrative permissions,
5. determination of terms of transport (place of departure and destination, the date and time of departure, the expected duration of the intended journey, special stops for watering and feeding of animals),
6. employment of a specialized shipping company, which will be responsible for the transport (company should be authorized as transporter of living animals, licenses for drivers, certificates of approval for means of transport),
7. determination of the trained (licensed) crew taking care of animals during transport.

During the whole process of transport preparation, the coordinator should exchange all contacts and information between the transport company, the place of current residence of animals and centers that will receive them. Flow of information, adequate and prepared on time, makes such large and uneasy project much easier to carry out, thus it is very important that coordinator maintains all the time his supervision over the transport.

Legal aspects of wisent transportation

Regarding the translocation and transport of animals it should be remembered that every EU member state is obliged to adjust the national legislation to the EU directives. EU directives were introduced into the Polish legislation by the Act of 21 August 1997 on the protection of animals (Journal of Laws 2013 item. 856 as amended). Above-cited law refers to Regulation (EC) No 1/2005 of 22 December 2004 on the protection of animals during transport and related operations and Regulation (EC) No 1255/97 (EU Official Journal L 3 of 01.05.2005). Regulation 1/2005 adjusts both logistical and veterinary aspects of the transport. Regarding veterinary issues in all EU countries, before the transport wisents need to be examined regarding the presence of diseases, which are listed in the EU TRACES-document No. 92–65 (more info about TRACES system is included in the part *Veterinary requirements*). With regard to the technical service of transport, under Regulation 1/2005, there should be taken the necessary steps in order to minimize transport duration and ensure all of the needs of animals during transport, that means adapting the means of transport and appropriate design of facilities for loading and unloading of animals (counteracting injury/suffering and ensuring the safety of the animals). Regulation 1/2005 applies to all vertebrate animals, but it does not contain detailed

guidelines for wild species. It indicates that wild animals must be transported in accordance with the written instructions about feeding and watering, and taking into account eventual specific care required. Documentation of a transport must be supplemented with notice that animals are wild, timid or dangerous. Such documentation should be fulfilled by the owner, according to the specificity of the species. The EU requirements oblige the transporter also to possess documents allowing for identification of animals. In case of the wisent, the pedigree number individually assigned to every animal (with annotation of name, gender and age) must be a part of this obligation. Further requirements for the transport of wisents depend on its length and duration (transport distance shorter than 65 km, transport duration for less than 8 hours and transport duration for more than 8 hours). Shipping company hired to transport of wisents is obliged to possess an authorization as transporter of living animals and licenses for drivers. Additional authorizations are required at distances exceeding 65 km (Type 1: less than 8 hours and Type 2: more than 8 hours). In case of long distance journeys (more than 8 hours), there is also obligation to possess certificate of approval for means of transport. However, it does not relieve the shipping company, transporting animals over shorter distances, from the obligation of ensuring the safety of the transported animals by proper adaptation of means of transportation (Official Journal EU L 3 dated 05/01/2005). Transported animals should be accompanied by a licensed caretaker, a person who underwent appropriate training and obtained a certificate of competence. In Poland such document is issued by the District Veterinarian after the submission of the certificate of training in the issue of transport by interested individual. Regarding transport over a distance less than 65 km, there is no obligation to possess a certificate of competence. Nevertheless the responsible person should be obligatory trained on how to handle transported species. District Veterinary Inspectorates are the units competent to carry out inspections and making decisions in all above mentioned issues in Poland. A journey log is also an important document mentioned in regulation 1/2005. It is obligatory during long journeys (exceeding 8 hours) and all journeys between Member States and third countries. During all shipments of European bison an official journey log is recommended as good practice. In properly prepared journey log each page is signed and includes 5 sections: planning, place of departure, place of destination, declaration of transporter and abnormality report (Hławiczka 2008). Exemplary documents are embedded on the webpage www.bison-ebcc.eu.

