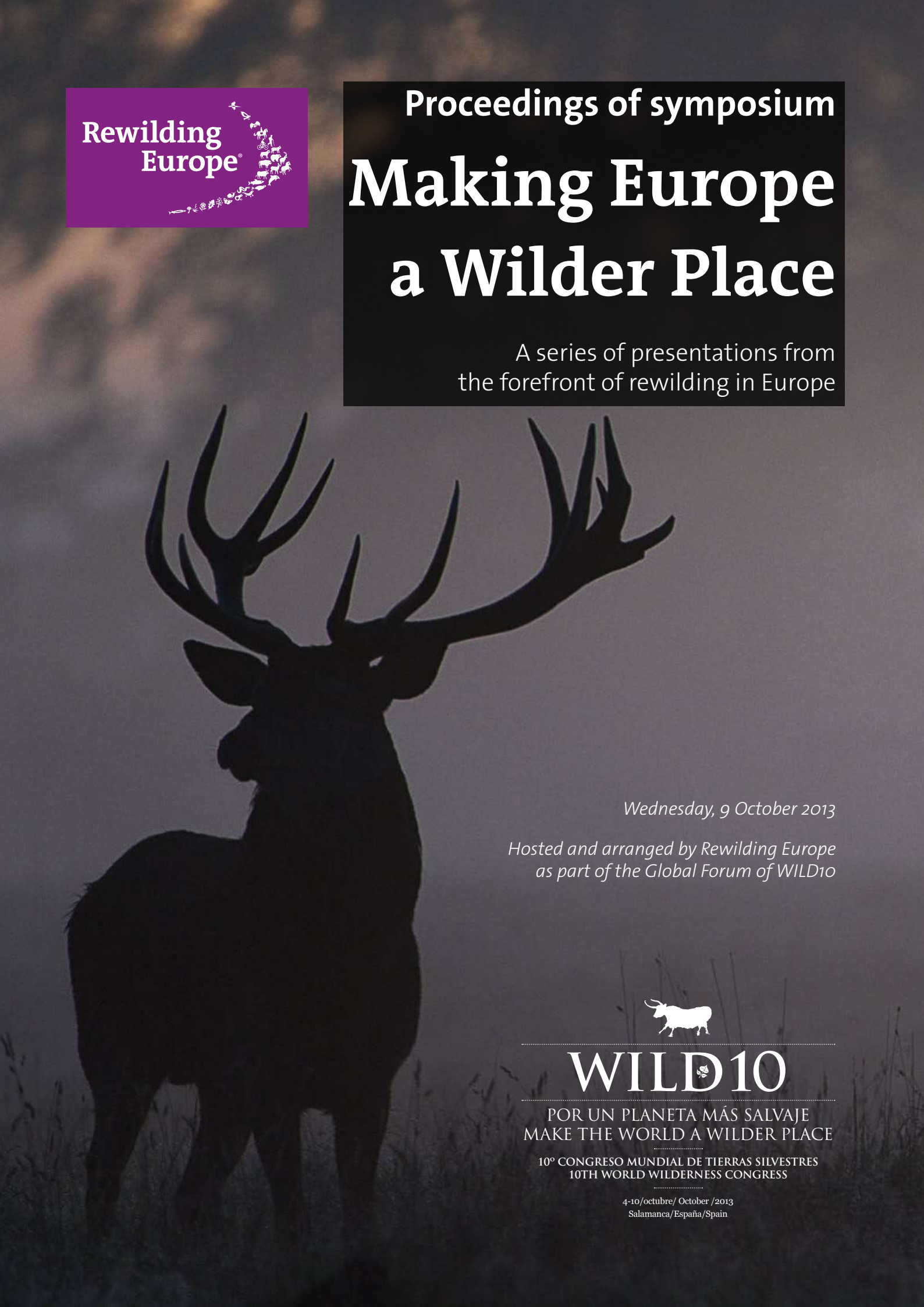
Rewilding Europe

Proceedings of symposium

Making Europe a Wilder Place

A series of presentations from the forefront of rewilding in Europe



Wednesday, 9 October 2013

Hosted and arranged by Rewilding Europe as part of the Global Forum of WILD10

WILD10

POR UN PLANETA MÁS SALVAJE
MAKE THE WORLD A WILDER PLACE

10º CONGRESO MUNDIAL DE TIERRAS SILVESTRES
10TH WORLD WILDERNESS CONGRESS

4-10/octubre/ October /2013
Salamanca/España/Spain

Contents

WILD10
POR UN PLANETA MÁS SALVAJE
MAKE THE WORLD A WILDER PLACE

SVENSKA POSTKOD LOTTERIET

Liberty Wildlife fund

Editor: Chris Sandom / Wild Business
Cover photograph: Florian Möllers / Wild Wonders of Europe
Photographs: Bruno D'Amicis, Mark Hamblin, Grzegorz Leśniewski, Florian Möllers, Juan Carlos Muños, Mats Niklasson, Stefano Untherthiner, Daniel Zupanc, Joep van de Vlasakker, Staffan Widstrand
Illustrations: Thomas Hammond, Jeroen Helmer
Design: Kristjan Jung / Rewilding Europe

Rewilding Europe
Toernooiveld 1
6525 ED Nijmegen
The Netherlands
info@rewildingeurope.com
www.rewildingeurope.com
www.facebook.com/rewildingeurope

Introduction

Rewilding Europe believes that making Europe a wilder place – with much more space for wildlife, wilderness and natural processes – will not only benefit the natural world, but society as well. At the heart of this is simply bringing back the variety of life for us all to enjoy, but also, and importantly, exploring new ways for people to earn a fair living from the wild. To achieve this Rewilding Europe aims to rewild one million hectares of land by 2020, creating 10 magnificent wildlife and wilderness areas that are bastions for wildness and major tourist attractions.

WILD10 was a conference held in Salamanca, Spain, October 4–10 2013, aimed at tackling: *How can we protect, maintain and restore wild nature while also providing enhanced social and economic opportunities for human society?* On the 9th of October Rewilding Europe organized a full day symposium called "Making Europe a Wilder Place" to present their, and their partner's and collaborator's, vision and plans and showcase concrete examples of how Europe can be rewilded.

These proceedings communicate the key messages from an inspirational day and aim to encourage even wider engagement with rewilding in Europe. The following pages present many new facts about rewilding, wildlife and the business case for the wild, and follows the same structure as the symposium: **'Wilder Landscapes and Ecosystems'**, **'Resurrection of three European Icons'**, **'How could Europe move up the wildness scale?'** and **'The Wild Business Case'**. The new **European Wildlife Bank** is also presented, and the **European Rewilding Network** is launched, which is helping to connect dozens of rewilding initiatives.

Rewilding is still a young concept, but one that is gathering considerable momentum. Its first formal definition, in 1998, by Michael Soulé and Reed Noss, consisted of three essential concepts: 1) the conservation or restoration of large core areas, 2) connectivity between them, and 3) the re-establishment of keystone species, particularly large carnivores. Inspired by this vision Rewilding Europe is helping local communities establish large core rewilding zones across Europe and reintroducing missing keystone species, all of which will be discussed in these proceedings. Connectivity between core areas is also an important goal and to help achieve this these proceedings aim to inspire you and your community to contribute to restoring wild space, at any scale, that will help connect core areas through wild corridors or stepping-stones.

Community restoration is arguably the key to rewilding. The reintroduction of keystone species is so important because of the way they interact with the community to deliver natural processes. Similarly rewilding can only be achieved with willing human communities living in harmony with the wider natural community. The business community is another fundamental element that must function properly if rewilding ambitions are to realised and appreciated.

Ultimately "Making Europe a Wilder Place" can only be achieved by the collective effort of functioning communities of species, businesses and societies throughout Europe. We hope these proceedings will inspire you to be an active part of the European rewilding community.

Chris Sandom
Wild Business

Convenor of the seminar, lead author of the proceedings

Rewilding European landscapes

Can rewilding become one of the new land use options?

Connected to the new book with the title "Rewilding abandoned landscapes in Europe".

Henrique M. Pereira
German Centre for Integrative Biodiversity Research / Centro de Biologia Ambiental, Faculdade de Ciências da Universidade de Lisboa

While conservationists in the southern hemisphere are concerned by the dramatic conversion of natural landscapes to human dominated land, parts of the European landscapes have undergone opposite transformations for several decades. Previously managed land has been progressively alleviated of human pressures, particularly traditional agriculture in mountains and remote areas. Billions of euros are mobilized in subsidies to maintain traditional agricultural practices and cultural landscapes, yet remote areas are still predicted to be abandoned. Although abandoned lands have raised concern for both the public and the scientific communities, they can, instead, be considered as an opportunity to restore natural habitats and biodiversity.

Recently, researchers have started considering a "new" land management option on abandoned lands: rewilding. In a nutshell, rewilding can be defined as the passive management of ecological successions having in mind the long-term goal of restoring natural ecosystem processes. Though mostly passive, this management might involve active restoration in the early stages post-abandonment. Rewilding has proven to be beneficial for a relatively large number of species, while providing a wide array of ecosystem services thus contributing to human wellbeing.

This talk presents a book aimed at introducing the concept of rewilding to scientists, students and practitioners. In the book we bring together a group of scientists and practitioners whom discuss recent research on rewilding, the implications of rewilding for biodiversity and ecosystem services, and how rewilding is being managed in practice. We believe that this book will set the basis for future research on rewilding and help practitioners think about how rewilding can take place in areas under their management.

