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What can we learn from wilderness to restore wild nature

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Introduction

This text is the final report of my endeavour to see what we can learn from wilderness to restore wild nature. This was possible thanks to the Alfred Toepfer Foundation and the Europarc Federation who granted me a scholarship to learn more on this issue. It describes my (temporary) conclusion on the options for wilderness and is the result of many inputs. Site visits, books, conferences, individual discussions with friends and local people, all these sources of information were somehow useful to draft my opinion on the possibilities and threats for wilderness in Europe.

The report starts with my initial motivation to apply for the Alfred Toepfer natural Heritage Scholarship 2012. Afterwards I give an overview on the protected areas and conferences I visited and the people I met there. I explain how I encountered these places and which answers I have found. I differentiate some important aspects of wilderness. Finally I explore the interactions between humans and nature and our common future.

Wilderness areas in Europe are somehow a contradiction in terminis. Undisturbed places do not exist in this part of the world but there are still nature reserves which have characteristics that are similar to wilderness areas. To my knowledge these characteristics relate to time and space. If there is a lot of time and space there can be wilderness, given that the building blocks such as species and abiotic conditions are present. The places I visited represent different stages and trade-offs on these characteristics. Although they are not necessarily real wilderness it is worthwhile learning how these systems have evolved in a particular setting.

It was not my intention to write a scientific report. These wild places are well studied and a detailed site description of them would just be another summary of scientific literature which is not the scope of this document. A scientific description is also not the language I think of when I want to express my feelings and thoughts on wilderness. There is more need for a holistic approach to tackle these questions on wilderness. This report is my personal view on the wilderness and restoration options in the world as I know it. These trips changed my view on what I think are the most important action points for me as a nature conservationist and in general for my future life with my girlfriend and child.

Why the proposal

When man is absent, in most cases trees will grow. When exploring internet for the different wilderness areas in Europe I was somehow amazed of how omnipresent humans are. A quick view on google maps learned me that most of the EU member states are marked by human presence and not so many places with 'undisturbed' forests remain.

The wilderness spots that remain, still have that overwhelming feeling upon their visitors. They inspire us and bring up enthusiasm and a feeling of unity with nature. Frontiers between countries and remote areas are their allies. Conservationists and indigenous people are their spokesmen. They are seriously threatened and if we fail to preserve them we will lose some of our dignity as humans.

The species and ecosystems we find in Western Europe are often a result of old agricultural practices. Species learned how to adapt to the farmers' management or became extinct. No wonder that most of the nature management tools in Western Europe descent from old agricultural practices. This evolution stimulates us to preserve species by managing ecosystems.

In the wilderness areas of Eastern Europe many wilderness aspects are still present. Man is often just a visitor, no management is needed and abiotic and ecological processes steer the ecosystems. They organise their own complexity and heterogeneity. These complex, self organising systems contain a huge energy that flows in its hyper diverse food web.

This amount of ecological interactions and self building complexity of wilderness areas are unseen in Western Europe where much of the degraded habitats must be restored if we want to save our biodiversity. In some of these new nature restoration projects or in abandoned lands there are chances to restart the processes that shape wild nature. We can not restore wilderness anymore, but restoring wild nature should be possible. We aim to restore the abiotic conditions and afterwards leave it more or less to natural processes so that nature can develop and natural dynamics can take over. It is a shift from pattern to process management.

Restoring means that we want to make something right again. What could be 'right' is what I want to find out. I hope that a visit to some European wilderness reference areas can give me a better insight in the abiotic conditions that should be restored if we aim for rewilding Western Europe.

What kind of interactions are there in the different courses of rivers? How do the main ecological forces interact with the evolution of primeval forest and what are the results of that? What is the influence of natural grazing? These are all questions that arise in my mind.

Local people also rely on and interact with their environment. I wonder how they think about their backyard where some actions are prohibited to preserve the wilderness. All questions which I want to ask to local experts, indigenous people and experience on site. Maybe this knowledge can be used and passed on to younger generations and other site managers and scientists in Western Europe.

Trip overview

Hasty sight seeing trips and quick visits in a nature reserve are not my kind of travelling. Instead I like to take the time to get an idea what it is to experience and feel the place. I tried to talk a lot with people I did not know, and get into contact with the locals just to get some non nature conservationist-biased information. Trust the locals is my motto, so that is what I did.

Travelling itself is no waste of time, it offers you the chance to see how the landscape changes and sometimes what drives this change. This is off course only an option if you travel in a not too ecological unfriendly way. All the trips I did were by train, boat, bus, hitch-hiking, bike or on foot. Exploring and valuing wilderness makes you think about the influence you have on the natural system. Protecting it is not only supporting conservation projects. It is also about lessening your environmental footprint.

Depending on the season different ecological and abiotic conditions have their role to play. That is why I travelled in different seasons and sometimes visited a place two times. There were six periods when I was “on route” for wilderness related things. The trips undertaken in Bosnia Herzegovina and the Danube Drava floodplains were not in the period that was covered by the scholarship but were nonetheless undertaken with the same idea, finding out what is left from wilderness in Europe.



Even around 1500 the distribution of forests and wilderness in Europe was clear to mapmakers. Western Europe already had a high impact of agriculture while the large forest complexes and the, uneasy to orient, terrain started from East Poland and East Romania.

Wild places in Bosnia Herzegovina and Danube-Drava floodplains

Bosnia Herzegovina (19/06/2012 → 13/07/2012), North East Croatia Kopački Rit (14/07/2012 → 17/07/2012), South Hungary Duna-Drava National Park (18/07/2012 → 20/07/2012)

Bosnia Herzegovina was maybe the most overwhelming trip of all although it was almost impossible to have something organised in advance. The relaxed and slow train trip from Zagreb to Sarajevo itself is amazing and offers a good insight on the wildness of the country. Almost no infrastructure and a lot of mountains and forests help to preserve the wild and natural character of the country. The karst fields and mountain pastures are sometimes grazed by small scale farmers who need the land to survive. The percentage of pastoralists is probably quite high in this country where governments are often busy with themselves.

The only contact I could make in advance was with Dražen Kotrošan, the responsible of the local birdlife group (naše ptice) and Natasa Crncovic of the NGO Center for Environment (Centar za životnu sredinu). Dražen also happened to be the head of the Natural section of the National Museum. He did not have got any salary for the last eight months. Unfortunately the museum had to close some months later because of budget reasons (no more subsidies). He gave me detailed information on the situation of the green sector and natural heritage in his country. It is a story of creating jobs for political friends and it is marked by disorganisation. He told me that it would be difficult to visit Sutjeska alone, one of the two National parks in the country and a good representative of how a beech and fir forest on rocky slopes looks like. Some say that Sutjeska and Bielowieza are the only two remaining wilderness forests in Europe. Dražen advised me on how to travel and which sites I should visit. Samer of Green Visions, a travel agency with respect for the natural and cultural diversity and dedicated to its preservation, helped me with the trip to Sutjeska.

In Bosnia Herzegovina there is no clear cutting allowed and the foresters and inhabitants feel connected to the forest. Although there will be some illegal logging, the impact will not be too high because there is not much infrastructure. A forester told me that the foresters only select individual trees and that they need to mark a certain amount of trees each year. Because they do not want to cut too many trees they often mark them but do not cut them. The wilderness feeling in the Perucica part was better than in the surroundings, of course with a higher risk to get lost...

The forest complex of Sutjeska NP is large (17350 ha) and there is a 1434 ha strict reserve zone (Perucica) where the trees have never been logged. It became a National Park in 1962 on cultural grounds because the National Partizan army was victorious over the German forces in this place. The Partizan monument with Perucica in the background.



During the trip I tried to get into contact with the administration of the park, I even went to their offices but there was only one person who was able to speak some English. He said that I could only go with touristic guides and was not too keen to give any information. Apart from these contacts I did not meet many other people in the National Park. It was a pure experience where I find myself alone in the wilderness.