The ambiguity of legal provisions concerning wild animal transport (including European bison) gives rise to many questions and discrepancies in the interpretation of law by the official national veterinarian. Currently applicable regulations present transport conditions for non-domestic animals, without clear guidelines concerning respective species. Therefore, it is necessary to establish procedures and instructions for transport conditions of various non-domestic animal species, including (but not limited to) the dangerous ones, and training system for transport personnel.

Veterinary requirements

When transporting animals from/to Poland to/from other European countries, there is necessary to ensure that the animals meet the health conditions required for international displacements. Transported wisents should be healthy, and in good condition. Experienced breeders found no cases of miscarriage in females transported in pregnancy. It is prohibited to transport cows for whom 90% or more of the expected gestation period has already passed (Hławiczka 2008). So far in EU Member States health care certificates are prepared by an official veterinarian appointed by the competent authority at the place of departure. Required health tests are listed by veterinarians at the place of destination (Hławiczka 2008). Obligatorily, before the transport, animals are tested for tuberculosis (intradermal tuberculin skin test), brucellosis and enzootic bovine leukemia. In addition, depending on decision of the veterinarian and the recipient may be imposed a duty to test for bluetongue, infectious pustular vulvovaginitis (IBR-IPV), bovine viral diarrhea (BVD-MD), Schmallenberg virus (SBV) and the vector of *Salmonella* spp. (Journal of Laws 2014 item. 1539, as amended). The wisent, as a nondomestic animal requires extreme caution when all veterinary procedures are taken. This is very important for the safety of veterinarian and other involved people. Sampling for laboratory diagnostics, conducting of detailed clinical examination, treatment and prevention are possible only after pharmacological immobilization of the animal. Not always, weighting of animals is possible in the captive conditions. Each dose of a medicament for the narcosis should be calculated with regard to estimated body weight of the animal. Estimation of body weight should be made by experienced breeder or veterinarian. Additional factors like: gender, age, fatness, condition and health status, as well as weather conditions should be also taken into account (Krzysiak and Larska 2014).

In Poland, the reference laboratory where it is possible to do all tests by methods appropriate for wildlife is the National Veterinary Institute – National Research Institute in Puławy (Journal of Laws from 2012 pos. 480). It should be remembered that every breeding center should send an individual application to the District Veterinary Officer for permission to transport, then transmit the decisions to coordinator of transportation.

In all EU countries, before the transport wisents need to be examined for the presence of diseases, which are listed in the EU TRACES-document No. 92–65 (more info about TRACES system is included below). In Poland, a District Veterinary Officer after receiving the results of tests, following an application form, issues a certificate in TRACES (TRAdE Control and Expert System). TRACES, is an EU system of control and notification of movements of live animals and certification of other products of animal origin from the territory of EU Member States. It is used to supervise the exchanges intra EU, import and transit from third countries, and export of animals to third countries. Application form is available at the offices of

the District Veterinary Inspection. Applying for such document, it is necessary to include all information concerning the transport. A crucial information regarding TRACES are herds numbers (including destination breeding center number – if available). It is advisable to check these numbers much earlier before the transport and provide them to the District Veterinary Officer, who will confirm the sender and recipient in the TRACES system.

Construction of transportation container

The wisent (European bison) is a wild animal. The species is not included in ordinance of the Minister of Environment of 3 August 2011 on the species dangerous to human life and health. However in the ordinance of the Minister of Environment of 10 December 2003 on safety and health at work in zoos (Journal of Laws 2004, item 4 pos. 26) the wisent has been described as a dangerous animal of first category, where are included the most dangerous species or groups of species, which may display natural aggressiveness because of biological properties. In the case of wisent, there is a risk of being attacked with hoofs or horns. To ensure the safety of animals and humans, adult *E. bison* should be transported only in specialized transport cages (containers) corresponding to the dimensions of individual animals. However, the transport of wisents in wooden cages, is recommended primarily because of the convenience connected with the easy manipulation of the cage inside enclosure, and during its loading and unloading of the car (Fig.1). Such cage should be partially (side walls, the back sliding door) soft covered to avoid injury during transportation. Proven method to cover cage inside is to use a jute bag filled up with hay. The construction of the rear door of the cage (sliding door) should be additionally reinforced with a strong back stop on its top and sides to withstand smashing by wisent hoof (Treboganova 2011). Container should also be provided with 5 apertures allowing for ventilation, observation, feeding, and dung removal (Treboganova 2011). The cage should be equipped with 4 metal handles needed for the shipment, skids and gaps necessary for using the fork lift (Hławiczka 2008). Important is also proper marking of the container – indicating the presence of live wisent, and the sign indicating the top of the cage (Hławiczka 2008). Closure of the cage may be in the form of a trapdoor or operated manually (Olech *et al.* 2008).