Chapter titles

The theory of rewilding

1. Rewilding abandoned landscapes in Europe
2. European wilderness in a time of farmland abandonment
3. Ecosystem series: opportunities for rewilding abandoned land in Europe

Rewilding and biodiversity

1. Bringing large mammals back: large carnivores in Europe
2. Top scavengers in a wild and unpredictable Europe
3. Rewilding pitfalls and opportunities for moths and butterflies
4. Vegetation restoration and other actions to anhance wildlife in European agricultural landscapes
5. Managing disturbance-dependent habitats

Rewilding in practice

1. Rewilding Europe: A new strategy for an old continent
2. Protecting wilderness in Europe: the PAN Parks network
3. Preparing a new generation of wilderness entrepreneurs
4. Towards a European policy for rewilding

(Henrique M. Pereira and Laetitia M. Navarro)

A critical look at forestry and forest management practices and ideology in Europe

Is a "forest" an ecosystem or just a set of trees? How can forestry be less damaging to biodiversity? How can we rewild our forests? How about the forest fire issues?

Mats Niklasson
Nordens Ark foundation &
Swedish University of Agricultural Sciences

"Nature must be managed" is a common belief in western culture. The idea that nature cannot be left on its own is especially strong in forestry and forest management. "Managing nature" or "taking control over nature" has been so influential over such a long time that even protected forest sometimes is managed with methods identical to commercial management. The idea that nature cannot be left unmanaged has strong implications for our attitude towards conservation in general, and for the concept of rewilding in particular.

However, it is an undisputed fact that forestry and forest management, especially as implemented in northern European countries, has been detrimental to a large part of the original fauna and flora. In the temperate and boreal forests of Scandinavia, 100+ years of commercial forest management has driven several species to local extinction and has put more than 2 000 species on the National Red Lists. The main reason, beside plain habitat loss and fragmentation, is the large-scale loss of key elements and processes in managed forest such as: old trees, deciduous trees, large tree dimensions, dying trees, dead trees, flooding, natural forest fires and grazing.

In a rewilding process, traditional forest management concepts and principles have limited value. A major problem is that a "non-management" regime was and is never an option in forestry. Active incorporation of the "let it be"- or "non-intervention"-tool as a legitimate management option in the forestry toolbox could perhaps be one way to prepare and develop forestry for a future with more complex demands from society. In the presentation Mats showed some examples of species and processes that have decreased or disappeared due to forest management. Many of these species would strongly benefit from rewilding of large areas.

In order to preserve biodiversity, natural processes can rarely be substituted by human controlled disturbance regimes. Forest management is a good example of a human disturbance regime with known negative effects for flora and fauna.

Managed forests are often dense and dark. Creating artificial gaps is an efficient way to "rewild" such forests. Dead wood can then be created in many ways, by winching or girdling which allows for a diverse saproxylic fauna.

A prescribed fire for habitat management in s. Sweden, summer 2010.

In a process of rewilding forest landscapes, formerly forestry managed areas often need active ecological restoration to reach a state closer to the original, natural state. Restoration as defined historically by forest managers, "forest restoration" will not improve the situation for threatened species since it usually involves replanting and management of mono-species conifer forest that indeed are "green" but with very low biodiversity. In ecological restoration emphasis is instead on bringing lost species back by providing suitable habitats and underlying natural processes. Mats discussed and gave examples of restoration practices that can be used in order to "rewild" set-aside areas. Many of these practices can also be easily integrated into traditional forest management in order to decrease its negative impact.

Allowing natural processes is definitely a challenge. However, some processes are easy to allow or mimic even in a managed landscape.

1. **Leaving** dying and dead trees in the forest. One example: Many large herbivores feed on bark of various trees in winter. The resulting damaged and dying trees is an important habitat for other organisms. Leave such trees in nature!
2. **Creating** dead and dying trees. It is possible to imitate natural processes and also speed them up. Trees can be damaged and killed and then left behind for nature to take over. Many organisms benefit from artificially killed trees.
3. **Fire.** This is probably the most controversial subject in conservation today since wildfires may destroy lives and properties. Nevertheless, prescribed well-controlled fires for biodiversity is increasing in a number of situations. Controlled fires, with or without grazing, is a useful tool in heath and grassland management and for restoring biodiversity in many forest ecosystems. There is a close association between ground fires, grasses and large herbivores, probably very well known for our hunter-ancestors.

Wrap up Section 1

Henrique Pereira opened this section with a grand overview of rewilding, encompassing both theory and practice. By taking this broad perspective, discussing both the risks and the opportunities rewilding presents, he demonstrated how far the science and practice of rewilding has come in a short time. Mats Niklasson presented some of the challenges that face the practical application of rewilding within forestry, although the lessons are undoubtedly transferable to other land uses. He highlighted that the first barrier to rewilding is the current widely held view that nature must be managed. Both presentations highlighted how by promoting the restoration of natural processes rewilding is challenging the managed status quo, and asks: can we achieve more by restoring and working with natural processes rather than against them?

Working with natural processes creates certain challenges and the question was posed: how should rewilding practitioners consider both spatial and temporal scale when rewilding? Henrique highlighted the importance of considering both local (site) and landscape/regional (square kilometres to hundreds of square kilometres) biodiversity when considering rewilding. The same principal can be applied to time, e.g. how does biodiversity change if measured today, over a year, decade or century? With management typically working over a 5 to 20 year timescale it is important to monitor biodiversity at this level, but Henrique also highlighted that modelling should be used to consider the impact of management actions over much longer timescales as well.

Nature is dynamic in space and time and it is important to allow communities to change, especially those communities that depend on disturbance. There is also an important human element when considering scale. For instance, can both the Oostvaardersplassen at ~56 km^2 in the densely populated Netherlands and Yellowstone National Park at nearly 9 000 km^2, in the sparsely populated North-west USA, be considered rewilding projects, can they both be large core areas? Despite being measured in different orders of magnitude both offer classic rewilding stories of species reintroduction to restore an ecosystem process, the former in relation to importance of large herbivores and the latter for the reported trophic cascades observed since the wolf has been returned. This perhaps highlights that any region can become wilder.

It is clear though that rewilding in its fullest sense, that includes the space hungry large predators that often come into conflict with humans, is most practically achieved where human population density is fairly low. It is for this reason that opportunities for rewilding have been proposed where rural land is being abandoned or in the low human density regions such as the extensive forests of Scandinavia as discussed by Mats Niklasson.

Difficulties finding enough space for rewilding and curbing our eagerness to manage nature must also be considered when integrating rewilding into a well-established European legal framework, particularly with regard the EU Birds and Habitats Directives. This question was posed to Henrique Pereira, who agreed that the wildlife legislation is already strong in Europe but pointed out a couple of key areas where some reform is likely to be needed in relation to rewilding. He highlighted that the Birds Directive was written in the 1970s and the Habitats Directive in the 1980s and we have gained considerable ecological knowledge since. One of the current problems directly relevant to rewilding, is that these directives focus on the preservation of specific communities and not the natural processes or natural dynamics of communities that rewilding seeks. One particular sticking point that will need redressing for some rewilding projects to take place is the definition of when animal should be considered 'wild'. Traditionally domestic species such as cattle and horse can play important roles in ecosystem function, discussed in the next section, but their domestic status may prevent them being rewilded under the current legal framework.

From a forestry perspective managing for natural processes presents some challenges. Numerous points were raised on this issue, many relating to the perceptions of how a forest should look like. There was concern amongst rewilding professionals that many foresters think of forests as a collection of productive trees, rather than an ecosystem of variety that includes the animals that enrich forests but can also threaten the productivity of timber. However, Mats presentation and a comment from Alan Watson-Featherstone, from Trees for Life, highlighted that experimental rewilding is taking place that will help find the best ways of incorporating more biodiversity into plantation forests.

The issue of human impact on forests in history was also raised. Mats highlighted that the extinction of megafauna in the Late Quaternary is important in the context of significant changes in forest processes in Europe. But that it was much more recently, perhaps only in the last 60 to 100 years, that technology has facilitated a pervasive human impact on forests by allowing us to reach almost every square meter of land, leaving no refugia for the wild. In his presentations, including one given in a previous symposium, Mats also explained that while management plans are measured in decades, forest processes are better considered over centuries and more. Individual trees can live many centuries and can be particularly important for biodiversity in the latter stages of their life and after their death as standing and fallen deadwood, stages they typically don't reach because they are felled for timber.

The importance of the processes of fire, wind blow and herbivory, and how they interact, were also highlighted as important factors for creating forest gaps. Mats pointed out that conservation areas are typically too small for the natural physical processes of wind and fire to function naturally. However, he did indicate that the reintroduction of large herbivores is already happening and is increasingly on the agenda. Some of these processes could also be mimicked through management, although much larger areas with a full compliment of species is a more attractive approach from a rewilding perspective.

'Born to be Wild'

The resurrection of three European icons – Bison, Aurochs and Wild horse

Professor Jens-Christian Svenning
Aarhus University

Nature conservation management has traditionally involved some kind of baseline, thought of as a particular state of nature to be conserved or recreated. In Europe, for example, this point in time is often placed 100 to 200 years ago, the late pre-industrial or early-industrial cultural landscape as this is the time where nature conservation began to come on the political agenda. Else, this point in time may be at the onset of Western colonization or another cultural marker. Such baselines represent arbitrary and atypical reference points, as current species typically stretches back 200,000–400,000 years or more, i.e., in many regions long before hominin colonization. This points to *a need for understanding how ecosystems function without human interference to provide insight into the conditions and processes that have produced and maintained the present species diversity in the long term*.

As no contemporary ecosystems exist without some human influence we must look to the past for guidance. No single temporal baseline is likely to be appropriate everywhere, however, but the last interglacial (114,000–130,000 years ago) offers a unique window into a period of broadly similar climate and ecology, but without modern humans (except in Africa). Earlier Pleistocene interglacials are also useful windows, albeit with greater evolutionary differences. By looking to these periods we can study how ecosystems function without human interference, notably how they are structured, how much diversity they maintain, and which factors and processes are involved. Inference based on this paleoecological perspective will be strongest if combined with modern ecological studies of the same factors and processes.