The other trip was on Bjelasnica mountain, or the Olympic mountain. It is a mountain range near Sarajevo. The soil contained a lot of lime and the landscape was mainly grazed by sheep of local shepherds. Large pastures are not really what I think of as wilderness but I wanted to experience how the local people interact with these areas. There were many small villages in the mountains, most of the people worked as farmers and from time to time there were some people living from tourism. When tourism was there, it looked like an epidemic. If there was touristic infrastructure, there was a lot of it. Samer told me that there was first one fancy skiing hotel in Bjelasnica and suddenly there were many hotels but nothing else, no shops, no transport. It is an example of how the people there do not have the Western understanding of what is needed as touristic infrastructure. Maybe better that way...

Together with Aida and a mobile playing local 'turbo folk' music in the mountain pastures.



I took the train from Sarajevo to a desolated train station on Bjelasnica. It felt as the right place to be. In the evening on a dirt road in the middle of nowhere I met with Rasim and the three kids of his brother and nephew. There was one person, the thirteen year old Edo who spoke very good English (thanks to television). They offered me to stay at their house in the mountains. I was very pleased with this offer and in the evening I found myself with a shopkeeper of Mostar in the mountain house of his parents who used this land for grazing. When he was young he walked more or less 100 km in 24 hours on bare foot to come from Mostar to this place to help his parents. During the day I helped them with weeding on the small fields he cultivated in the mountains. During these leisure activities we talked about daily life now and in the past, what people do for living and the history of these mountains. Still living in conditions very different from where I come from, I felt that they were happy with what they had but still wanted a better life. He was a shopkeeper in the city with a 4x4, but many other persons their lives consists of herding one or two cows, taking care of some other small animals, mowing the grass for winter, cooking and taking care for the children and the house. The only big industry I saw was linked to extracting minerals or coal but apart from that I had the feeling that there was no industry as we know it in Western Europe (knowing that Bosnia Herzegovina is not so far away from my home).

In Banja Luka I met with Natasa Crnkovic who works for the Center for the Environment. They are mostly funded thanks to some project they do for the EU. They make inventories of the environment and try to stop some devastating projects such as dams if needed. It is probably the largest and best structured green NGO in Bosnia Herzegovina. I have spent six days over there and together with people of the organisation and their friends I explored the surroundings. I realised how rich this country was in term of its soil structure. The forest I saw had species compositions which I never saw before on one hectare: Wild Cherry, Beech, Lime, Hornbeam, Oak, Field maple, ... I thought it could be the basis of an amazing diversified and complex system, when it had enough time.



During my stay there I joined one of the first protests (for the environment) since the devastating war ended in this country. They were already protesting each day for one month, sometimes with 2000 persons. The mayor had sold another green lung of the city to a building investor he just happened to know. It was strange to see, the police agents, all former soldiers together with the protesters, finding out how the new freedom they gained looked like...

Nature in this country is something which is there and on which many people rely for their survival. Around 50 % of the country is covered with forest and 42 % with agricultural land. Environmental precaution will not be the main issue in this country where the only industry I have seen is timber production and mineral extraction. The mines (not the land mines which are often still there) look more like a quick win or robbery of minerals and money rather than the smart extraction of valuable minerals. No wonder that environment is combined with tourism in the responsible government agency. It is just seen as a source of income.

I have very good memories to this country. To a certain extent there are parallels with Belgium -my own country- in terms of structure of the country, but there are opposites when it comes to the daily life and the land use. Bosnia Herzegovina is a country not far from Belgium, which promotes itself as the heart shaped country. Indeed there is a lot of love and emotion in this country, maybe too much. It is the trip which touched me the most of all the places I have visited.

From Bosnia Herzegovina I went by train to the boarder of Croatia and Hungary to visit the floodplains along the Danube and Drava. In Kopački Rit nature park (23 126 ha) in Croatia the Drava mouths in the Danube. They say it is the small version of the Danube delta. I stayed in Kopačko, an old fisherman village. The inhabitants are not allowed to fish anymore but make their living by cultivating wonderful paprikas and some of them work in tourism.

Kopački Rit is an inner delta wetland with distinct morphological and sedimentological characteristics. The hydro-geological and meandering processes of the two rivers turned the whole floodplain into a mosaic of lakes, marshes, wet grasslands, reed beds and riverine forests.

The area is flooded annually – one month on the higher parts and up to three months on the lower parts, usually from March to May. During the year the water level fluctuates 5–7 m on average. It is the most significant spawning ground, nursery and food source in the central and upper Danube for all the fish species of the area. The floodplain used to be larger since large dams were made to protect local villages and create more arable land. Large areas behind the dams evolved from flooded to unflooded oak forests.



Danube with a 'natural' river bank and grassland. Small stone dikes in the Danube minimise natural erosion and deposition processes.

The area was an important hunting ground during hundreds of years. It ended with Tito who used it as his personal hunting ground. His hunting lodge Tikveš Castle was destroyed after the war and nowadays the remains are the home of the park administration. During my stay I made several trips by bike and one on a small boat on the floodplain. The water was very low at the moment (too much water of Danube used upstream), the remaining water in the ponds and meanders was visited by a lot of birds trying to catch their share. It was a wonderful spectacle with White tailed eagles flying by as cherry on the cake. The number of animals dependent on these large natural systems must be enormous. There was some touristic infrastructure but not that much information for visitors interested on the biological point of view.

Upstream the Danube, on Hungarian territory there is the Duna-Drava National Park which is connected to Kopački Rit. We met with ranger Sztellik Endre. The rangers in the Park do wonderful work. They are involved in enforcement of legislation, management planning and evaluation and education for schools and groups. This made that the day we spent with Endre gave us a good overview on the National Park. They use the Stork as an emblematic species to preserve the natural values in the National Park and explain how the natural system works. In the Stork museum they show children how their favourite animal, the Stork needs both nature and people to survive in Hungary.

The part of the park that we visited consisted mainly of grasslands which were flooded annually. They tried to manage the grasslands in close relation with local farmers. Some parts were planted with Poplars and will still be planted for many years in the national park since there was a strong lobby to do so. Along the Danube there were many natural channels which were enlarged by man. They were formed when the Danube rearranged its floodplain during high floods. When the Danube reaches a certain level the different channels are filled with water. If this happens people will have good harvests, if not people have bad harvests. Endre told us that the last years harvests are bad since there is too much water or no water. The average level of the Danube was also lower and when there is not enough water in winter (and summer) there is more forestation of the valuable grasslands.

Šumava

South West of Czech Republic (7/08/2012 → 11/08/2012)

The meeting of the policy committee of the Society for Conservation Biology – European section was organised by members of the committee that are active on the Šumava case. Pavel Kindelmann and Zdenka Křenová hosted this meeting close to Šumava National Park. During the meeting we visited several places in the park. Our main goal was to witness at first hand the mismanagement of the park and send out our thoughts on that to the Czech ministry for Environment. Recent activities here included extensive logging and de-barking of dead and dying trees in an attempt to contain the widespread infestation of Spruce bark beetle.

Šumava is a vast area that borders with Germany and is part of the central European highlands. It lies between 500 meter and 1378 meter. The National Park protects 68064 ha among 80 % of these lands are forest. It is a cross border park together with the National Park Bayerische Wald. Most of the forest consist of spruce forest and spruce beech forest. Because of forestry impact Norway spruce and other than the local spruce varieties were planted and augmented the percentage of spruce in the park. It is often said that Šumava forest has some old growth forest parts that grow on the raised peat bogs. The forest stands that I had seen did not look in any way on those in Sutjeska or Białowieża, but were still very old. The acid and wet soil and altitude made that the trees grew very slowly and could not reach a high altitude. It was a very dense forest, almost impossible to penetrate and it looked a species poor system, just as most acid ecosystems.