Capturing, loading and unloading of animals

The first step of preparing animals to the transport is to keep them in a capture pen. In Russia, it is recommended that wisents should be separated from the herd and placed into the capture pen two weeks before planned transport (Treboganova 2011). In Germany, the animals are usually separated for four days before planned transport (Glunz 2012). This separation will allow them to quiet down, get accustomed



Figure 1. Manipulation of the cage inside enclosure and during loading and unloading of the car (Fot. Michał Krzysiak)

to be without the herd, and get used to feeding within the loading alley. Then, the samples for veterinary tests are taken. For this purpose animals are immobilized. Management of animals during capturing and sampling should be done without disturbance and the presence of bystanders. As a result, the animals can easily become accustomed to entering into transport containers what greatly facilitates their loading (Olech *et al.* 2008). On the occasion of veterinary test, or other transport preparations, samples of blood and fur should be collected. These samples are a valuable material for genetic research, which supplement the information obtained from pedigree book. Instruction on securing such collected material is presented in two languages: Polish (at: zubry.sggw.pl) and English (at: bison-ebcc.eu).

Each wooden container used for transport of wisents should be adapted to individual size of an individual (horn width, body length, withers height). In breeding practice such measures are taken when animal is in a short distance from the enclosure fence (Mierzwa 2011 – personal communication). During feeding, it is possible to easily measure the width of the horns of wisent focused on food. Measurements of length and height could be made with the use of the methodology described by Treboganowa (2011). In accordance with this methodology when animal will take correct position in a short distance from the fence two points should be marked on the fence, indicating the extremities of the body height and two marks indicating length (Treboganova 2011). However, the best moment to take measure of animal is period of anesthetic immobilization (during veterinary examination) (Krzysiak 2016 – personal communication). Methodology of pharmacological immobilization of wisent based on the experience gathered mainly in free living population of Białowieża Forest is described in the literature (Olech *et al.* 2008; Krzysiak and Larska 2014). Selection of cages should be based on few important principles: 1) cages should be 10 cm wider than width of horns 2) inner height must be at least 30 cm higher than an animal's withers height 3) box should be long enough that animal could take up water and feed without problems, but not too long, otherwise it could be destroyed with horns or hind legs (Hławiczka 2008; Treboganova 2011). During transport, containers should be secured to the floor or side walls of a vehicle to prevent displacement (Fig. 2) (Hławiczka 2008). In the case of young animals (up to 3 years old) it is permissible to transport them without wooden containers – but with the use of vehicles that are equipped with special compartments to separate individual animals (Olech *et al.* 2008). This way of transport is not recommended in the case of adult animals. It may cause injury and suffering and does not ensure the safety of the animals. At the time of loading an animal to the container it is not advisable to use pharmacological sedation (Olech *et al.* 2008; Hławiczka 2008).

In Germany, wisents are loaded into the wooden cages with a special platform while being immobilized. Subsequently, an antidote is administered to an animal, and transport begins only after the animal is fully awoken (Glunz 2012). Transport in Russia (Prioksko-Terrasnyj Nature Biosphere Reserve) is based on guidelines proposed by Zablotsky (1957). These guidelines are implemented for wisents and other ungulates transportation (Treboganova 2011 after Sipko *et al.* 2004). Similar method is used in Poland based on experience from Białowieża from the beginning of XX century and recommended by EBCC, due to minimizing a risk of aspiration of the animal's rumen contents while loading it into the cage. Therefore, tranquilisation is not recommended during loading and transporting of animals (Hławiczka 2008). According to EBCC rules, an animal should enter the cage by itself, therefore breeding centers should be equipped in so-called loading alley. Loading alley is a narrow corridor leading an animal directly to a transportation container, and at the same