Paleoecological studies of European ecosystems in the most recent preceding Pleistocene interglacials documents an often rich flora and fauna, which is nearly fully composed of modern species of plants, invertebrates, and small vertebrates, but contains a highly expanded large mammal community, with all the present species represented, but in addition to them a diverse suite of regionally or globally extinct species. Similar patterns with strong megafauna losses are seen throughout the world. There is ongoing controversy over its cause, but also increasing evidence that it is linked to the expansion of *Homo sapiens*. A key point for conservation is that current megafauna-poor conditions are highly unusual, with rich mammal megafaunas having been present for many million years.

Overall, the paleoecological data points to forest-dominated, but highly heterogeneous mosaic interglacial ecosystems in Europe, with emerging evidence suggesting that that large herbivores contributed to this habitat diversity. There is similar evidence coming from other continents,

notably North America and Australia. Overall the data is still scarce, however, and much more work is clearly needed before we have a comprehensive understanding of the structure and functioning of ecosystems in the absence of modern human interference. However, at this point, the emerging message is that if we want to restore ecosystems to self-managing entities capable of long-term maintenance of a rich species diversity we need to look to restore these factors and processes, and that this likely includes rich megafaunas in many regions.

Rewilding is a new approach to nature management that as it is most commonly defined takes this insight as it basis, with functionally based reintroductions or introductions of anthropogenically or likely anthropogenically lost species or ecological replacements as a key element and with megafauna often in focus. In contrast to much traditional management, rewilding is mostly open-ended, with focus on re-establishing natural ecological diversity-generating processes rather than reaching and conserving specific ecological end states. Some of the main species currently in focus in rewilding projects across Europe are three large herbivores that were widespread in the region until a few thousand years ago, namely European bison (*Bison bonasus*), wild cattle (*Bos primigenius s.l.*), and wild horse (*Equus ferus s.l.*).

The European Bison Rewilding Action Plan

Bringing back the European bison to Europe's rewilding areas – a strategy how. Explaining the "European Bison Rewilding Action plan" more in detail.

Joep van de Vlasakker
Flaxfield Consultancy

The European bison (*Bison bonasus*), also known as the wisent is a species unknown by most Europeans. It is part of the 'forgotten wildlife' of the old continent. Why is it that Europeans know about the European bison American cousin (*Bison bison*) or buffalo but not their own bison? Western movies have always been popular and the early nature movies come from the USA. Hollywood therefore played an important role in making the American bison well known throughout the world, while the European bison remained an obscure animal. The American bison played an important role for the aboriginal people in North America as provider for food and tools; the same holds true for the role of the European bison and its ancestor *Bison priscus* for early Europeans. The Indian horse culture, as we know it from Hollywood; Indians hunting bison on horse back, was for only a relatively short time period; 1640–1880. The impact on the bison population was relatively low. In order to break the Indian spirit and concur the West, millions of bison where killed on the prairies, leaving the Indians without their basic means of life. In 90 years so many bison were killed that the numbers dropped from 16 million to only about 750, nearly leading to the extinction of the species. The bones and skulls of these millions of dead bison where used as fertilizers in the east of the States.

In Europe the bison also lived in very high numbers but the decline was spread over a much longer period. Archaeological findings e.g. at Mauran in France, have shown that the Neantherthalers already hunted *Bison priscus*. In Solutre, also in France, the remains of somewhere between 32,000–100,000 wild horses were found proving that ones large herbivores lived in very high numbers in the past in Europe too. Early humans have hunted large herbivores, including the bison since late Pleistocene and early Holocene; over centuries the distribution of European bison shrank and shrank, intensified by habitat loss and competition and spreading of bovine diseases from domestic cattle. The bison retreated to 'royal' forests where it had some protection and remote mountainous areas. It had become a 'refugee' species, driven out of its preferred habitats. Because of the early persecution bison could never form natural densities, together with the other gild of large herbivores; true natural landscapes could therefore never develop in Europe, especially not on fertile soils as the key players, like the bison where missing. In the middle ages the distribution had already shrunk enormously and during that time the bison became extinct in Belgium, Germany and France. The persecution continued until modern times leading to the dead of the last bison in Bialowieza, Poland in 1919 (Northern population) and the last European bison living in the wild in the world in the Caucasus, Russia in 1927 (South-Eastern population). Luckily 54 individuals survived in captivity; 29 males and 25 females all descending from only 12 founders. The Bison restitution started, shortly before the last bison was killed, namely in 1923, when the bison studbook was established. The studbook contained only pure-bred bison. Due to joined breeding efforts from Zoo's and bison breeding centres the first bison could be released in the wild again in 1956, in Bialowieza, Poland. Free living bison can now be found in Latvia, Lithuania, Belorussia, Ukraine, Poland, Slovakia and Russia. In 2013 two more countries could be added to this list as bison where released fully to the wild in Germany and Romania.

In 1990 there where 6 herds of bison with more then 100 individuals. In 2004 there where only 4 herds left with more then 100 individuals and in 2013 only 3 remained.

It is clear that the words that Zdzislaw Pucek, editor of the Status and Conservation Action Plan of the European Bison wrote in this IUCN action plan in 2004, are true: *"The risk of extinction of the European bison, both in captivity and in the wild, is still very high"*. The threats described in this action plan to the bison are numerous;

- Habitat fragmentation;
- Isolated populations;
- No viable populations;
- Low genetic variability;
- Sensibility to diseases, like balanopostitus (related to management) and blue tongue (related to climate change)
- Transfer of bovine diseases from domestic livestock;
- Administrative disorder; failure to enforce nature conservancy laws to protect bison and its habitat;
- Poaching.

Given the low numbers of the European bison in the world it can be said, with exaggeration, that the bison (<2 700 in the wild), is more threatened then the Black rhino (±4750 in the wild).

Despite nearly 10 years since the publication of the IUCN bison action plan many threats remain;

- Still no national bison strategies;
- EBCC (European Bison Conservation Centre) established but still international coordination lacking;
- Management of bison is still based on tradition, 'refugee' species and zoo-technical techniques;
- Conservation is too much science driven, participation protected areas, governmental support and 'hand-on' conservation is lacking;
- Growth of world population is too slow; still risk of extinction!;
- Populations are still fragmented and risk of further fragmentation is growing;
- Bison are still being culled, hunted and poached.

One of the main problems relating to bison conservation is that free-living bison are 'not allowed' to be an integrated part of the natural ecosystem, they are not allowed into their preferred habitats and densities are too low, so they have a minimum impact on the biodiversity of the areas they live in.

Bison specialists still often promote an 'optimum' density of 5 bison / 1 000 ha. In two recent projects where bison are allowed to be a part of the natural ecosystem and where there is no additional feeding all year round densities of 110 bison / 1 000 ha. have been observed in the Kraansvlak (Netherlands) and >46 bison / 1 000 ha in the Döberitzer Heide, where the population is still growing due to the fact that it is a 'young' project.

Another major problem is that the ecological role of the bison is not acknowledged, not even among park-managers and biologists. This and the fact that the bison is unknown and thus unloved by the general public, makes it hard to gain support for bison conservation initiatives. Rewilding Europe can make a major difference for the bison because it has the power to combine 3 essential forces: conservation & mass-communication & business development.

The bison is one of the most important key species in most terrestrial ecosystems in Europe and large parts of Asia. By its grazing, wallowing, trampling and fertilizing behaviour its creates essential niches for many other plant and animal species. Furthermore bison are, under natural conditions an important food source for predators, like wolves and bears as well as for scavengers like the threatened vultures.

The bison is besides a key species also an important umbrella species; with the protection of the bison and its habitat many other species profit.

Rewilding Europe has proven to be very effective at mass-communication. This mass-communication is essential as the biggest problem in bison conservation is the fact, as we have learned, that the species remains unknown and unappreciated. Rewilding Europe can give the bison the same attention as the Black rhino on the worldwile scale.

Rewilding Europe actively supports business development this is essential; as talking with local people and really helping local people to get benefit from the bison is the key for community-based conservation that is supported by the local community.

To put rewilding into practice Rewilding Europe has started its first bison project in the Tarcu mountains in Southern Carpathians, Romania. The approach is different then any previous re-introduction/bison conservation project. For the next 10 years Rewilding Europe will yearly release, a considerable group of bison at several pilot sites in the project area. The bison will not be additionally fed, once released into the wild and thus allowing the bison to become a full part of the natural ecosystem and its natural processes. The bison will first be released into an acclimatisation zone (±15 ha) where it can recover from the re-location. After recovery and acclimatisation the bison will be allowed to enter the adjoining re-wilding zone (>100 ha) where the bison will be given the opportunity to 're-wild' and learn necessary survival skills for life in nature and form a good solid, social herd structure. After one year, the fence will be opened and the bison will be released.

Both acclimatisation zone and re-wilding zone will serve as an important regional tourist attraction to bring business opportunities and jobs to the local community. A bison visitor centre will be established from which several bison / nature related activities will be organised.

The goal of the Tarcu mountain bison project is to have a minimum of 1 000 bison living in freedom by 2035.

Rewilding Europe works closely with the local community, local entrepreneurs, local authorities, Forestry service, hunting organisations, tourist organisations etc.

Besides the pilot project in the Tarcu mountains Rewilding Europe aims at establishing 5 more populations of minimum 100 individuals / population at different rewilding areas.

Increasing the numbers of bison is essential, not only for the conservation and the survival of the species, but also for biodiversity reasons, so the bison can have a serious impact on the ecosystems. Last but not least; large numbers are needed for a wildlife watching based economy, so a large part of the local community can benefit from the presence of the bison.

Bison is not only a key species for nature it is also an icon species for rewilding.

Join Rewilding Europe in bringing back the bison!

The Aurochs and the Tauros programme

What do we know about the Aurochs, its ecological role, distribution and habitats? Which primitive cattle breeds are the most close to the original, according to the latest DNA science? How is the Tauros program doing? Presentation of the Aurochs book.