The Bark beetle infestation was the reason for the technocratic foresters to mismanage the park. Along some of the core zones of the National Park we had seen large clear cuts. All the trees were felled and de-barked. In the core zone there was also a considerable amount of tree surgery done. Trees in the surroundings of infected trees were de-barked while standing. The National Park administration (mostly foresters) said that they cut the trees to protect the forest. If they did not do it, they said, the forest would disappear. It was interesting to see that in the infected parts in the core zone (normally no intervention) young trees were growing. In the debarked and clear felled parts there were almost no young trees growing. The bark covered the soil so that the trees can not germinate. The trunks that remain will take very long to decompose because there is no bark to maintain humidity to start the decomposition.



It is a clear example how humans often think that they can manage ecosystems better than nature does. Large surfaces infected by bark beetle do not look fantastic for the average visitor but if left undisturbed the infestation will stop faster than if humans intervene. It was a sad thing to see that even in designated 'no intervention' areas we can not leave it up to nature. This time it was not necessary for survival or because of fraud but just because some people can not cope with the thought that nature can decide as well.

Northern England, Scotland and The European conference on conservation biology

North England, Scotland, Glasgow (21/08/2012 → 4/09/2012)

The European conference on conservation biology is the triennial conference of the Society for Conservation Biology and is one of the main gatherings of European conservation biologists. It is a perfect place to learn more on the latest scientific issues related to the conservation of our precious nature and biodiversity. A conference with such a wide scope offers a moment of horizon scanning for me. Attending different sessions on various subjects gave me new insights on known and unknown problems. A good example was the question of roadless areas and wilderness areas which was tackled from different angles: recreational opportunities, agriculture, biodiversity values. It became clear that wilderness and wild nature are words which are used differently depending on the person and its background (education, culture, ...). For most people wilderness is linked with certain keystone species such as bears. They will say they have seen wilderness when they have spotted the bears. If not, they have missed the 'wilderness experience'. The perception on wilderness is an important issue often dividing biologists that want to stress different facets of the subject. Some use it as a good communication issue which captures the emotions of many people and others stress the importance of a diminished human impact.



The policy committee of the organising society wanted to stimulate attendees of the conference to think about their ecological footprint when travelling to the conference. The participant that travelled the longest distance only using his own energy, could win a Swarovski binocular. As member of this committee I organised this prize and just wanted to give the good example, that is why I travelled 530 kilometres by bike to come to the conference. Unfortunately, I seemed to be the one who travelled the longest distance by his own means. So I decided to donate the prize to someone else who deserved it.

During the trip I cycled from Kingston upon Hull above London of to the West coast and from there north to Glasgow. I passed Yorkshire Dales National Park and the Lake District National Park. Forests are an exception here, most of the land I saw was grazed by sheep and sometimes by cows. The soil mainly consists of a peat layer which has formed on the bare rocks. The stones are often collected and used to make dry stone dikes, the stone walls in the landscape which were made when they started grazing the land. The arable land is structured by hedgerows and sometimes with small strokes of herby grassland vegetation along the hedges. The forests I saw were all planted and managed only for timber production with large clear cuts. Up in the highlands it are sheep who populate the landscape. Local farmers rely very much on these lands and keep it open with a high grazing pressure. Although these landscapes look wild and preserve important ecosystem functions and habitat specific species, they have nothing to see with wilderness but nonetheless, they are wonderful to see.

Biełowieża and Bieszczady

East Poland, Biełowieża NP (31/01/2013 → 07/02/2013), Slovakia, Bieszczady NP (08/02/2013 → 19/02/2013)

Winter is amazing although we do not see a lot of biological interactions then. Organisms are struggling to survive and it is up to the abiotic environment to determine the rules. Just like many other animals we are not enthusiastic to go out when it is freezing, but it is worth the effort.

By train I went to Biełowieża for a week and afterwards I took the bus to Bieszczady to spend ten days in the mountains. Travelling to cold places forces you to be prepared. Warm clothes, good sleeping bag, snow shoes and a lot of food (and wodka of course).

In Biełowieża we met with Nuria Selva and Adam Wajrak. They live in Teremiski, a small village next to the village of Biełowieża. Nuria works as a scientist connected to the Institute for Nature Conservation, Polish Academy of sciences in Krakow. She knows the ecosystem of Biełowieża very well. Adam is a journalist for the main Polish newspaper (*Gazeta Wyborcza*) and writer of several nature books for children. To some people he is a hero, others such as the local foresters prefer his room to his company.

We joined Nuria on several trips during her research on the role of scavengers in the ecosystem. In this specific case we were looking for droppings of Raven. By measuring the amount of stress hormone in these droppings she wanted to learn more on the effect of the social structure of Ravens. They live in pairs unless there are not enough territories, in that case they form flocks. It seemed

that if there is a carcass on their territory, pairs will defend it until the point that flocks with more than eight Ravens want to invade the territory. In that case, the pair joins the flock. Ravens are smartasses, they are often the first ones at the scene of a crime, probably because they follow Wolf packs and are a witness of the killing of many animals. Apparently lots of animals become a scavenger at the end of winter when food becomes scarce. Small animals such as mice and robins also like to feast on the leftovers.

Red deer, one day after it was killed by a wolf pack. There is not much left after each wolf has eaten five kilogram of meat. Tracks of Fox, White tailed eagle and Ravens were also present.



Days spent in Białowieża were always awesome, as was the moment when we were snow tracking Bison. Adam is used to tracking animals and knows these forests. We were following an individual Bison in the dense forest. In winters with a lot of acorns they often stay in the forest to feed on them. The first impression was an amazing footprint, the second one was a huge pile of dung, still warm, Bison was close. Adam pointed us one individual which we could see at a distance of 100 meter in the forest. Coming closer would be a bad decision since he was moving his head up and down. Once, Adam had a bull which ran at him and stopped ten meters before him. A clear warning not to forget... A Bison is huge, and still it can move in group through dense forest without making a sound, amazing. Later on we saw a bull standing at a feeding stand. The rangers still feed them which is a highly controversial practice. There is a group that survives in the strict reserve without using the hay but rangers say that feeding is necessary because of the historical inbreeding.

The forest of Białowieża is one of the last old growth remnants we have in Europe and is iconic to many conservationists. I have to say that I was somehow depressed to see the state of the forest. There was a lot of logging, in the past and at present. Wonderful old trees are felled. It feels the same to me as destroying statues in an old church, something every sensible person would not do. The impact of the foresters on the forest was quite high. They intervened in all stages of the forest at almost every place. I only saw natural regrowth (at one of the many clearcut sites) in a fenced area where the planted trees had died. Still, I had to admit that the trees, at old stands and some of the nature reserve spots in the Białowieża forest complex were very tall and big in general.

The strict reserve is in several aspects very different from the other parts! It is more impressive in many ways. At first sight I did not recognise the trees since they were all very old and even Lime trees had a bark such as old oaks have in Belgium. Woodpeckers did even hammer the cones of a spruce in the grooves of the bark in order to eat them properly. Although difficult to see in the snow, the amount of deadwood was enormous in some places. On other spots there were straight Alder and Birch trees of the same age, and the remnants of an impressive Oak which was decomposing for many years and still had many years to come before it would be fully dissolved in the forest ecosystem. Suddenly we saw a Red deer that did not mind us and passed next to us at twenty meter. It was probably a sick animal but it was a strange encounter... The old growth forest was very diverse with different species compositions and different ages of the trees depending on the history it had gone through. The forest felt very random without any signs of human interference to make the forest more diverse.

The day after the trip in the strict reserve it was time to move to Bieszczady in South East Poland. I went back to Warsaw and took the train to Krakow. After one day to take provisions we took the bus to Cisna. I had a good feeling, the closer we came, the more snow we saw and the colder it got...

