

Management of Semi-Wild Large Herbivores' Grazing Sites in Latvia

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Abstract—Large herbivores were a common part of European nature in the pre-agrarian times. With the development of farming and over-hunting, the number of wild large herbivores rapidly decreased. Wild horses and cattle became extinct. In the 1920-30's, scientists created two new herbivore breeds that resembled the extinct aurochs and tarpans - Heck cattle and Konik horses. Nowadays the introduction of Heck cattle, Konik horses and other similar large herbivore breeds is widely used in specially protected nature territories (SPNT) as a strategic answer to the question – what should we do with the agricultural lands that have lost their economical meaning. Since 1999, semi-wild large herbivores are introduced in various SPNT of Latvia as well, mainly in nature parks and nature reserves. Based on field visits, interviews and policy analysis, this paper discusses two main approaches to semi-wild grazing animal population management in Latvia: (1) introduced herbivores as a part of rewilding process and (2) introduced herbivores as instruments for habitat protection. The former represents the implementation of western wilderness values, while the latter is related to more specific protection of species and habitats according to particular place-based nature protection goals. This study contributes to the growing discussion on rewilding practises in Europe and the introduction ideas of semi-wild animals, as well as landscape management practices in the era of post-productivism.

Keywords—introduction, large herbivores, natural grazing, rewilding.

INTRODUCTION

In Latvia, as in many other European countries, in the latter part of 20th century large areas of land in less productive regions have fallen out of agricultural use [1], [2]. However, an open landscape, grassland habitats and many flora and fauna species cannot exist without such ecological stresses as mowing or grazing [1], [3] – [5]. An alternative to the mechanical management is the introduction of large herbivore breeds that are capable of surviving in the wild with minimal human assistance or without it [1], [4], [6], [7]. One of the pioneer projects of large herbivore introduction is the Oostvaardersplassen polder in the Netherlands where large herbivores were introduced in the beginning of 1980's to 'rewild' the landscape. Since then the introduction projects have gradually spread all over the Europe [4]. The keystone

species for the introduction are (semi)wild cattle and horses – Heck cattle, Konik horses and other similar breeds that have the capability to survive in the wild with minimal human assistance [5], [8].

The first large herbivores in Latvia, Konik horses and Heck cattle, were introduced in 1999 in the Nature Park "Pape" as a part of WWF Latvia's initiative that aimed to restore the natural habitats in the Pape polder – a marginalized agricultural area [10]. Since 1999, grazing areas of semi-wild large herbivores have been established in numerous specially protected nature territories (SPNT) in Latvia, mainly in nature parks and nature reserves [11].

Although all of the semi-wild large herbivore grazing sites in Latvia have many common features, the complexity of management approaches varies from site to site. However, we can distinguish two main approaches for management of semi-wild herbivore populations in terms of wider political contexts. One sees the introduced animals as effective asset for habitat management, while the other sees the introduced animals as an integral part of a rewilded landscape in the future [12], [13]. The question of the larger idea that lies beneath one or another management approach is crucial because it affects the grazing site management practices, for example, the surplus feeding or veterinary care level [12], as well as the overall character of a grazing landscape, effecting also the national landscape values.

In this paper, we outline and discuss the differences between two main approaches for semi-wild herbivores grazing sites' management in Latvia – introduced animals as part of rewilding and introduced animals as instruments for habitat protection, focusing on various aspects of the management approaches. The aim of this paper is therefore to identify the main differences and similarities in both approaches in four case studies by discussing the particular indicators that characterize management aspects, wider nature protection contexts and place-based specifics.

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MATERIALS AND METHODS

We used field observations, interviews, analyses of literature and documents to understand the specifics of (semi)wild large herbivores grazing sites both generally and specifically in the case of Latvia. Our fieldwork, based on information-oriented selection of four maximum variation cases, was conducted in 2018 and 2019, when we visited altogether four grazing areas: grazing site in Nature Reserve “Floodplain Meadows of River” (Pilssala), grazing site in Nature Park “Pape” and two grazing sites in National Park “Ķemeri”.

Concerning the above-mentioned case studies, we conducted six semi-structured interviews with nature protection experts and managers. The main topics discussed with the experts and managers were related to: the objectives of introduction projects, main functions of grazing sites, de-domestication process and human contact, surplus feeding issues, grazing specifics and spatiality, animal registration, the income of grazing sites, potentiality for tourism, as well as other practical management specifics.

RESULTS AND DISCUSSION

Semi-wild herbivore grazing sites in SPNT of Latvia

The grazing areas of semi-wild large herbivores are established in numerous SPNT of Latvia, mainly in nature parks and nature reserves (see Fig. 1, Fig. 2 and Table I). Currently the area of semi-wild grazing sites ranges from approx. 100 ha to 400 ha. The largest grazing areas are located in the Nature Park “Pape” and the Nature Park “Dviete Floodplain”.