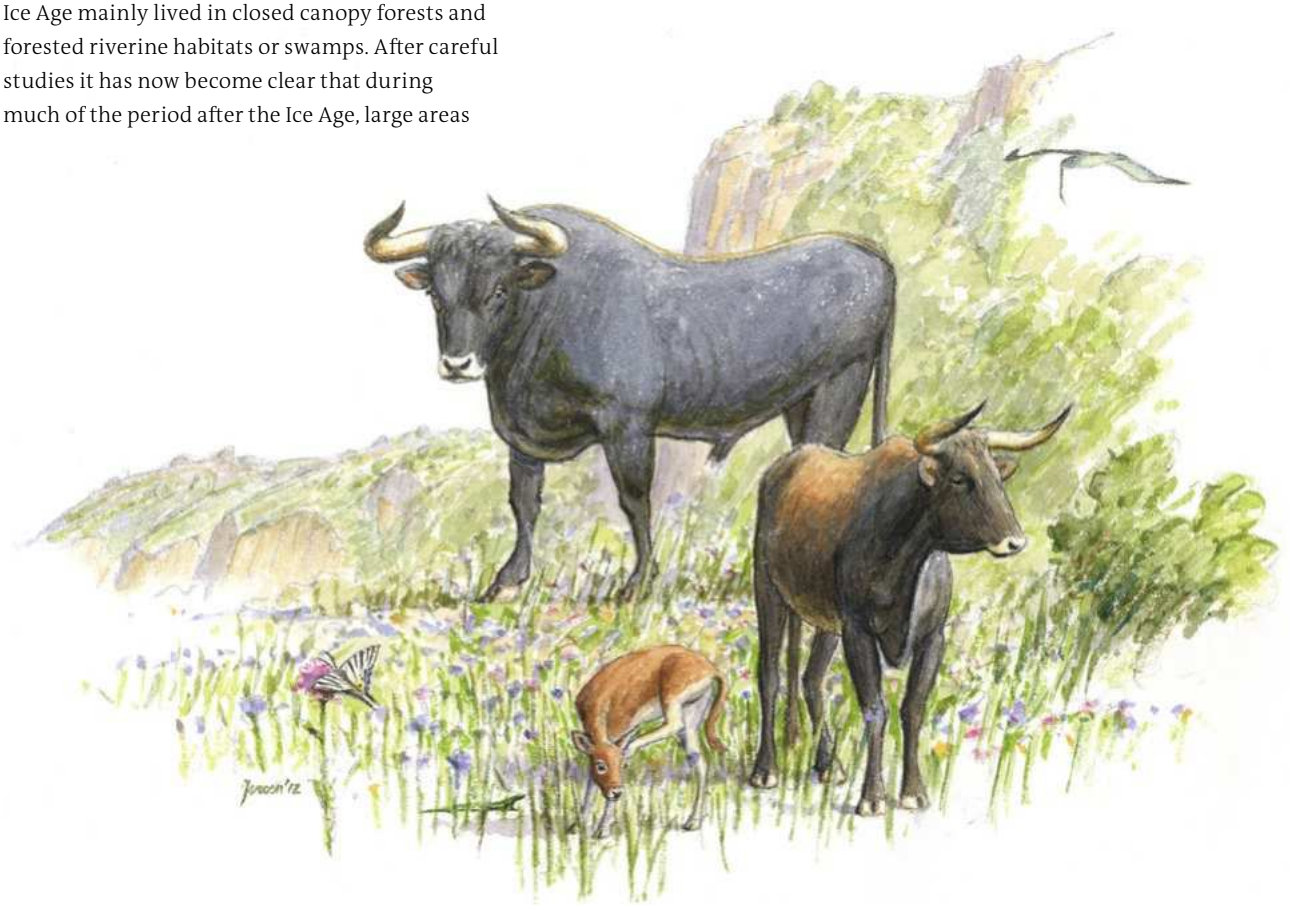
Ronald Goderie
Taurus Foundation

Introduction

The aurochs – the predecessor of all our cattle – was an extraordinary animal. It was a keystone species in its natural surroundings but apart from that it became crucial for the history of modern humans. Aurochs turned into man's most valuable animal, the ancestor of every domestic cow and bull in the whole world. The aurochs stands at the very root of the whole idea of our continent. It is Europe's defining animal. Sadly it was driven to extinction by the actions of humans, but it could be brought back by the actions of humans as well. In 2008, the Dutch Taurus Foundation took the decision to give the re-breeding of the Aurochs a serious try. This has since then grown into a joint effort together with Rewilding Europe and ARK Nature. The goal of the Tauros Programme is to bring the animal back, to build wild populations and in the end release them in rewilded European areas.

The habitat and ecology of Aurochs

The prevailing theory was that aurochs after the Ice Age mainly lived in closed canopy forests and forested riverine habitats or swamps. After careful studies it has now become clear that during much of the period after the Ice Age, large areas of Europe consisted of park-like landscapes with large open grassy areas with light-demanding plant and tree species. A Danish study of radioactive isotopes shows what happened. Before the arrival of domestic cattle, aurochs mainly fed on grasses. After the domestic cattle arrived, both cattle and aurochs showed isotope levels that were consistent with grasses and grassy areas. After this the balance changed in favour of domestic cattle, while the later aurochs bones increasingly began to show isotope levels indicative of a food selection from forests and marshes. In other words, domestic cattle and aurochs had the same food preference, but humans and their domestic livestock pushed the aurochs into more inhospitable lands. During autumn aurochs would complement their grass-diet with acorns to fatten up for the coming winter, just like wild living domestic cattle populations do today. During winter, they found additional forage by eating bushes and bark, twigs and branches of trees. Something that can also still be seen in primitive wild living cattle today.



General build

Aurochs was an impressive animal. It evolved around 2 million years ago in India and since than spread all across Eurasia and northern Africa. It arrived in Europe around 700,000 years ago.

The size of the aurochs varied depending on the region. On average, aurochs from Northern Europe were larger than those from the South. In Denmark and Germany the shoulder height of aurochs bulls varied between 155 cm and 180 cm and those of cows varied between 135 cm and 155 cm.

The body shape of an aurochs was quite different from many developed cattle breeds today. Aurochs had an athletic body shape and long legs. Eyewitness records from the time clearly describe it as a swift and very agile animal. It also showed a strong so-called sexual dimorphism, which in this case means that bulls were significantly larger than cows. The skull, carrying the large horns, was larger and more elongated than in most cattle breeds today. Especially the bulls showed a strongly expressed neck and shoulder hump musculature to be able to carry the heavy head with its long and thick horns. In cows - even when pregnant - the udder was quite small and barely visible from the side. Its horns were characterised by their size, curvature and orientation. They were light-coloured, with dark-coloured tips. The bull's horns were larger, with the curvature more strongly pronounced than the cows. The bull's horns could on occasion reach up to 107 cm in length and measuring between 10 and 18 cm in diameter at their base. The cows had horns that could probably reach up to 70 cm in length. The coat colour of the aurochs was very typical. In general, calves were born with a chestnut colour. Within half a year, bull calves would change colour to a very deep brown or black, with a whitish-yellow so-called eel stripe or dorsal line running down its back along the spine. Cow calves retained their reddish-brown colour, but black cows were occasionally seen as well. Both sexes had a distinct light-coloured, often white, muzzle.

Common roots of human and aurochs

The common roots of human and cattle go back to the times of the caves of Chauvet and Lascaux and even further back. Europe before humans was a continent with large herds of big herbivores, in a far wilder and much more open landscape with large herds of herbivores as in Africa nowadays and as it used to be in the US. This was the realm of Aurochs. The wild animal went extinct, in 1627 to be exact. However its descendants prospered with nearly a billion cattle around. Among them breeds with aurochs-features: in Italy, in Spain, Portugal and the Balkan-countries.

Bringing back Aurochs

The complete DNA of the aurochs is quickly becoming unravelled, and so is that of all its nearest domestic relatives. They have shown to be very closely related. This means that cattle breeding techniques, used over millennia, could be used also for back breeding, using DNA analysis as a yardstick to measure the progress.

The Tauros Programme stays away from experimental but also more controversial techniques such as cloning or DNA-editing. Interesting perhaps from a pure scientific point of view, but in the end it would only lead to one or a couple of individuals, neglecting the complete variety that still exists in so called primitive cattle.

In the initial stage of the Tauros Programme scientists have identified the best breeds to be used for this back breeding. These breeds can be found in southern Europe and the Balkan countries. This has led to a selection of approximately 6 breeds to be used at the moment, but new insights could mean that other breeds could be included in the Programme in the future.

Unique for the Tauros Programme is the use of genetic studies on Aurochs as a reference and the comparison with the breeds used. So far this had led to the conclusion that some of the Iberian and Podolican breeds used in the programme, stand genetically close to Aurochs. The studies – by Wageningen University in cooperation with other scientific institutes still continue and will reveal more information the next years. Based on these new insights the Tauros Programme might and will be adapted.

The Tauros programme's four phases

The Tauros Programme distinguishes four phases:

- **The start up phase.** In this phase the focus of breeding will be directed to the phenotype on quantity.
- **The active breeding phase.** In this phase, the focus lies on up-scaling the programme and on selection.
- **Passive breeding phase.** In this phase the focus will shift to natural breeding and (strict) selection.
- **Natural breeding and natural selection.** The final stage of the programme, about 20–25 years from the start, natural selection will be the main force of development.

The Tauros will be populating increasing areas of wild nature across Europe. Some active selection will still take place and animals that show unwanted characteristics will be deselected. The herds will be monitored. At the end of this phase, the Tauros will be a truly wild animal: the Aurochs 2.0.