Bieszczady is a wonderful place, it is located at the border areas of Poland, Ukraine and Slovakia. These mountains are part of the International Biosphere Reserve Eastern Carpathians. It is a remote place that once was populated with many pastoralists living in the valleys. Nowadays there were no houses anymore, but old apple trees indicated where they once were. During and after the second world war both Poland and Ukraine dislodged all the inhabitants (different stories depending on the source of information). Villages were burnt to the ground and since those days the use of these lands changed drastically. Grazing pressure dropped, logging stopped and almost no people remained. It was only in the late eighties that expelled persons settled here again. They made their own houses and slowly recolonized the area. Today it remains a wild place with some farmers and a growing touristic infrastructure. In summer, inhabitants from Warsaw and other cities go to the mountains in Tatra and Carpathians and more than one million tourists spend their holidays in Bieszczady. In winter its wild character is pronounced because it is less accessible and there are only some tourists who mostly do not go out but only drink vodka. This winter there was a lot of snow (contrary to Białowieża) which resulted in wonderful wild landscapes and just me and my friend Klaas who joined me for this winter trip. Wild nature at its best.

What makes Bieszczady so interesting is that you can see how nature evolves when you leave it alone for a while. It is no wilderness but you can see what nature can do if it is given 60 years without much human interference. Answers to the question how recent rewilded areas look like in 50 years and if restoration works are useful or not, can be found here.

In my proposal for this Toepfer scholarship I wrote that frontiers and remote areas are the allies of wilderness. In Bieszczady you feel the influence of these frontiers, now EU borders. We were once checked by the border army when the road came closer to the border. Seemingly the border away from the roads and up in the mountains was less guarded and it looked as we could be like the animals over here: crossing the border without papers... Bieszczady is one of the rare places in Europe were the four main predators (Bear, Wolf, Lynx and Wildcat) appear together. The area consists of (managed) forests, meadows and river valleys where trees are slowly taking over the landscape. When Klaas and I were entering a kind of appendix shaped peace of Polish land into Ukraine we started seeing a lot of Wolf tracks. We had seen several ones before but this time it were a lot of tracks and everywhere. Apparently Wolfs liked this remote area where there was only one, dead end, road. This was really abandoned land.

Frontiers between countries are the ideal set up for a wilderness area. This border between Poland and Ukraine was last visited by Lynx and a langlaufing soldier several days ago.



Bieszczady is characterised by a specific altitudinal zonation. It lacks the alpine levels' spruce forests and mountain pine. This is why three zones have been distinguished: the foothills (up to 500 m), lowland layer (up to 1150 m) and the pastures level (up to 1300m). 70 % of the Polish part is covered with forest.

Abundant snowfall made it clear, some trees can not cope with large quantities of snow and others do very well. In the wet valleys Grey alder is the dominant tree and he is not a fan of snow. On southern slopes Scots pine did very well (mostly planted) up to a certain height were only small individuals could grow. It was a very strict border that shaped the Scots pine distribution because the branches break and do not bow when there is plenty of snow. If we went higher up the mountain we saw Douglas fir and Norway spruce. At the highest altitudes Beech was dominant with a scarce Sycamore growing between the spruces and overlapping with Beech distribution. Beech grows almost everywhere and it is the dominant tree in Bieszczady. On Northern slopes Douglas fir and Norway spruce were more abundant with the Douglas often the most dominant, probably because of the selective cutting. In unmanaged forest or managed for fuelwood Beech is the dominant tree.

It came to my mind that in Bieszczady, the fir and spruce forest sometimes looked similar as these on the Northern slope of Bosnian heights, especially the method of selection for timber: no clear-cuts (contrary to all the other Polish forests I have seen) but with a lot of light in the forest and a very differentiated age structure. The use of machines in the forest was limited and it were men who felled the trees and one small tractor with a winch to get them out. It is a big difference with the Belgian system where big machines do the work, ending with a clearcut.



View on the valley. In the middle the old agricultural areas which are now in very extensive use. On the left and right side vast surfaces of forests and young forest with shrubs 'entering the valley'.

After several days of hiking we moved towards the Slovak side of Bieszczady. We stayed several days at a house in the mountains, just at the border with Slovakia. It was a famous place advised by Nuria. At that moment there were biology students and people working for the ministry for environment (Natura 2000 team) lodging in the same room as us. We had interesting talks and even became Polish Natura 2000 ambassadors after we attended a long night of presentations and discussions about the issue. It was a good initiative that was intended to learn youth at schools about the 'European protected lands' in their country.

During the trips in the day we passed the border very often and could see the differences in management. The Slovak part of the park seemed less populated but with a much higher forestry pressure clearly visible because of the structured cutting regime. The forests close to the roads were divided in large strips, running up the hill, each with a different management regime. Large Beeches were felled and mainly transported by truck and train to the neighbouring cities for heating. In Poland this was done with smaller trees and they were first processed into coal and then transported. Because of this we did not spend too much time in Slovakia. It was a pity that in the end we were not able to meet with Eric Balaz of Rewilding Europe. He was the local responsible for the rewilding efforts of the network in Slovak Bieszczady.

It seemed that in winter the Polish part of Bieszczady was more interesting because it was less managed. Maybe in summer Slovakia is the best part to visit because there are less people and probably no tourists. Unlike Białowieża, Bieszczady has no real remnants of old growth forest but I have to admit that it felt wilder than the Białowieża forest complex did. Maybe the best proof of the fact that size really does matter.

Biełowieża, Biebrza, Rospuda

North - East Poland (09/05/2013 → 26/05/2013)

Biełowieża had an abnormal outbreak of mosquitoes when I arrived. Contrary to the past practices here, it felt as I was the hunted one this time. Luckily I was on a bike discovery to Biełowieża and Bierbrza and the mosquitoes could not go faster than 10 km/h.

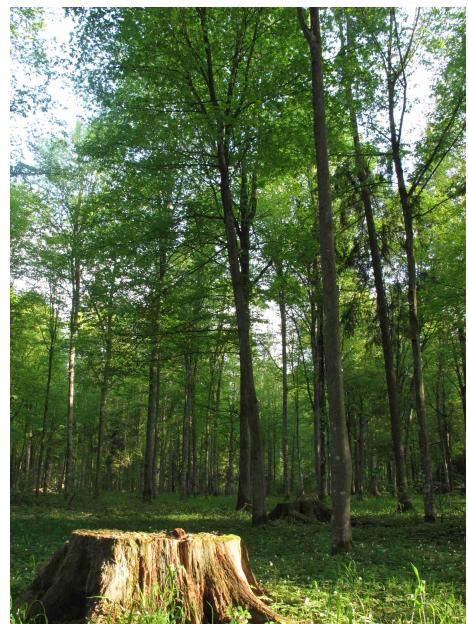


Biełowieża during the spring bloom, afterwards to Biebrza when the water levels have dropped and than north to Rospuda. I followed the plan but some things went not as expected. Spring was late and the flowering periods of spring bloomers were packed together. Because of that flowers which normally do not bloom together did this time. The leaves of the trees just started to sprout with the typical pale green colour that gave the forest a lovely shine. It was often the case that I was whistling on my bike because it was so beautiful. A perfect period to see life recovering from winter.

My base camp was not a house this time but a tent at one of the local camping grounds. The first morning I was awoken by the poetry of a Northern Nightingale at four a.m. The ideal start of a day full with birds. The morning sound at the big watch tower in the valley of the Narewka was amazing with so many birds singing. It was not comparable with anything I knew in Belgium. Describing the diversity and overwhelming feeling of the forest is difficult, so I will not go in the direction where only poetry can translate our thoughts.

Nuria told me that the new forest management plan for the Biełowieża forest complex had some very good positive points. For 'local needs' the maximum amount of trees that could be cut would be 40 000- 50 000 m³ of wood which is a very low number for this kind of forest. It is a big step forward for us as humans and the natural values in the forest.