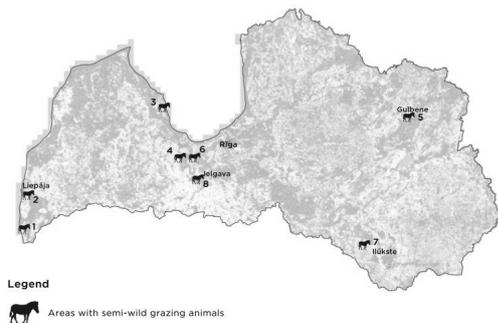


Fig. 1. Semi-wild herbivore grazing sites in SPNT of Latvia (base map from kartes.geo.lu.lv, topographical map M1:10 000 LĢIA; number of a grazing site corresponds to the one in Table I).

TABLE I. SEMI-WILD HERBIVORE GRAZING SITES IN THE SPNT

	Location of the grazing site, the year of introd.	Current number of grazing animals*	Type of introduced herbivores
1	Nature Park “Pape”, 1999	205	Semi-wild horses and cattle, European bison
2	Nature Reserve “Lake Liepāja”, 2002	60	Semi-wild horses and cattle

3	Nature Park “Lake Engure”, 2002	56	Semi-wild horses and cattle
4	National Park “Ķemeri” (The Dunduri Meadows), 2004	168	Semi-wild horses and cattle
5	Nature Reserve “Sita and Pededze Floodplains”, 2005	information n/a	Semi-wild horses and cattle
6	National Park “Ķemeri” (Floodplain of River Lielupe), 2006	141	Semi-wild horses and cattle
7	Nature Park “Dviete Floodplain”, 2006	180	Semi-wild horses and cattle
8	Nature Reserve “Floodplain Meadows of River Lielupe” (Pilssala), 2007	71	Semi-wild horses

* Approximate number, according to managers of grazing sites (2018)



Fig. 2. Grazing site in Nature Park “Lake Engure” (2016)

The most common introduced herbivore breeds are semi-wild horses (mainly *Konik polski* horses) and various breeds of semi-wild cattle (e.g. Heck cattle, Highlanders). In the grazing site of the Nature Park “Pape” European bison have been introduced as well. However, they left their grazing enclosure in 2009 and since then live in the wild surrounding of Pape [14]. All of the grazing sites share some common features. Firstly, the location - all of them are located in former agricultural lands that are characterized by low soil fertility and unsuitable conditions for profitable agricultural activity. Secondly, all of the grazing sites are situated next to a natural waterbody that can provide animals with drinking water. Thirdly, all of the cases bear a similar objective – protection and restoration of mosaic landscape and grasslands [11].

Management of semi-wild large herbivores' grazing sites in Latvia

The first introduction projects of large herbivores were commenced already 40 years ago, still there are many discussions and fierce conflicts regarding the introduction idea. Studies show (e.g., [1], [8], [13]) that on the one hand, the replacement of the extinct large grazing animals is being promoted as a possibility to renew the lost ‘European wilderness’ and to recover the natural mosaic landscape as it was in the pre-agrarian

times. On the other hand, some specialists believe that the method is too unpredictable and the introduction of large herbivore breeds can be acknowledged only under careful examination and the introduced animals should be considered only as a tool for habitat management. The two main conflicting beliefs have led to two very different principles of managing the grazing sites of introduced large herbivores: (1) introduced herbivores as part of rewilding and (2) introduced herbivores as instruments for habitat protection. Using literature analysis [1], [4], [5], [8], [12], [13], [15] – [17], field observations and interviews with managers of grazing sites, we elucidated the main differences between both management approaches that are pertinent to the Latvia's case (see Table II).

TABLE II.
 approaches of semi-wild herbivores' grazing site management: the main differences

Introduced herbivores as part of rewilding	Introduced herbivores as instruments for habitat protection
<i>Idea of rewilding vs. habitat protection</i>	
Emphasis on the idea of 'rewilding' the landscape as it was in the pre-agrarian times (see Vera's [4] hypothesis on the role of large herbivores in European landscape creation in the pre-agrarian times).	Emphasis on the protection of specific habitats and/or species
<i>De-domestication process and human contact</i>	
The de-domestication and the development of animals' natural behaviour is a crucial factor; the contact with humans should be limited to a minimum	The development of the natural behaviour of animals is a secondary issue; the main reason for limiting the contact is the safety of visitors of the grazing sites
<i>Surplus feeding</i>	
Surplus feeding acceptable only in the extreme circumstances	Additional feeding is acceptable, especially during winter.
<i>Spatial specifics of grazing</i>	
Animals can move freely in the grazing site all year long	Animals are periodically transferred to specific parts of a grazing site to achieve the habitat conservation goals
<i>Population vs. individuals</i>	
The welfare of an individual animal is secondary, the priority is the wellbeing of population	The welfare of each individual animal is considered important
<i>Veterinary assistance</i>	
Veterinary assistance only if the animal is in need of care because of human negligence (e.g., entangling in barbed wire)	Animals may receive any veterinary care
<i>Income of the grazing sites</i>	
Animals are not used for meat or any other production, the income of a grazing site depend mainly on subsidies	The main income usually are subsidies for habitat protection; but the culled animals may be processed for meat production*

<i>Animal registration</i>	
Preferably the renunciation of animal registration in the future**	The need of animal registration is seen only as a practical inconvenience
<i>Management of the dead bodies of animals</i>	
Death is seen as part of a life cycle - unless an animal has died close to a visitors' access point, the remains of dead animals are left for natural decomposition	The bodies of dead animals are not left for natural decomposition
<i>Predation</i>	
Presence of such predators as wolves is highly tolerated; predation and fear factor are important aspects of a functioning ecosystem	Contact with natural predators, such as wolves, is limited to a minimum

* If allowed by the responsible authorities (food safety issues)

** The tagging of semi-wild cattle is mandatory in all grazing sites in Europe, except for the Oostvaardersplassen polder [8].