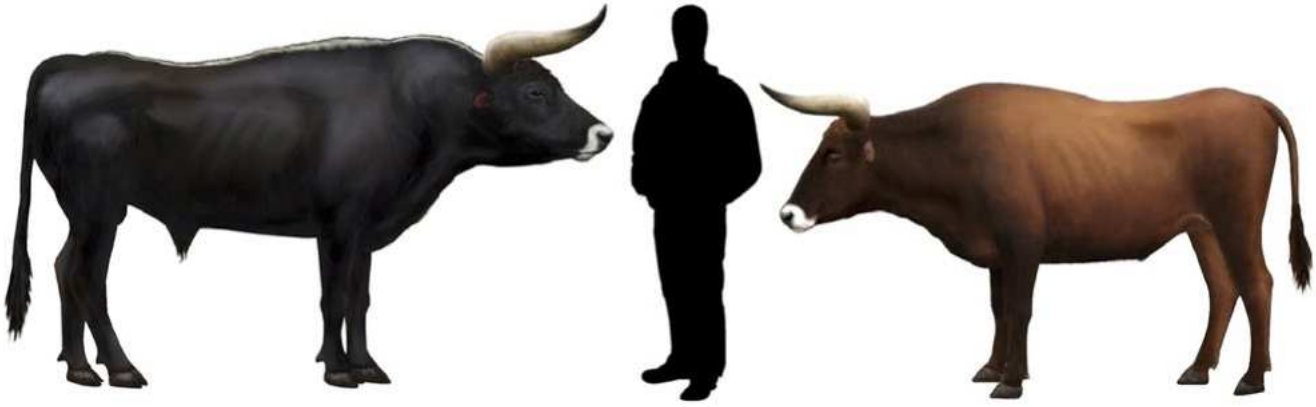
Further information on the Tauros Programme can be found at:

In the book: 'The Aurochs. Born to be wild'. To be ordered on the site of the publisher (Roodbont publishers) or Rewilding Europe:

- www.roodbont.nl/nl/bookshop/6_Dieren/142-429_The-Aurochs,-Born-to-be-wild
- rewildingeurope.com/programme/publications/the-aurochs-born-to-be-wild/

Further readings:

- www.rewildingeurope.com/press-room/tauros/
- www.taurosproject.com/
- www.stichtingtaurus.nl/cStdPage.php?ref=56&userID=771c584b539dbff9374222d0fe8ae8e3
- ww.ark.eu/ark/werk-in-uitvoering/missing-lynx/soorten/taurossen1



What do we know about the Eurasian wild horse?

Ecological role, distribution, races or species, habitats of the European wild horse. Which horse breeds are according to the most recent scientific knowledge, the most original? What about rewilding horses in Europe?

Leo Linnartz
ARK Nature

The last Tarpan, symbol for the European wild horse, died out as late as in 1909. Long before that, wild horses roamed through most of Europe's ecosystems, from deserts, steppes and savannahs to deep forests and high mountains. Together with other large herbivores wild horses not only lived there, but also maintained open grasslands and semi-open forests. Trees and thorny bushes are adapted to browsing and debarking and co-evolved with the full spectrum of large herbivores and their predators.

Modern man and their continuously improving hunting techniques put an end to this. Large herbivores were expelled, exterminated and sometimes, like wild horses, domesticated by our ancestors. Therefore, even though the original European wild horse is now gone, there are still millions of horses around, and some horse breeds to this day are genetically very similar to the original wild horse. Several of our 21th century horse breeds are amazingly close to the horses that feature in the 15,000–32,000 year old cave paintings in Chauvet, Altamira and Lascaux or in the rock carvings of the Côa valley.

In horses, domestication was an erratic history of taming, human selection, breeding, abandoning, hybridising with wild horses again, living wild for a while and then being re-tamed again when man needed them. All across Europe, several of the local horse breeds have traditionally roamed free in natural areas in a semi-wild state. These horses were expected to find their own food and shelter. This turned out to be a guarantee to preserve important wild traits and appearances, enabling horses to stay fit and alive under semi-wild conditions. The knowledge of how to avoid or defend themselves against predators, the competition between the stallions, how to survive winters, developing coats resistant to rain, snow and ice, was preserved and developed.

The domestication of horses did not change their genes as much as it did with many of our other domestic mammals. The absence of strong human selection and the presence of natural selection have kept some of the wilder and more original breeds quite fit for a natural wild life. Rewilding takes generations, in order to fully adapt and learn to live in the wild again. Rewilded and semi-wild horses store very important gene sources, valuable also for mankind and the domestic breeds. A broad range of horse breeds is suitable for rewilding. The best choice depends on phenotype, genotype, the actual natural background, the local public opinion and the available numbers.

Land abandonment today offers new opportunities for bringing the wild horse back and developing an economy based more on wild nature and wildlife. Rewilding Europe intends to assist the wild horse come back, all across Europe. Rewilding Europe will help the wild living horse back to natural densities within some key European ecosystems, offering new areas for the species to expand. The intention is to help establish before 2022 at least five herds of more than 100 horses in rewilding areas that are specifically selected for this purpose. This should lead to at least one connected large population of over 1 000 animals by 2032. Rewilding Europe invites partners to join in this endeavour.

Wrap up Section 2

The importance of the Late Quaternary megafauna extinction is a central theme in the rewilding debate. Since the last interglacial, the last time the climate was similar to the present day, Europe has lost over 20 species of large mammal. Jens-Christian Svenning made the case that these species, many of them typically thought of as keystone species, are important for understanding the evolutionary and ecological conditions under which the ecosystems of Europe have developed. Three of the species most recently lost from the wild, European bison, aurochs, and wild horse, are at the forefront of rewilding in Europe. The bison narrowly avoided extinction and as Joep van de Vlasakker described is currently making a comeback across Europe, with some help. The wild aurochs and horses were both lost in the previous century, however, domestic forms have survived. This raises an interesting and difficult question tackled by Ronald Goderie and Leo Linnartz: how can a species be rewilded?

Rewilding is focused on returning natural processes to ecosystems, but how can this be achieved? The shifting baseline syndrome and the relatively recent development of biodiversity conservation has led to a focus on the recent past, perhaps the last century or two, as the targeted conservation baseline. Jens-Christian highlighted how this is too recent to properly understand how ecosystems functioned, and created and maintained biodiversity before modern humans arrived. It also creates a fixed point in time, a static conservation target, while natural processes are dynamic. By providing the ecological overview of each of the three iconic species discussed it is clear that taking a deep-time view is important for understanding the complete scope of rewilding potential for all of these species and the ecosystems they support.

The reintroduction of species, particularly keystone species, to a rewilding project seeks to restore an ecological process, in this sense the function of the species is prioritised over its form. However, form and function are undoubtedly closely related. None of the species discussed in this section survived in the wild and thus their function as delivered by their wild behaviour was lost. The bison only survived in captivity and has since been reintroduced, but importantly it was not domesticated, unlike the aurochs and the horse. Domestication is a process that creates a strong selective pressure to move a species from its wild state to one more agreeable for human interaction. This involves changing its genetic make up, morphology and behaviour. Ronald Goderie presented how selective breeding for domestication could be reversed to select for more wild traits in cattle, so called back breeding. This can help create animals that have a suitable morphology to survive in the wild. Leo Linnartz highlighted that many breeds of domestic horse have retained much of their wild traits and that these animals can be released to begin the next phase of rewilding, a rewilding of their behaviours, that is best achieved by the animals living and learning in the wild. The European bison is faced with different challenges because it was reduced to so few individuals the remaining individuals have limited genetic diversity making inbreeding depression a major concern.

Rewilding any species so that it can be released into wild areas presents difficulties. Once these challenges have been overcome the next phase is to integrate these species into one community. Many rewilding initiatives in Europe, involving large herbivores to restore the key ecological process of natural grazing, have already shown fascinating results. The next phase will be to achieve this in more areas that are much larger and include other communities, such as large predators, that is an important goal of the Rewilding Europe regions.

Section 3:
How could Europe move up the wildness scale?

How do we allow natural processes to shape the landscape again?

What are these natural processes?
Practical examples of rewilding approaches, presenting the European Wildlife Bank.

Wouter Helmer
Rewilding Europe

Rewilding Europe is a young organization, but the people behind it have together hundreds of years of experience in conservation and rewilding practice. Many of those experiences have been gained in the areas that now are part of the European Rewilding Network (see Yvonne Kemp's presentation).

'Fertile soil' in the Netherlands

In the Netherlands rewilding started in the 80's in the floodplains of the rivers Rhine and Meuse. After several years of summer floods, time was ripe for re-allocation of farmlands in a way that the floodplains became available for rewilding. ARK Nature, one of the initiating partners of Rewilding Europe, pioneered with new conservation concepts. Nature development was combined with water management, clay excavation and ecotourism. A new competitive economy has developed, based on wild values. Starting with a few hectares around 1990, many thousands of hectares were rewilded in subsequent years. More space was given to natural processes such as erosion, sedimentation, dune formation by storms, natural grazing and recovering of riverain forests. Key species such as free-living horses, bovines and beaver were reintroduced. In the last years more attention has been given to connectivity of natural areas, to carcass ecology, the comeback of large carnivores (wolf!), trophic cascades and the circle of life.

The European Wildlife Bank

Since the turn of the century, more and more partner organizations in Europe asked ARK to support them in setting up natural grazing projects. The reason for this: land abandonment. After millions of years of natural herbivory and some 10,000 years of domestic grazing, now large areas in Europe become overgrown with shrubs and forests; losing a big part of their biodiversity, related to (half)open landscapes. The EU recognizes the problem, but their solution – massive subsidies for mowing – is neither sustainable nor favorable for nature.