In winter I was amazed that there still was such a high forestry impact on the forest. It was also confirmed in spring. Without the snow I could see how many trees had been felled in some places. A typical management regime for fuelwood with some large big trees that can grow above the others. The highest forestry impact was on the dry parts of the forest with Lime, Hornbeam and Oak but also even in some alluvial forests wit Alder and Birch. Adam had showed me an American spy picture taken in 1962. It showed huge clear-cuts. Some of them were made during the war and others were made when the picture was taken. The impact on the forest was probably enormous. These days the clear-cuts are smaller and fenced (probably maximum one hectare) but still have a high impact on the forest. The natural regrowth which can persist in between the planted trees is often one of disturbed soils. Luckily the soil remained in good condition in vast parts of the forest which improves the odds for a good restoration when forestry will stop.



The national park consists of two parts. The strict reserve and a part which was added later. It is accessible on the roads, such as the other part of the forest complex. I could see clearly what it does to a forest when forestry impact stops. In the years that forestry was prohibited natural dynamics had changed the area already: more deadwood and marks of hard frontiers that were fading. A good forest is a forest where you can get lost. So that is what I did. It reminded me of Sutjeska where I had the same 'convenience' but more nasty. Luckily I was prepared and had my compass with me. It was the same wilderness experience as in Bosnia Herzegovina when I was bouncing at the borders of my capabilities and habits. I would call a wilderness experience if you are in the position of inconvenience (but not too much) for a certain moment or period. You are not 'above' the natural system anymore but have become part of it. If you are not cautious you can become the hunted one. Forest approved I would say.



Time has another dimension in the strict reserve part and some other nature reserves in the Białowieża forest complex. Old Oak trees oversee the forest and when they fall a new era has arrived. One where young seedlings compete with each other and where there are still decades to come before the oak has fully dissolved in the system.

My iron horse and me set sail to more northern regions. For one and a half day I followed the Podlasie White Stork bicycle trail to Biebrza (190 km). Meanwhile I passed the Puszcza Knyszynska. Puszcza is an interesting Polish word. It is the mixture of old growth forest and wilderness. The map indicated a vast forest complex. It was probably a Puszcza before the war, nowadays it is just another Scots pine production forest, as we also have in Belgium in the Campine region on sandy soils. Adam had told me that after the second world war Poland wanted to change puszcza Knyszynska into the grain barn of Poland. They even selected people to go there to work on model farms. "Infertile soil will be changed into productive land because of man." It ended in another way. Harvests failed and there was massive famine. In the end most of the lands were forested with Scots pine.

Narew National Park was another place I passed by: a big wetland along the Narew river with a lot of marshland. Along the river valley small scale farms were omnipresent. This was the perfect combination for a lot of stork nests along the route. I would pay a lot of money to have such a stork nest at my home. Waking me up with that fantastic sound of them.

When Narew looked massive the first time I saw it, the Lawki fen along Biebrza river was amazing. There was a small walking path on the fen that gave an amazing view. Suddenly Aquatic warbler, an amazing bird with a wonderful tune, was singing just next to us. Now I understand why it is so endangered. Perfect conditions are needed: vast surfaces of small sedges community. Something which is very rare indeed. I cycled a little further to the Gugny village and in a hurry I pitched up my tent. The noise of the mosquitoes became harder and my little tent worked as a Malaise trap. Hundreds of mosquitoes were captured and made a terrible sound while I had to catch some sleep. The next day I went to the visitor centre in Osowiec Twierdza and asked if I could join some rangers or local fishermen during one day. It was not possible but they advised me to go to a farmer in Brzostowo that worked together with them and his son could speak some English. Meanwhile I visited the centre and saw a stand to promote the Poland made 'cosa'. It is the scythe and they had many types but unfortunately they were not for sale. During my whole trip I was asking people information to buy a cosa but there was only one common type for sale, not the 90 centimetre long

trophy I was looking for and all the elder people used here. It seemed that this magnificent tool became out of use and everybody used a modern cosa, one with an engine on.



The Biebrza river had an abnormal level for this time of the year. The grasslands in the southern part were still flooded and those in the north had dried out already. During the winter there were very high water levels in the northern part and no water in the southern part. Unfortunately these very important abiotic circumstances are changing with a direct impact on bird populations and future vegetation composition. It was something the elder people had never seen before.

Brzostowo was the village of the happy cows, unfortunately the eighteen cows of Ms Konopka could not yet swim over the river to go to the green grass on the other side. It was a small farm of 20 ha, the normal size over there. Together with the grandfather I sat at the back side of the house watching the river. He watched to the river in a way that people do when they are dependent on it. When the water level dropped he would go to the other side and help to mow with his scythe. It is how they kept Biebrza valley open for many years. It made them rich farmers which had it a bit better than other Polish farmers. These days farmers in Belgium often look more like an entrepreneur than a farmer. But this is not (yet) the case over here in Brzostowo. They milked the cows with an individual machine and had two small tractors. Unfortunately the use of the scythe is diminishing and farmers are leaving the valley. Areas in the valley have become forest and conservationists and farmers are trying to mow vast surfaces. They use rebuild snowcats, adapted tractors and where possible normal machinery to keep most of the valley under a grassland management. It is a pity to see that Europe, were greening the Common Agricultural Policy (is/was) the talk of the town, does not deliver enough for these people who work hard but are not sufficiently rewarded for their work. Instead they invest a lot of money to industrialise the farms. I was told that a lot of the good farmland in Poland was sold to banks and investors when they entered the EU.

From Brzostowo I cycled upstream to Dolistowo to visit Czerwone Bagno. Mirek, the owner of the campsite was also a local guide who explained me how to go to the area. I had to go through a fen on a kind of path and afterwards I would reach the raised bog (Czerwone Bagno). The fen was located next to the river and it is an almost permanent wet place because of the river water. The raised bog is independent from the river and grows on top of the lowland fen and lives entirely on rain water and what comes down from the air (dry deposition, ...). Czerwone Bagno is famous because it was the only place where Elk survived the second World War in Poland. They estimate that 15-17 individuals could escape from the hunters because of the inaccessibility of the bog. After the war they repopulated Poland from here and they have returned in Czech republic as well where some individuals live in Šumava NP. In the end I was not able to reach the bog because I spent two hours trying to get there ploughing through the fen often till my waist in the peat. Some years before they restored a part of the fen by pulling trees out of the fen which leaves a very thin vegetation mat that was not able to carry me. A bit disappointed I returned to Dolistowo and had a good swim in the Biebrza to clean myself. Mirek told me that Czerwone Bagno had become forested because of the changing water levels (generally dropped) and the dry deposition. It is a pity that even the water levels of large and 'robust' systems such as Biebrza are changing because of global change.

In the evening there was a kind of open air pub along the Biebrza. In the weekends they tried to have something organised for the local people and they enjoyed it very much. I got in contact with

the locals and many of them were farmers and we tried to have a conversation. Pavel, a younger farmer had 28 hectares and 28 cows. He had two people working for him and one of their jobs was milking the cows. I asked if he could make a good living out of it and he said that is was more than okay. With another farmer I was talking about the EU. He said that the EU was politically good but economically bad. He said that the future of Polish farmers should be to produce good, tasty and local food and not the rubbish that the EU wants. I could not more agree. I also asked him how much was enough for him and if he needed more. He answered that he had a good life and his children were happy, that was the most important thing for him.

Many people in the villages close to Belarus and other villages far from the big cities still cultivate the land as they did decades ago, seeding by hand and taking cows out to the unfenced grazing grounds. Although it looks nice, reality is different. Since Poland joined the EU, Polish farmers and the landscape are rapidly industrialising.