Of course, one must bear in mind that the division between both management principles is relative – in reality most of the grazing sites possess some characteristics from both approaches. For example, all managers of the analysed grazing sites in Latvia use the surplus feeding during winter months, even in grazing sites that would classify as examples for approach “introduced herbivores as part of rewilding” (e.g., both grazing sites in the National Park “Ķemeri”, grazing site in the Nature Park “Pape”).

Besides the fact that both approaches might overlap in some aspects depending on the beliefs of optimal management of the managers of grazing sites, there are some more characteristics that are usually similar to both approaches:

- Populations of introduced herbivores live in fenced areas (except European bison in the Nature Park “Pape”, who left their grazing enclosure in 2009 and now live in the wild [14].);
- The introduced herbivores are allowed to feed, breed and socialize more freely than their livestock kin;
- Introduced animals live outside all year long;
- The birth of animals is not assisted by human.

In general, the main difference between both approaches lies in the broader ideology of introduction that in both cases relates to the landscape management problematics. The approach “introduced animals as part of the rewilding” supports Vera's hypothesis [4] that suggests that large grazing animals were an important ecological force in landscape formation in Europe in the pre-agrarian era and experimentally try to re-create the pre-agrarian ecosystems and landscapes. The approach “introduced animals as instruments for habitat protection”, on the contrary, concentrates more on the practical advantages of introduction: the introduced semi-wild large herbivores are seen as effective alternative for managing grassland habitats, disregarding the speculations about their historical role in the European landscape.

Another important aspect of differences between both approaches is the “domestication status” of the introduced herbivores – should they be seen as wild or as domesticated animals. As this aspect is directly connected to the animal welfare ethics [12], [18] it has caused fierce discussions both between specialists and general public also in Latvia (e.g., news stories about grazing site in Pilssala [19] and in National Park “Ķemeri” [20]). The approach “introduced animals as part of rewilding” considers introduced herbivores as wild animals (or at least wild animals to-be) therefore they receive less help from humans (such as surplus feeding or veterinary care) as their livestock kin. Thus the introduction approach “introduced animals as part of rewilding” is often criticised by animal protectionists.

However, both management approaches have very different ideologies and objectives therefore they have very different advantages and disadvantages as well. The approach “introduced animals as part of rewilding” is mainly based on the controversially received hypothesis of large herbivores as creators of mosaic landscape in Europe in the pre-agrarian times [4], [9]. This approach is more experimental and fit for SPNT without very strict nature conservation rules (as the result of introduction is not always predictable), while the approach “introduced animals as instruments for habitat protection”, which offers more control over introduced animals, is seen as more fit for achieving concrete nature conservation goals such as improved quality of specific grassland habitats.

CONCLUSIONS

The first grazing site of semi-wild herbivores in Latvia was established in 1999 in Nature Park “Pape” as a part of WWF-Latvia initiative that aimed to restore the natural habitats in the Pape polder. Since then, the semi-wild large herbivore grazing sites have been established in numerous SPNT in Latvia. Even though all of the grazing sites share many common characteristics (e.g., all of them are located in the former agricultural lands and all of the grazing sites are populated by semi-wild horses and/or cattle), the management approaches of grazing sites are very different. However, they can be divided into two general groups that bear distinct objectives and underlying ideologies - (1) approach that sees the introduced animals as part of rewilding process and (2) approach that sees the introduced animals as instruments for habitat protection. In general, the main difference between both approaches lies in the higher goal of introduction (landscape rewilding or habitat protection). The approach “introduced animals as part of rewilding” supports Vera’s hypothesis [4] that suggests that large herbivores were a crucial ecological force in mosaic landscape formation in Europe in the pre-agrarian times and experimentally try to re-create the pre-agrarian ecosystems. The approach “introduced animals as instruments for habitat protection” more conservative and mainly concentrates on the practical advantages of introduction: the introduced semi-wild large herbivores are seen as effective alternative for managing grassland habitats, disregarding the speculations about their historical role in European landscape. However, they differ also in other practical management aspects such as surplus feeding, human contact, level of veterinary assistance, spatial specifics of animal movement, income of the grazing sites and the management of the dead bodies of animals.

Although some aspects of approaches in the analysed grazing sites may overlap, the list of main characteristics of both management approaches developed in this study can be used as a basis for identification of grazing site specifics in the further analysis of ecological and socio-economic aspects of grazing landscapes, as well as in analysis of societal attitude towards these new post-productivist landscapes.

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