Nature has its own means to 'solve this problem'. Wild horses, bovines, bison, chamois, ibex, etc., don't have salaries and keep on grazing, and continue even after subsidies are stopped. Therefore ARK started some 10 years ago to send herds for free to colleagues in other parts of Europe. Rewilding Europe has further developed this concept in the setting up of a

Rewilding floodplains in the Netherlands, in combination with clay excavation (photo Twan Teunissen)

Konik horses, ready for transport to rewilding areas in Eastern Europe (photo Twan Teunissen)

European Wildlife Bank, launched in 2013. Using the reproductive rates of large herbivores (ca. 25%/year) a rapidly growing area can develop itself in a natural way (for further explanation see www.rewildingeurope.com/european-wildlife-bank). This can only be successful when proper agreements are made with local hunting associations, foresters and other important stakeholders. Taking shares in local conservancies or hunting rights is part of the Rewilding Europe's strategy to scale up rewilding.

The case of Western-Iberia

After a process in which ca. 30 areas all over Europe have nominated themselves, Rewilding Europe has started to cooperate with 9 of the most promising pilot sites. One of the first was Western Iberia, the border area between Spain and Portugal. Sharp decline in the rural population and their livestock not only causes socio-economic problems but also puts biodiversity at risk. Together with two local NGO's – Associacao Transumancia e Natureza in Portugal and Fundacion Naturaleza y Hombre in Spain – Rewilding Europe has started to build an infrastructure for a new nature based economy. In and around two pilot-sites – Faia Brava and Campanarios – land is purchased, management agreements are made with hunters and municipalities, herds of horses and tauros are released, a guesthouse was built as well as wildlife watching hides around feeding places for vultures etc. The results in the pilot sites will be used to scale up our efforts in the surrounding priority areas (thousands of hectares) ending up in rewilding of the further landscape of more than 100,000 ha in 2023.

Artist impression of the future rewilded landscape in Western Iberia (by Jeroen Helmer)

The European Rewilding Network

There are many rewilding initiatives all across Europe, small and large, from north to south and east to west. How can we connect them to share ideas, experiences and examples and create a real rewilding movement in our continent.

Yvonne Kemp
Rewilding Europe

A broad rewilding movement is taking place all across Europe, with exciting and ambitious initiatives developing from small to large scale. Every initiative is unique and has its own opportunities linked directly to the area and people involved, but nevertheless it is very worthwhile to exchange ideas and knowledge. As the rewilding movement becomes more and more prominent throughout our continent, Rewilding Europe believes it is valuable to connect these European rewilding initiatives now.

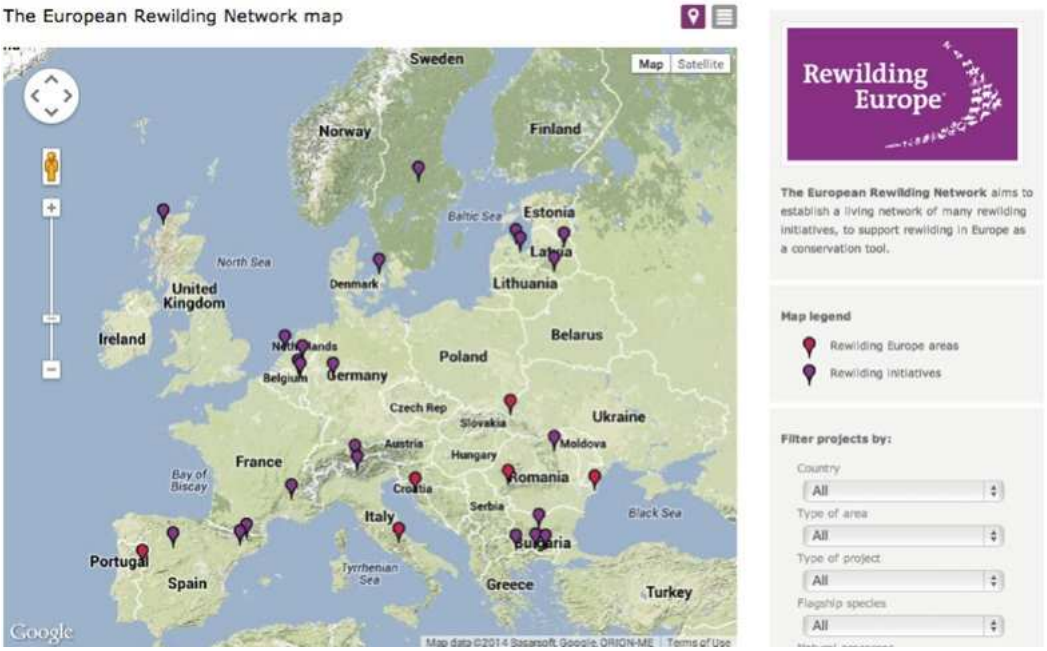
In order to inspire and stimulate each other and others to contribute to the rewilding of many more parts of Europe, Rewilding Europe started a new initiative within its wider programme: the European Rewilding Network. The Network aims to establish a living network of many rewilding initiatives, to support rewilding in Europe as a conservation tool and as something to learn from and get inspired by.

Members are enabled to connect with similar initiatives in Europe, and are connected with Rewilding Europe itself. They will find it more easy and feasible to share experiences, expertise and best practices on rewilding from one initiative to another. All initiatives joining the Network are included into a database that is publicly accessible online: www.rewildingeurope.com/rewilding-network/. Rewilding Europe facilitates the process through providing the online Network, and will have a clear role in the nearby future when training, courses and exchanges will be set up.

The European Rewilding Network is growing. We encourage not only rewilding initiatives where natural processes and wildlife species are present but also warmly welcome initiatives that have successful agreements with forestry organizations or hunting associations as well as successful examples of enterprises and businesses that clearly connect to rewilding.

Rewilding initiatives from fifteen countries have joined so far. The total extension of areas in the Network already exceeds 729,000 hectares; this excludes the Rewilding Europe areas that cover another 2,180,000 hectares. The current members of the Network comprise forest-grassland mosaics, mountainous sites, temperate deciduous forest and wetlands. Within these areas important species like beaver, bison, vulture and wolf are roaming. Apart from rewilding initiatives in which flooding is allowed, several areas in which natural grazing and predation exist are included as important natural processes.

We look forward to welcoming all of Europe's exciting rewilding initiatives into the European Rewilding Network.



The European Rewilding Network – an inspiring network of rewilding initiatives

Hunters, hunting and the wildlife comeback

Where is the possible common ground between conservation and rewilding interests and the hunting community in Europe? Why and how should the hunters' community support rewilding? Which are the advantages, risks and possible pitfalls?

John Linnell
Senior Researcher
Norwegian Institute for Nature Research

Magnus Sylvén
Conservation Advisor, Rewilding Europe

Rewilding represents a change in the way of thinking about conservation in Europe which will have consequences, representing both opportunities and challenges, for various stakeholders, such as the hunting sector. This presentation explored three key questions: (i) where is the possible common ground between conservation, rewilding interests and the hunting community in Europe?, (ii) why and how should the hunters' community support rewilding?, and (iii) which are the advantages, risks and possible pitfalls?

Hunters are probably the most important stakeholder in Europe in connection with wildlife. There are 5 million hunters in Europe, and most of the European land area is hunted, included within many protected areas. Hunters excerpt a large degree of influence over wildlife and their habitats. Hunting is very diverse with many forms, motivations and contexts dominating in different areas. Conservation is also very diverse in terms of goals and practices and the relationship between hunting and conservation is therefore highly variable. In general, hunters are very supportive of species restoration (much of the wildlife recovery during the 20th century is due to hunters) and have little difficulty to embrace issues such as sustainable use. A partial exception concerns the large carnivores, which many hunters find hard to accept. Biodiversity and ecosystem approaches have been more challenging to integrate into hunting management, although there are many good examples of where significant steps have been made in this direction within wildlife management frameworks.

The work of Rewilding Europe is set by a mission and three guiding principle addressing the three aspects of sustainability: Planet, People and Prosperity. Rewilding Europe strives for an optimal balance of human use between the different areas in the rewilding landscape where a spatial zoning will provide direction to where consumptive and non-consumptive uses could take place. There are, at least, three areas of common interest: (i) establish the original species biodiversity, (ii) support larger populations of wildlife, and (iii) explore different options for doing business together, such as combining hunting with wildlife watching and photography. However, the position of Rewilding Europe is also that hunting does not need to take place on every square metre of Europe, that hunting is not necessarily the default priority for society when it comes to wildlife management, and that more space is required for non-hunting management and wildlife. As result of developing a position paper on "Rewilding and Hunting", nine potential areas for collaboration have been identified, including science-based wildlife management (including large carnivores), establishing no-take zones/wildlife sanctuaries, reintroducing missing species and boosting wildlife numbers, reducing poaching /wildlife poisoning, and research.

For the hunting community the concepts of natural processes and wilderness are potential "red flags", which remove human extractive use from nature, belittles the human stewardship role, and creates fears of losing legal rights and traditions. In response, it is important for rewilding proponents to consider the following aspects: sites versus whole landscapes, wild versus wilderness, be process-oriented, and the local context. It is particularly important that the concept of no-hunting zonation is not seen as an anti-hunting argument. At the same time as challenging the status quo and changing the direction of conservation, the rewilding concept is also a "work in progress", with plenty of scope for adaptation and learning. Controversy can also be constructive as long as it is played by the rules of the game (fair process – openness-honesty, etc.).

In summary, rewilding will pose some challenges for some hunters on a local scale, but on the broad scale there should be many opportunities for mutually beneficial relationships to be fostered. Building these relationships will take time and will require creating appropriate forums for meeting and for dialogue. If done correctly such a process may actually help to develop the largely untapped synergies that exist between hunters and conservationists due to their shared passions for wildlife.