Figure 2. During transport, containers should be secured to the board of the vehicle to prevent displacement (Fot. Michał Krzysiak)

time to verify its condition and treat if necessary (Treboganova 2011). A container should be placed inside the enclosure for three days before the transport, so the animal could get used to it. The cage should be placed inside the capture pen with some space left between the cage and the exit from the loading alley (to enable animal to freely exit the loading alley passing the cage) (Treboganova 2011). Wisent should be loaded into boxes in the morning. Transportation of the calf and the cow in the same container is forbidden, because it would be risky for the calf's life.

The day before the planned loading a wisent should not be feed, because hungry individual quickly enters the loading alley attracted by the fodder. Moreover, the loading alley is divided into sections with the first being the widest one. Between sections sliding doors are placed (across the rails of loading alley sides) preventing an animal to step back. In most cases after closing the first wooden door, animal moves through subsequent sections of the loading alley finally entering the transportation box. After animal gets into the box, the door is locked by a keeper from the rooftop. (Treboganova 2011). The transportation box is placed onto a vehicle with the use of crane or loader (Treboganova 2011). Wisents can be transported with airplane, special adapted car, or by railway. Within Europe, due to practical

reasons, it is advisable to transport them by a car (Hławiczka 2008). In areas of difficult access, such as regions of Vologda or mountain forests in Caucasus areas, heavy equipment like caterpillar tractors can be used (Treboganova 2011). There is no obligation to use a car designed for the transport of animals containers but such vehicle has to be equipped with: fast loading and unloading facilities, proper ventilation, be secured from sudden weather changes during the transport, have ability to easy maneuver, and sufficient space for hay and water (secured from displacement) (Hławiczka 2008).

Whatever kind of transport is used, wisents should be transported only with their head directed to the front of the transporting vehicle (Treboganova 2011). During transportation, wisents should not be released from the containers, because there is no possibility to reloading them back to the container.

Transportation should take the shortest possible travel time. For this reason the transport should take place at night or early in the morning to avoid traffic jams (Treboganova 2011). Very important aspect is welfare of animals especially possibility of overheating. If transportation is performed during hot season a better solution is to conduct transport at night, plan an adequate number of stops during days (in shaded areas) and support animals with water *ad libitum* (Treboganova 2011). During very warm and very cold days animals demand more water and food. Food (hay) should be delivered every 4 hours in small amounts, directly to the bottom of box before watering. Animals should not be excessively fed during the transport, as this may cause digestive problems. Uneaten fodder may be left at the bottom of transport container, after watering (Glunz 2012). In destination area, animals should be released immediately into the quarantine enclosure. Breeding practice indicate, that animals that arrived at night should be kept in boxes until following morning to release. Release of animals begins when the transport container is unloaded into specifically prepared enclosure (Treboganova 2011). One person climbs up onto the roof of the cage to elevate sliding door to the level of cage roof (Fig. 3; Fig. 4). Back door has to be elevated quickly, because wisents will try to leave cage as soon as they hear that door is opening. The animal comes out from the cage crabwise (Treboganova 2011).

According to an opinion of Rainer Glunz (EBCC German West) at destination place cows should be released first from cages, before the bull (Glunz 2012). Based on experience from Poland, the order of unloading of crates depends mostly on their location on the vehicle. Sometimes the bull is released first, because long time spent in cage causes his irritation, which may lead to the risk of damaging the cage (Krzysiak 2016 – personal communication).

Disinfection of means of transport before and after transport

Before and after the transport, a vehicle and used equipment (transport containers) must be cleaned mechanically and disinfected. It is necessary to scrape and wipe



Figure 3. One person climbs up onto the roof of the cage to elevate sliding door to the level of cage roof (Fot. Hanna Piórska)



Figure 4. Sometimes animal needs additional stimulus to come out of the box (Fot. Hanna Piórska)

out all solid impurities and clean surfaces under running water. It is recommended to use low-toxicity, quickly disintegrating disinfection agents or non-toxic substances.