Having come so far north I went further and drove to Augustow to rent a kayak and see how the Rospuda landscape looks like. The Rospuda case is an example where the EU did enforce a good change in plans. An international road (Via Baltica) was planned to go through the Rospuda valley. Rospuda is one of the last near natural (not managed such as Biebrza) small river valleys in Europe and also is designated Natura 2000 area. They constructed the road already to a certain extent into the valley but finally it had to be constructed around the Natura 2000 area. It became clear that the kayak renter was very happy that it was not completed. It was a huge volume of soil that was brought to 'partly' fill up the valley, and a big road that suddenly stopped. With my thirty words of Polish I tried to make a sentence with Via Baltica and natura dva desonce (Natura 2000). He started laughing, shouted something and showed his middle finger in the direction of the unfinished road. Apparently he was very happy that Europe stopped the construction of the road. At Bakalarzewo he dropped me along a lake at a small camp site.

The next morning I started early and kayaked to the point where the lake becomes a river again. The Rospuda river often forms small lakes, is sometimes very fast and in other moments she flows very slowly along former and present meanders and shallow ponds. Along its way there is one constancy: there is a very steep boundary between its banks and the surrounding landscape. Maybe that is one of the reasons why it stayed near natural, because there was no possibility to practice agriculture. The diversity distribution in the valley, or the diversity in the different river associated habitats that are possible made me think on that of the Białowieża strict reserve. There is no need for management to have all the specific possible habitats at that particular site. Biological systems themselves just strive to be diverse by themselves, so no need for management if they are large enough and not too disturbed by human influence.

What was clearly visible was the natural erosion and deposition processes in a river valley which is comparable, in terms of scale, to river valleys in Belgium. The recent history of the river is also very present. No channel but a nice river, connected to its old meanders which act as spawning grounds and who are slowly silting up. Some places are very homogeneous, reed beds as far as you can see in the valley and full of birds doing their utmost singing their songs. Other areas look very heterogeneous with several different sedge communities on a narrow gradient of only three meter.

In the evening I slept already quite downstream at another natural campsite where the signs of

human presence in the valley became visible: a naturally fertilised (flooded with silt) hay meadow that was mown, bridges over the river and small houses after the bridges. The day afterwards I quickly entered the mouth of the Rospuda in the Necko lake. This was one of the most natural sites with the big issue about the road going through. The valley became very wide with reed beds and afterwards with old meanders. This open habitats changed into alluvial forest with Common alder and sedges. After that passage I entered the Necko lake. I only had to go a bit further and hand over the kayak. At the moment itself it was quite overwhelming but I thought that I had seen all of these habitats in Belgium as well. The only thing I realise now is that they appear in one place and without any human intervention or management. I did not took my camera with me because I was afraid of the water. In hindsight, I should have taken it with me but maybe memories are stronger without pictures.

In a hurry I had to go to Bialystok to catch my train two days later. I chose the path along the border with Belarus, it was a big detour but worth the effort. I realised that Poland already changed a lot. Close to the border change was not in a hurry. The roads were tougher and the landscape was twice as nice. I passed another Puszcza, the one in Augustow. Again, there was a mismatch between the meaning of puszcza and reality, it was just the same as the other one in Knyszynska, plantations with Scots pine. I have to admit, there are still trees there on vast surfaces but it is not comparable in any way with a real forest, a Puszcza worth that name. The ride on the train from Warsaw to Ghent was just as before. Problems to get the bike on the train but we managed to keep him on board.

When food was scarce at the end of the trip nature did provide me with wonderful products: Wild asparagus and a Partridge that had a hard hit with a car.



European conference on ecological economy and institutional dynamics

Northern France, Lille (18/06/2013 → 23/06/2013)

During the site visits I was often thinking about the drive for all this human influence. We as conservation biologists try to preserve and restore nature but should this still be necessary if the impact of these drivers of change can be altered in a positive manner (a diminished impact)? One of the drives of our human 'busyness' is our instinct to survive, but an economy which fails to incorporate environmental aspects is another destroyer of nature.

This last aspect is one which takes away my interest. The European gathering of ecological economists took place in Lille close to my home so I went there to learn more about ecological economics and institutional dynamics. When I arrived it became clear that it is not a usual economists gathering. Ecological economics is a typical merger of interest groups: the economists who want to be ecological and environmentalists who are into economy because they want to change the economy.

It was an interesting conference for me as a field biologist. There were sessions on very different

subjects, which was interesting to get a grip on how economists think. Examples of sessions are: efficiency of biodiversity offsetting markets, theoretical models on 4 days work-week, optimisation of ecosystem service markets, degrowth, sustainable lifestyle changes, ...

It was somehow interesting to see that some economists, in one way or another try to take into account ecological boundaries in their often untrustworthy models. Others just do research on 'green' things in the standard economic reasoning, they try to optimise all kinds of things. There were lectures about optimisation of ecosystem services, not the payments for local inhabitants but calculations on which ecosystem is most valuable (in monetary terms) and what should be the best distribution among the different services and of course searching for the point with maximum benefits. These were just economists of which we have too many of. Other people were more radical and advocated to search for new economic models taking into account degrowth since we have no other option if we want to become more ecological.

Wilderness aspects

After all these experiences I must say that Europe still has amazing places that are worth to be seen and protected. It was also worth visiting them since you only know what you want if you know what you can get. I now think that we should aim high enough and that wild nature should have a place in Western Europe. In recognition for the real wilderness and the people who preserved it we should make a distinction between wilderness and wild nature.

It is worth having different words distinguishing the different levels of wildness. How else can we express ourselves if we lack the words. Real undisturbed nature is an utopia, we are also part of nature, aren't we? What has been destroyed can not be restored but in these days with fast shifting baselines there is a need to widen our wildness vocabulary. First of all there is the pristine wilderness such as old growth forests which are of course the wildest we can get. Besides that there are many other scales of wildness such as wilderness and wild nature which I will use here. To me, wilderness in Europe is an ecosystem that has got enough time and place to develop itself without too much human pressure. Wild nature are the places that did not have gotten enough time or place to develop into wilderness but where nonetheless the same biotic and abiotic processes are active. We as humans have retreated from these lands and leave it up (more or less) to nature. This means that arable land that has been cultivated up until now and is rewilded will become a wild nature area and that after enough time to build up complexity it can be called wilderness. That is why I use this more progressive distinction.

The evolution of wild nature off course depends on whether the building blocks (species and genes) are able to reach these wild lands. It is almost impossible to give a measure of the amount of species that should be able to reach the place and have the chance to join the ecosystem and build up the complexity. But let's assume or hope that sufficient species will be able to move through the landscape in the future.

Two aspects are very important for the evolution of nature into wilderness if left more or less undisturbed. The effects of space and time became very clear to me during the trips.

Space

Humans have the drive to categorise everything they see. Especially the vegetation typology in the Netherlands, which influenced the one in Belgium, specifies an amazing number of vegetation types with associations and subcategories. Off course this only reflects what we know and does not deal with uncertainties and non-knowledge. These typologies are interesting as a means but not as a goal.

Science is also only one way to look into the things. It tries to make general conclusions which preferably should be as applicable as possible on a large scale. Biological diversity does the opposite of what science tries to do. It tries to be as diverse as possible. There is an enormous pressure (natural selection) to be different and better adapted to local circumstances than the others. So let us not forget that although some systems do look similar they are not in term of abiotic conditions and the interactions between species. This just to say that vegetation typologies and the scientific method can help us, as one of many other ways to see that although two forests look the same they are not the same separately. Each place is different and if you want to protect/create a certain type of wilderness it is worth having an area large enough to cover a wide array of the local specificity.

As said before wild nature can also develop on a small landscape scale. Wilderness on the other hand needs something more. Top predators should be there and have their influence on the grazing pressure and thus on the vegetation composition. If we consider the fact of shifting baselines it is worth thinking on how wilderness can look like in 300 years. In Western Europe we lost a lot of species: Wolf, Bear, Lynx, Elk, Auroch, Bison, If we did not know they once were there and if

they are not part of the ecosystem at the time we could think of a wilderness without them. It would be very different though. We will not get all of them back but we hope that some of them will be able to return and populate our new wild areas. Still I think that we should strive to have large predators along the new grazers that populate our wild lands. If we want to have these predators in our wild nature we will need enough space that is covered with a more or less natural vegetation so that that the system can sustain these large animals. So size does matter and enough space is needed if we want to give the ecosystem complexity of real wilderness a chance.