Wrap up Section 3

This section tackled rewilding in practice. Wouter Helmer, a founder of Rewilding Europe, gave an insight into his rewilding story to date. He started in his own back yard, so to speak, with an ambitious project in the Netherlands and has since taken his experience and skills further afield. A particularly important development has been the creation of the European Wildlife Bank specifically designed to increase the number of large herbivores available for rewilding projects that is also economically viable. Yvonne Kemp also launched a collaborative project to bring rewilding projects expertise and experience together through the Rewilding Network. John Linnell and Magnus Sylvén explored how the rewilding community can integrate with the hunting community, considering both potential conflicts but also opportunities of mutual interest.

With regard to the dominant theme of this section, integrating rewilding into conservation management, concern was raised for local peoples in rewilding zones. Wouter Helmer agreed that this was indeed an important consideration and highlighted that the Rewilding Europe model is to receive project nominations from local people who wish to rewild their local area and that Rewilding Europe then offers supporting and facilitating services. In this model all rewilding projects are locally led rather than imposed from outside. He also emphasized that it was important that we are responsible for rewilding in our own backyards. The Rewilding Network has also been established on similar principles where Rewilding Europe wishes to facilitate knowledge sharing between projects, rather than dictate policy.

The question of where do people, specifically native communities, fit within rewilding is highly pertinent and potentially challenging. The Oxford English dictionary defines wilderness as 'an uncultivated, uninhabited, and inhospitable region', indicating an absence of people. Wildness is defined as 'a natural state or uncultivated or uninhabited region'. The subtle difference is perhaps telling; wildness is more accommodating in that it can be a natural state or uncultivated or uninhabited. In this sense rewilding can be seen as a process of restoring natural processes, ceasing cultivation or reducing habitation. The last of these is not a part of rewilding, enforced evictions have been used in conservation before with tragic consequences. However, lower human population densities do allow greater space for nature and so attention has been focused on these regions where it might be beneficial for people and nature if cultivating land is no longer providing a living. An important goal of the Rewilding Network may be not only to bring rewilding practitioners of different projects together, but also local communities so they can share experience, solutions and opportunities for living in proximity to rewilding projects.

The final presentation of this session considered how the needs and desires of two communities that interact strongly with the natural world can be integrated: hunting and rewilding. The hunting community is large and active across Europe. Rewilding is a new concept and John Linnel revealed that there is uncertainty within the hunting community about whether there is a place for hunting within rewilding. His presentation

highlighted the common interests between these communities as both hunting and rewilding are interested in the species present, their abundance and behaviour. John Linnel highlighted that the first conservationist came from the hunting community. Rewilding seeks a diversity of species present, which could be equally seen as a diversity of quarry. However, there are challenges as well. While hunters might want high abundances of certain valued species, rewilders want naturally variable densities of all species. Animals' behavior is also important, and the presence of human hunters will undoubtedly change animal behavior. Again though disturbance from predators is natural and so hunting is not necessarily negative from a rewilding perspective. However, from a wildlife watching tourism perspective business is difficult if animals are nervous of people. There is plenty of scope to mix rewilding and hunting but achieving it everywhere may detract from the needs and desires of each group. Magnus Sylvén suggested there is perhaps cause to consider some separation of these landuses in certain places (zonation) which has worked very well in other parts of the world. No-take zones could provide the opportunity for a greater degree of rewilding and wildlife watching tourism in these areas while also creating a bountiful source of prey species to surrounding hunted buffer areas.

What do we mean with Rewilding Enterprise?

How can enterprise support rewilding, and how can rewilding support enterprise development? Concrete business cases from the field in Europe.

Matthew McLuckie
Rewilding Europe

Rewilding Europe Capital

A pivotal goal of Rewilding Europe is to provide a business case for wild nature in Europe. Through a dedicated enterprise team and set of resources, Rewilding Europe looks to support rewilding enterprises, defined as "any business or commercial activity that can generate economic and social benefits in a way that meaningfully support a rewilding outcome", to engage with the initiative and promote rewilding activities.

Rewilding enterprises can achieve this through a number of ways, for example by:

- Generating finance that can support rewilding;
- Redirecting threatening business activities towards more rewilding-friendly alternatives;
- Increasing income from 'buffer' landscapes to reduce the need to encroach into 'core' areas of higher natural value;
- Increasing the economic value of wildlife and wild nature in ways that create incentives to support and conserve it;
- Inspiring key local stakeholders through employment or other benefits in ways that create incentives to further conserve and rewild a relevant natural area;
- Promoting and providing access to the values of a rewilding area for a better enjoyment of and understanding of it.

The critical ingredients for developing successful rewilding enterprises are:

- A relevant rewilding / conservation context;
- Viable underlying product / market;
- Secured property rights;
- Enthusiastic entrepreneurs and operators;
- Ability, enthusiasm and understanding to create functional partnerships.

Rewilding Europe supports businesses to become rewilding enterprises through:

1. **Business advice:** Providing technical advice to businesses about operational development;
2. **Promotion:** By marketing businesses through the powerful communication network of Rewilding Europe;
3. **Financial investment:** By financially supporting business through a dedicated investment fund managed by Rewilding Europe, called Rewilding Europe Capital which has already distributed over €100,000 directly into businesses engaging with Rewilding Europe.

Specifically, Rewilding Europe Capital manages commercial debt and grant financing facilities that invest in new and existing enterprises that can demonstrate their ability and motivation to support rewilding in Europe. Examples of rewilding enterprises include nature tourism operators, lodges and accommodations that provide access to nature, organic and natural food and product producers, hunting operators, and nature guides.

Is there really any money in wildlife watching? A global and European perspective

The crucial role of wildlife-watching tourism worldwide – but what is the potential for this in Europe? And what is needed to develop this in the European context?

Wildlife watching is growing exponentially worldwide and a country's nature and wildlife is often a top reason for tourists to visit. All travel destinations need spearhead attractions to stand out from the crowd. These can be a great variety of things – from the Pyramids to the Statue of Liberty – but can also include a range of charismatic and iconic species such as tigers, rhinos, ibex, elephants, wolves, bears and bison. ALL charismatic wildlife species are potential spearhead attractions. Wildlife watching tourism makes outstanding wildlife experiences accessible to many, and makes wildlife more valuable alive than dead. Particularly it offers the public first-hand experience of engaging with nature, a good business opportunity and is one of the best ways to solve man and wildlife conflict. For instance a Mountain gorilla watching permit costs €450 per day.

But which are "Europe's Mountain gorillas"?

There is a large variety of species that meet the key characteristics of large animals with big teeth or big horns or antlers, hooked beaks and sharp claws that tend to have the highest value. Particularly important species for Europe are brown bear, bison, Iberian lynx, wild horse, wolf, otter, red deer, aurochs, vultures, eagles, pelicans, flamingos, storks, herons, falcons, cranes, owls, geese and even kites, badgers and martens. For example, in Finland there were approximately 17,000 bear watching guest nights during 2012, a turnover about €6 million in total value, including air transportation, gasoline, ferries etc. Wildlife watching in the USA, 2011 directly turned-over €43 billion, 72 million participants, and since 2006, wildlife watching is the No. 1 "outdoor recreational activity" in the USA, involving more people than those who hunt or sports fish, even taken together. In Scotland 56% of all travel "nature oriented", generating 2763 jobs, €83 million in turnover in 2011.

Staffan Widstrand
Rewilding Europe

Tourism is the world´s biggest industry with 12% of Global GNP and 4.4% annual growth. "Nature tourism" makes up ca. 12% of all tourism. For instance, Kenya's tourism industry employs 500,000 people. All Kenya´s most valuable wildlife are also "problem species". In Somiedo, Spain the natural park, created 1988, receives 180,000 visitors per year. 1978: the area had 0 accommodations, 2009: 67, with 1,200 beds. The income of these accommodations in 1980 was only 50% of regional average, but by 2006 it was 90%.

Charismatic wildlife is very valuable for: 1) for marketing regions, countries and products such as Australia the "Land of Kangaroos', South Africa's "The Big Seven", while Finland is becoming the "Bear Country'; and 2) as raw material to develop local tourism products. If you don't see the wildlife the products have low value.

Seeing wildlife up close – hides, guides, photography – brings much higher value. For instance the contemporary price levels per day per person to see a variety of species depends on a number of factors and ranges quite widely: Bears in Alaska €200–500, Polar bears Svalbard €300–700, Polar bears Canada €200–700, Bears in Finland €120–270, Owls in Finland & Sweden €100–240, Eagles in Norway €180–350, Vultures in Spain € 100–200, Wolf howling in Sweden €200.

To make a successful wildlife watching industry a number of things are required:

- Land tenure and permits,
- Entrepreneurs allowed to make money and create jobs,
- Packaged, professional, quality tourism products,
- Wildlife watching hides, which is to deliver a service that people are prepared to pay for.

For wildlife hide development you need:

- Agreement with landowner.
- A location away from other visitor flows, hiking trails etc.,
- The necessary government and land owner permits,
- Good looking place with a nice background,
- Ground level – not tower or platform,
- Hides need to be moveable and perfectly photographer-adapted,
- Discrete baiting at the site and cleaned regularly. Needs to look clean, natural and neat.

In contrast to wildlife watching, hunting tourism generates more money per single guest, but only allows for very limited numbers of guests. The hunting season is also very short. But why choose only one, when you can have both, although not at the same exact place.

Wildlife watching at a local, small-scale level shows that wildlife is valuable and creates direct local income and jobs and is open for entrepreneurs of many kinds: from land owners leasing contracts, to infrastructure and service providers of transportation, guiding, hotel and restaurant facilities. To move to wildlife watching at an international top quality level creating Europe's first real wildlife safari lodges will require major investment, design, hotelier experience, that offer a high quality experience of nature and culture.

Building community conservancies

New community conservancy models in Europe, and how these can draw upon best practice from other parts of the world and focusing in particular on the legal structure, community involvement (in particular benefit sharing mechanisms) and formation of community-based conservation enterprise partnerships.