Quarantine

With reference to the Act dated 11 March 2004 on animal health protection and prevention of infectious animal diseases (Journal of Laws 2014 item. 1539 with later amendments), the quarantine is a detention period, before an animal joins the herd, allowing for observations for the purpose of detecting disease symptoms. The length of quarantine is not regulated by law, but according to the general principle in the prevention of infectious diseases, the quarantine should last as long as the incubation of the most dangerous infectious disease observed in the species (eg. foot and mouth disease, bluetongue disease). In practice, the quarantine should last at least 30 days (Treboganova 2011). Breeding practice demonstrates that such period is sufficient for animals, to establish relationships and form a herd. After the quarantine, healthy animals are released to the group of wisents (Treboganova 2011). Also, it is worth to mention that quarantine is also necessary while animals captured from free living populations are planned for a transport.

The present health risks for wisents connected with international transport

Due to the close relationship of European bison (*Bison bonasus*) to domestic cattle (*Bos taurus*), in many countries wisents may be susceptible to infectious diseases characteristic for domestic livestock. The main threats are the tuberculosis, blue tongue disease virus (BTV), epizootic hemorrhagic disease virus (EHDV) or the newly discovered Schmallenberg virus (SBV). Tuberculosis was first diagnosed in the species 20 years ago, and remains the most threatening disease to *B. bonasus* (Bielecki *et al.* 2013 after Żurawski and Lipiec 1997). In connection with endangered species transportation it is important to be aware of the spread of dangerous pathogens, and the emergence of new pathogens in natural habitats. Globalization, intensification of animal production, and global warming, all contribute to the increased risk of pathogens appearing in new geographical areas. BTV and EHDV are both orb viruses found in domestic ruminants, represented by a number of distinct serotypes with varying virulence. They are transmitted by *Culicoides* midges, and could become an immense threat to wild species. Blue tongue is an OIE-listed disease of global importance with significant implications for European bison. Monitoring of all such diseases is important for protection the future of endangered wild species, but at the same time, infectious diseases in wild animals should be monitored and managed to effectively protect farm animals (Krzysiak *et al.* 2016).

References

- Bielecki W., Mazur J., Amarowicz J., Krajewska M. 2013. Zwalczanie gruzlicy u żubrów w Bieszczadach. *European Bison Conservation Newsletter*, 6: 91–94
- Bołbot M., Raczyński J. 2013. Rejestracja rodowodowa żubrów jako narzędzie restytucji gatunku. *European Bison Conservation Newsletter*, 6: 5–20.
- Glunz R. 2012. Challenges in the management of captive European bison. Proceeding of the 10th International Conference “Wisent in Polish tradition”. Kiermusey 6–7 Sept, 28–32 pp.
- Hławiczka M. 2008. How European bison should be transported. Proc. of the 1st International European Bison Congress, Hardehausen, 9–12 Sept.
- Krzysiak M. K., Iwaniak W., Kęsik-Maliszewska J., Olech W., Larska M. 2016. Serological study of exposure to selected arthropod-borne pathogens in European bison (*Bison bonasus*) in Poland. *Transboundary and Emerging Diseases*. doi: 10.1111/tbed.12524, 1–13 pp.
- Krzysiak M.K., Larska M. 2014. Immobilizacja farmakologiczna żubrów. *Medycyna Weterynaryjna*, 70 (3): 172–175.
- Moran F. 2011. Legal status – urgent needs in European bison conservation. Proc. of the 9th International Conference “Wisent – forests – lakes”. Malinówka 22–23 Sept, 39–42 pp.
- Olech W. 2008. The importance of reintroduction and expansion free living bison herds with animals born in breeding centers. Proc. of the 1st International European Bison Congress, Hardehausen, 9–12 Sept.
- Olech, W. 2008a. (IUCN SSC Bison Specialist Group). *Bison bonasus*. The IUCN Red List of Threatened Species 2008: e.T2814A9484719. <http://dx.doi.org/10.2305/IUCN.UK.2008.RLTS.T2814A9484719.en>. Downloaded on 08 June 2016.
- Olech W. 2013. Wzbogacanie puli genowej żubra w Karpatach Wschodnich w latach 2001–2012. Proc. of the 11th International Conference “Wisent in Carpathians”. Czarna 5–6 Sept, 62–63 pp.
- Olech W. (ed.), Bielecki W., Bołbot A., Bukowczyk I., Dackiewicz J., Dymnicka M., Hławiczka M., Krasiński Z., Nowak Z., Perzanowski K., Raczyński J., Tęsiórowki W., Wyrobek K. 2008. Hodowla żubrów. Poradnik utrzymania w niewoli. Stowarzyszenie Miłośników Żubrów, Warszawa, 1–100 pp.
- Olech W., Perzanowski K. 2002. A genetic background for reintroduction program of the European bison (*Bison bonasus*) in the Carpathians. *Biological Conservation*, 108: 221–228.
- Olech W., Perzanowski K. 2016. Changes of size and structure of world population of European bison in years 2000–2015. *European Bison Conservation Newsletter* 9: 5–10.
- Pucek Z. (ed.) Pucek Z., Belousova I.P., Krasińska M., Krasiński Z.A., Olech W. (comps.). 2004. European Bison. Status Survey and Conservation Action Plan. IUCN/SSC Bison Specialist Group. IUCN, Gland, Switzerland and Cambridge, UK. ix + 54 pp.
- Raczyński J., Bołbot M. 2016. Księga Rodowodowa Żubrów 2015. Białowiecki Park Narodowy
- Suhecka A., Olech W., Łopieńska M. 2014. Evaluation of the influence of demographic factors on the success of reintroduction of small herds of European bison. *Acta Sci. Pol., Zootechnica*, 13, 4: 67–80.