On my trips I have seen several examples of space related problems. The protected areas already have a certain surface that is large but often not large enough. The problem which was probably most discussed are the different protection levels and their zonation that are used. It was a big problem in Białowieża and especially also in Šumava. The National Park of Białowieża is not that large and the forest complex around it is much larger and also more logged. Outside the NP there are some nature reserves with certain restrictions that are necessary to maintain the natural values. The zonation of those reserves was interesting. Most of them were wet forest (not easy for forestry) and located as a strip along the road from Hajnowka to Białowieża so that drivers get to see a pretty good forest but the reality is different. In Šumava it looked even worse. The zonation of the park was discussed and they wanted to have a lot of very small core zone patches. These core zones were the non intervention zones. It is of course a strange thing, to have a lot of small patches which should be non intervention if you know the edge effects of the surrounding area with forestry go very far. In that case the non intervention zones lose their value. It is something difficult for us as humans to have places which we do not control or have no road access to. One of the results of the roadless area initiative of the Society for Conservation Biology was very interesting. The area with the highest number of road disturbance was in a large state forest in Germany. So what you see is not always what you get.

Diminishing these edge effects is an important issue for rewilding. An interesting 'model' is the reconnection model that is being applied at the National Park Hoge Kempen in Belgium. A large area which was not developed (only for forestry and sand mining) was declared as national park. They did not make touristic infrastructure in the Park but invited visitors to several gates to the Park. These welcoming gates were located in the vicinity of the Park. The surroundings are also forested and very different from what most people see in the urbanised Belgium. Let's say that more than 90 % of the visitors just make a short route along the Park and maybe touch the borders of the park. Those people that want to explore the Park from inside can do that on several trails. These 90 % people do not value more or less the different landscapes in and around the National Park. Maybe one day they will see things different later, than they will explore the Park from inside. This planning system has two good effects. The recreational pressure is diminished inside the Park and they have good arguments to invest in more green infrastructure around the National Park and create more nature (and buffer) along the Park.

As an artisanal woodcrafter I understand that huge trees in old growth forests are very interesting to use as timber. On the other hand the joy that this big trees give to all their visitors will be far greater than the joy that some will have of their furniture. It is worth protecting our common heritage.



Perucica and the strict reserve of Białowieża are some of the small old growth remnants that remain in Europe. They are embedded in a wider forest landscape which is a nice forest but not managed as a non intervention area. It would be a wise thing to minimise the impact from outside and protect it as something very valuable and not only as something which creates money. The surface of these surrounding forests is not that large that these lands are of utmost importance for the state to secure the well being of their citizens. It would be a wise decision to install a non intervention management around these old growth remnants (if needed after restoration measures) as well and give the chance to reconnect with their surroundings.

Psychologists say that the certainty to have one day in the week where we do nothing, on Sunday has a very positive effect on wellbeing. When shops are not open and tranquility fulfils the cities and villages we can recharge our batteries. I strongly argue that the same is necessary for the earth. Maybe we need a sunday for the world. 1/7 of the world or of your country that receives a day of, an area without human interference.

Time

It takes time for a baby to grow, walk, talk, go to school, use that knowledge, have offspring, grow further and even become an old person that is ready to die and make place for others to flourish. Our life expectancy is around 80 years. Long living trees such as Oak and Lime can become 300 years and older.

Another interesting comparison to make, how long does it take to develop a society or country with a stable and good government system? I once heard an American specialist who helped 'rebuilding' Irak after the first gulf war. How much time does it take to build up Irak after the latest war? He said, probably three generations, just until the last generation that has experienced the war has died. In that case you only have a population which has never been traumatised by a war. But will it be a country with a stable system (culturally, economically, socially)? There is a comparison to make with the time it takes for wilderness to develop. I think the evolution of a country with a rich culture is a complex system and takes many generations, but a forest is much more complex to my opinion. Beetle species do not live long but the 'suppliers' of forest ecosystems takes ages to grow into the phase that it will die because of age. We did not even talk about the symbiosis with fungi who connect the trees with each other and who will need even more time to develop.

Let's start a small calculation as an example. It is quite possible that rewilding will start from agricultural land in Belgium. Probably a mixture of Oak, Beech and Hornbeam forests will develop, if not preceded by Birch and Willow trees for many years. An old Oak will probably live for 300 or more years. Some beetle species need these gigantic diameters for their larvae so the large Oaks are not only a curiosum. If this oak falls it can take another 30 years before it is digested by the system. After this, other trees will grow and if there is enough surface there is a big chance that all stages from the young Birch to the old digesting Oak will be present. This does not mean that full complexity as it was before will be reached. We are 330 years further but this is only one person his life in our comparison. Several key species may not have reached the forest and maybe there is a fungus that only grows after there were two cycles of old Oaks (600 year) and this fungus is needed for the germination of a special orchid (which is not unlikely). This example just to show that it can become enormously complex and that the oldest possible age of one of the many important sustaining species of the climax vegetation is a progressive point of view when it comes to the wilderness definition. Of course there are many habitats that need dynamics and do not have 300 year old individuals such as for example riverine systems but a forest stays the most dominant vegetation type in Europe if we consider how it used to be before humans became dominant. These type of reasoning can be useful when discussing on a wilderness definition.

These new grown 300 year old wilderness areas can be compared with the old growth forests that remain. They may look the same but they will never be the same! There is no amount of money,

nature compensation, new wild nature or anything else that can replace these old growth forests. That is why we must handle them with care and make sure these lands and their functioning are protected.

Off all the sites that I have visited the 'not enough time' aspect was very present in Bieszczady. Vast surfaces and a low impact but a system which is only in its childhood. Playing around, short term thinking, but not the stability that adults have. It is remarkable to see how quick that nature re-invades the area and shows us that it can do wonderful things. After a while you understand that time is one of the most precious things.

Wilderness is a status no (fixed) state

Wilderness is a status and no fixed state. This means two things to me. First of all wilderness is a human distinction for certain areas that they think are pretty wild and undisturbed. Undisturbed does not mean that everything is settled over there and that it will stay as it is, all the time the same vegetation cover, the same species and the same numbers. On the contrary, it is a system that is pretty stable in the meaning that it is more robust to changes from outside. Inside, a lot of things are happening and life does what it does best, being alive.

As conservationists we often tend to forget that things are not made to stay as they are. For politicians who think they think rational it is easy. They must strive for a good conservation status and this will be done as follows: X hectares of that habitat, and that habitat combined with another habitat for Y hectares and so forth and so further. We manage those areas as we think we should do for that habitat. But habitats are changing because of climate change and because of evolution and succession. And this is what we often tend to forget, that nature is always on the move while we just want to fix that habitat type on that place forever. It is a typical example of the human believe that we dominate everything.

I see the same evolution with rare old monuments in Belgium. We are moving from restoration to conservation. More and more old buildings are being equipped with the latest coating so that they will be weather resistant and nothing should be done to replace broken stones, other buildings are fully surrounded by glass, and monuments can not be equipped with insulated glazing but single glazing should be used... It seems that the scarcer some things get the more we want to protect and conserve it as it was and keep it as a relic. We no longer integrate these buildings in todays society by restoring them. A result will be that we have manoeuvred ourselves in the position that a lot of money is needed to maintain these buildings but they will not be useful, just a relic from the past.

To come back to nature, we are also conserving this, keep it as it once was and try to conserve that forever. This management is becoming expensive whereas the amount of money that is spent to nature is far too low and even much more money goes to conserving monuments. I think we must be cautious for this evolution. We can not conserve these small fragments and habitats forever in that way. Our species will be (and are already) living deads because of that. It would be wise to understand that and make space for the evolution of our habitats. That is why restoration ecology is an interesting topic. It seems that we should give a new home to our species and biotopes. We might better invest more to know how we can give them a good start with their new homes instead of conserving their tiny and decaying houses. Conserving must be done, and as much as possible but at the same time a lot must be restored so it is better to be prepared...