The presentation focused upon the efforts of the Rewilding Europe initiative to create community wildlife conservancies in Europe.

Changes in rural economies in Europe

The Rewilding Europe initiative was borne out of a recognition that the rural economy in Europe is changing. Many communities are declining with young people leaving for urban areas to seek employment and education opportunities.

This problematic situation does however present opportunities of a different kind – both for nature and for the people of these rural communities. With declining agriculture in many rural areas of Europe, wildlife and natural habitats are making a comeback. There is, we believe, an opportunity to stimulate new economic activities based upon wildlife and wild nature.

Capturing benefits for local people

In order for such economic models to succeed, the local people must be engaged in the process and supportive. This requires an understanding of the benefits which new economic activities based upon wildlife and wild nature will bring. Experience in other parts of the world shows that it is essential to create the right legal, management and commercial structures for ensuring benefits flow to communities.

Learning from Africa – and elsewhere

In planning our approach in Europe, we have tried to learn from elsewhere – in particular from Africa. Every context is different, but the experiences from other parts of the world are also very relevant in Europe. The people might look different – but many of the issues are the same.

In Namibia for example, WWF and other organisations have been investing in the creation of community conservancies for nearly 30 years. This has resulted in a comprehensive national policy which has vested the right to use their natural resources in defined local communities. This has provided the basis for a wide range of economic and other benefits to be realised, and has supported a huge wildlife comeback in this country.

Key Ingredients for Success

We have learned from studying models outside Europe that there are several key ingredients for success.

1) Conservation Values

The first key ingredient is for strong conservation values to be present (or, in the context of Rewilding Europe, for such values to be potentially present with successful rewilding having taken place).

Neil Birnie
Rewilding Europe

2) Property Rights
It is also essential for the community in question to possess some form of property rights. They must own, or have rights to manage/use the land. Ideally they will also have the hunting rights – or the fishing rights if it is a marine context.

3) Supportive National Policy and Legislation
As in the context of Namibia, a supportive national policy framework and legislation which gives communities the rights to use wildlife and natural resources makes a massive difference. This does not exist yet in Europe but Rewilding Europe will be working hard to support this.

4) Commercial Market Potential
The proposed conservancy must have the potential to develop commercial nature based enterprises. These will provide revenue for the conservancy and jobs for local people. This relates also to the property rights ingredient: without the right to manage/use the land the community cannot derive proper benefits from the enterprises which are developed there.

5) Communication
Before any of the above ingredients are possible, there needs to be a careful, and often lengthy process of communication and awareness building – on all sides. A conservancy will only work if the local community understand what is involved and they want to do it. This process has many subtleties – for example in Romania we have found that local people are most interested in having private, personal rights to land – and the idea of creating a community conservancy is a reminder for them of communist times and they do not view that positively at first.

6) Local Champions
Out of this process will emerge local 'champions'. These conservancies need to be driven by key supporters from within the local communities. They never work when driven from the outside. These local champions will in turn be very important in order to win over the doubters.

7) Investing in Key Natural Assets
Many of these potential community conservancy areas are lacking in natural assets, having been over-hunted and used for agriculture for centuries. Rewilding Europe is working with local conservation organisations to reintroduce charismatic wildlife species which will add to the nature-based economic appeal of these areas, including European Bison in the Southern Carpathians, Balkan Chamois in Velebit, and beaver in Danube Delta. These are the natural assets upon which nature based enterprises can be built.

8) Governance (community composition, legal basis)
The governance structure within any community conservation context must provide for genuine community involvement and benefits. This usually involves a democratic process for election and removal of leadership positions and a defined system of benefit calculation and distribution to the wider community (who might be members or shareholders of the association or company which may be created).

9) Management
There is also a need for effective management of the conservancy affairs – ideally carried out by capable members of the community itself.

10) Support for Enterprise Development
It is essential for support to be provided for enterprise development. Within Rewilding Europe we have developed focused upon provision of technical, promotional and financial support for enterprises which we believe are relevant to rewilding.

11) Capacity building/training
It is crucial to help local people to develop the skills to win jobs within the new nature-based enterprise opportunities.

12) Finance
Providing finance for the enterprises which will in turn generate revenue for the conservancy. This may involve both grant finance in the early stages (for example, for key infrastructure) and commercial finance to help grow the enterprises sustainably. Rewilding Europe have recently launched a dedicated conservation investment fund called Rewilding Europe Capital for this specific purpose.

13) Education
Ongoing education is important at all levels: investing in the future. This must focus particularly on young people, some of whom will hopefully find jobs and earn a living from the conservancy.

Key locations for conservancy creation efforts

Danube Delta, Romania
The first area we have focused upon is an area of communal land in the outer Danube Delta. Our local partner, WWF Danube Carpathian programme have worked with a Romanian legal team to clarify the legal basis upon which the community can establish a conservancy. The WWF team are now taking forward the process of building awareness among the community. The current land uses such as fishing and forestry can we hope be adapted into more environmentally sustainable enterprises which create revenue for the conservancy. There are also many existing enterprises including birdwatching tour operators and local guesthouses which can be supported and linked with the conservancy through fee structures and associated access arrangements.

Velebit, Croatia
In Velebit we are focusing on an opportunity involving a series of small land units owned by local people on the edge of the Paklenica National Park. We are currently establishing the precise land boundaries and ownership details together with gaining an understanding of the hunting rights and forestry context. We are seeking to boost Balkan chamois numbers in partnership with the Paklenica National Park. This involves working with local tourism businesses to develop wildlife tourism experiences. We also have a strong focus upon supporting development of local products based enterprises. Wild honey is an important local industry in the Velebit region and we are seeking to support businesses which harness wild nature in a sustainable way with the involvement of various local producer associations. Although not a direct wild nature based enterprise, this is a good strategic way to engage with the local community as a basis for wider conservation work.

Future Opportunities
Through our local partners we are starting to explore further community conservancy opportunities in other parts of Europe. In Romania's Southern Carpathians, community land has been set aside for reintroduction of European bison early in 2014.

In Laponia in northern Sweden, we are exploring the possibilities for conservancies linked to the Saami traditional lands. In the Apennines in central Italy a series of communities have expressed interest in setting aside communal land areas for rewilding and related enterprise development. The appropriate structure for this is probably a conservancy. In the Rhodope mountains in Bulgaria we are exploring possibilities starting with understanding the property rights context and community dynamics.

Wrap up Section 4

Monetising nature is certainly controversial in some sectors; how can we value the priceless? It is made more complicated still because individual components of nature are traded, and need to be, but collectively this trade can cause over-exploitation that leads to system collapse and disaster. Unfortunately the limits of ecosystems remain unknown. Agriculture has been tremendously successful in maximising provisioning services. But this often-exploitative process can come at the expense of supporting, regulatory and cultural services. Where rural land abandonment is occurring, typically by younger generations, there is a shift away from provisioning services that might not be delivering the quality of life that is desired. The process of rewilding can re-balance the delivery of a variety of ecosystem services but can it also provide an income to the people that remain and others that wish to move in or back? This section has specifically explored how cultural services, specifically tourism, can be developed to support nature and local communities.

Staffan Widstrand eloquently made the business case for wildlife tourism, a large and profitable industry. All of the speakers for this section highlighted how local entrepreneurs, if given appropriate support where necessary, can create successful wildlife tourism businesses. However, the question was posed: as the tourism industry develops in rewilding zones, who really makes the money? In the African example there is the issue that while Europeans spend large amounts of money visiting Africa on safari the majority of this money never leaves Europe and so fails to support the local people living in these wild havens. Payments for entering National Parks can generate income on site, although again the final destination of this revenue stream is often not the local communities. In Europe there is also the perception that National Parks are a common good and should be freely available to all. Local people must then provide other services such as guiding and bed and breakfast in order to earn a living from nature, which they may or may not have the facilities and skills to deliver.

The presentations by Neil Birnie and Matt McLuckie offer particularly interesting insights into aspects of rewilding that are more unfamiliar to those traditionally interested in wilderness and highlight how local entrepreneurs can be supported. While surely all the participants of the Wild10 conference enjoy experiencing wildlife and wildness they are perhaps less aware of what it takes to deliver the infrastructure and services that allow some aspects of wildlife tourism to be accessible to all and develop a tourism driven economy. The importance of providing high quality accommodation and other facilities was highlighted to be particularly important. Examples were described about how financing packages designed for these enterprises can help turn a profit for local entrepreneurs.

Conclusion

Rewilding has come a long way in a short time and has become very much on the conservation agenda in Europe. It is also branching out into society and business. Like all areas of biodiversity conservation, rewilding is not a question of ecology alone but presents a highly multidisciplinary agenda. These proceedings discuss a broad range of factors that must be considered when implementing rewilding from ecology to the wild business case. The first step to a wilder Europe is to simply question our approach to managing nature. Do we really need to manage? What are the benefits and what are the costs of a more wild or 'laisser faire' approach? Management will continue to be required in places but evidence from this symposium clearly highlights that there are constructive alternatives to management as usual, whether it is allowing natural processes to take their role back again to create dynamic and species-rich landscapes or switching from farming based land uses that are no longer delivering a living to rural peoples to tourism or other nature based industries.

The next step is to revise our strategies and where possible seek a less interventionist approach, to allow nature to take its course. Monitoring the implications of these changes will follow, and this isn't a simple task because of the large and long spatial and temporal scales over which rewilding works, but will allow best practice to be developed and spread. Finally, communicating the rewilding philosophy and re-engaging society with nature, wildlife and the wild through out this process will help deliver a European landscape fit for nature and society. We would like to encourage you to consider how you might be a part of creating a wilder Europe.

Rewilding Europe®

Making Europe a Wilder Place!

www.rewildingeurope.com

Rewilding Europe • Toernooiveld 1, 6525 ED Nijmegen, The Netherlands • info@rewildingeurope.com