- Treboganova N. 2011. Capture and transportation of animals from European Bison Breeding Centre of Priksko-Terrasnyj Nature Biosphere Reserve. *European Bison Conservation Newsletter*, 4: 121–124.
- Wojciechowska M., Nowak Z., Olech W. 2012. Przegląd badań genetycznych prowadzonych na gatunku *Bison bonasus*. *European Bison Conservation Newsletter*, 5: 13–26.
<http://www.zubry.sggw.pl/wp-content/uploads/2015/01/Pobranie-zabezpieczenie-i-przechowywanie-materia%C5%82u-biologicznego-2.pdf>
<http://www.bison-ebcc.eu/genetic-samples-collection/>

Zasady odławiania i transportu żubrów z Polski do innych krajów europejskich

Streszczenie: Ponad 90 lat po wygłoszonym na Kongresie w Paryżu apelu o podjęcie wszelkich niezbędnych działań w celu ratowania populacji żubra w Europie liczebność tego gatunku osiągnęła poziom 6083 osobników (księga rodowodowa żubrów 2015). Świadczy to o sukcesie licznych programów reintrodukcji i ochrony, niemniej jednak żubr nadal jest gatunkiem zagrożonym wyginięciem, zakwalifikowanym do kategorii Vulnerable D1 (Olech 2008). Zarządzanie współczesną populacją żubra jest ukierunkowane na zachowywanie wysokiego poziomu różnorodności genetycznej w istniejących stadach oraz tworzenie nowych hodowli zagrodowych i stad wolnościowych. Taki sposób zarządzania stwarza potrzebę odławiania osobników i przemieszczania ich pomiędzy ośrodkami. Transport zwierząt wymaga odpowiedniego przygotowania ze względu na aspekt hodowlany, logistyczny jak i wysokie koszty przedsięwzięcia. Konieczność publikacji zasad realizacji transportu wynika z potrzeb środowiska związanego z ochroną żubra w Europie. Niniejszy tekst zawiera zbiór zasad rekomendowanych przez European Bison Conservation Center w sprawie prowadzenia transportu żubrów z zastosowaniem najlepszych praktyk m.in. transportowanie zwierząt w drewnianych skrzyniach oraz ładowanie zwierząt do skrzyń bez stosowania środków farmakologicznych.