After focussing on conservation and restoration efforts the title "wilderness is a status and no fixed state" also means another thing to me. There are a lot of things going on which go beyond species and habitats. In the National Museum of Bosnia Herzegovina I saw a wonderful definition of a forest which states it all very well.

"A forest is an ecosystem that has attained the highest level of evolution and integration into the cosmos as a whole. With extremely complex storeys that form the aboveground biocenosis and deep underground stratification, a forest attains the maximum accumulation of solar energy and its transformation into matter and energy, its production being proportionate to its complexity."

Indeed, complexity and energy both are very interesting. The complexity of ecosystems and our non knowledge about this is intriguing. It seems that natural and not managed systems know better how to handle the energy that comes in. In other words they are more efficient to collect and use the solar energy that reaches the earth. In two comparable forests the one with a less intensive management had a colder highest temperature during the summer days. This is one example how they better buffer the environmental circumstances. In fact it seems normal that more complex systems use the incoming energy more efficient. They say that it is possible because of niche complexity. If there is a higher complexity the incoming energy can also be better distributed through the system. More connections also means that energy can be stored in more places, ways, and that more solutions are possible.

Keeping in mind these two issues discussed above, another interesting discussion these days is that of biodiversity versus wilderness. Many people advocate that man made landscapes have more biodiversity than wilderness places. Most of the time they do not choose position (yet) for one or the other but they argue that we must use the land designated for nature wisely. Of course we must take good decisions, with a scientific discussion about the issue. Although science is only one of the ways to look at what is happening there, the issue of non knowledge is controversial among scientists. Biodiversity is our human way to see things, ecosystem functioning is another, not as understood as we might think. I think we should use the precautionary approach with wilderness and wild nature. These old growth wilderness systems are amazingly complex and their functioning may be their most amazing asset. I also admit that intrinsic arguments are important for me. I think that nature should not only be about our anthropocentric view on the functioning of nature. What is in it for us, is a relevant view. Why we should protect it as such for its intrinsic value is another one.

Local culture, local definitions and current rewilding efforts

As said before, wilderness is a status and no state. A status means that certain people value and define it as such. Most of the time it were the locals who maintained and protected the area or, who were prohibited to do certain things by powerful people who controlled the area. Nature is shaped in a way depending on the culture of the local people. Nature also influences the local culture. So there is a strong connection between these two, and the diversity of European landscapes is what it is also because of these different cultures.

It would be a good thing to recognise this connection and to maintain it. Today where Europe sets out the guidelines, we as conservationists are also working on a European scale. To a certain extent this is a good thing. We can learn a lot from each other but there are reasons for concern. Some cultures dominate the conservation landscape and thus have their influence on the local nature of other cultures. It would be a good thing if we would stick to our own nature and our own business.

The Oostvaardersplassen in the Netherlands is a good example for the Dutch nature conservation culture. The area has a 3600 ha marshy part and 2400 ha of dry parts who are stuffed with Heck cattle, Konik horses, Red deer and also a lot of Greylag Geese. Their numbers are regulated naturally but remain very high. The whole area is fenced. It is a wonderful thing that happens over there and the results are beautiful. It even looks a bit like a safari when you are visiting the area, knowing that those numbers of animals never before roamed over these lands. It shows the agricultural history of the people in the Netherlands, but that does not matter to much on my opinion on the installed management. What can seem a problem to me is when we export this Dutch nature conservation culture into other countries. Especially the vast surfaces under an extensive agricultural management by pastoralists are susceptible to this influence. People are looking what to

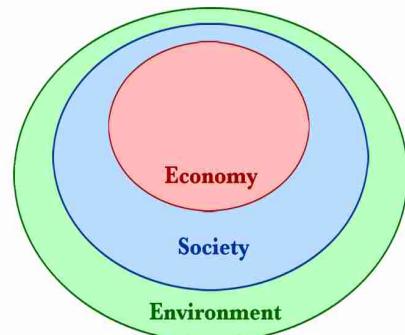
do with these areas that are more and more abandoned. Of course we should preserve these natural values but how?

In respect for their culture and the local people we should leave it up to them how they will preserve these areas. If people from other cultures are too dominant or if we create an European internal market for biological conservation (we might already have done this), we will end up with a mixture of everything and nothing. We can already see it now, Rewilding Europe -an organisation which I support- has a perspective that leans too much to the Dutch and Western European perspective on wilderness I think. They have a lot of money to spend in these financially poorer countries which off course influences the position of the locals on their rewilding vision. A good example of that is the crossing of different cow breeds in their attempt to create a type of 'auroch' that should populate these abandoned agricultural lands in high numbers. I think that we should not be too dominant among European conservationists and leave it up to the locals to decide about their nature.

Do good and diminish the drivers - human dominance

Preserving wilderness should be easy: doing nothing. But why is it that the most obvious thing does not happen? Instead of writing about the good management practices of wilderness restoration I want to highlight some things that are probably the main reasons why we are losing wilderness. It is always nice and interesting to look at the demand side and what we want as nature conservationists. It is maybe even more interesting to look to the drivers of biodiversity loss and see what they want and do with this precious nature. We as humans are always busy doing things, unfortunately most of the time this has a bad influence on our environmental footprint.

We know that we have too much impact on our planet and all of us know what it does to the earth, being there with seven billion the way we do know. Rather than pointing to certain branches of industry or transport I try to go straight to the point of today's drive of environmental destruction.



It is time that the economy is set at its righteous place: delivering a prosperous life for the whole society and within the ecological boundaries of the planet.

To my opinion we can not go further with our capitalistic growth based models. Today we live in a world where money is everything. People can no longer distinguish price and value. We have 'created' a system which runs on money. Other values are marginalised or externalised. In order to be competitive with the others we find out ways to do the same with less people (but with a lot of energy) and increase our labour productivity. In an attempt to maintain the employment rate in the current system our economy should grow with generally 2% per year. We were also very smart to find a way to sell a lot of useless things by giving up our attempt to strive for the good life. We simply gave up on that with the reason that it is in our nature to compete with others and put shiny feathers on our hat. I think it is a dead end street that fulfills our lives with plenty of rubbish and emptiness in the mind. That is why real men and women do it with less.

It is not the scope of this report to talk about how we can and should change the economic system but it is a good thing to keep the general picture in mind. If we are serious it would be good to reduce our environmental impact as nature conservationists. Although communicated as highly interlinked, too often nature and environment are practiced as two separate things.

Preaching about degrowth and the destructive economic system does not bring us much further and, this is also often seen as the green people telling you again what you must and must not do. Instead of that we can tackle the issue of our economy and environmental impact by talking about the good life. What does it mean to live a good life? Protection of nature and the sustainable use of it is one of the things we are aiming at and is covered by 'the good life'. Living in harmony with nature is a good thing to strive for. Degrowth and minimising the impact of the drivers of environmental pollution delivers for nature. Maybe diminishing our impact should not be a target as such but a side effect of our reconnection with the good life. I will certainly give it a try and look for a prosperous life with a low impact on my environment... More information on the good life can be found in the book of father and son Skidelsky, How much is enough, money and the good life.

European union, internal markets and externalised nature

During my site visits I often saw and informed me on the impact of the European Union. From

Croatia that just has joined and Poland that already found out how Europe works until Bosnia Herzegovina that is not part of the EU. I am an enthusiastic defender of the European thought. It has brought us a lot of things, good and bad. Europe has an important impact on our nature, landscape, culture and many other things so it is worth exploring its role in all that. After these visits I still support the European thought, but I have seen the devastating impact of the current EU policy and advocate another Europe, not one that looks like the united states of Europe.

It must be said, the EU has one of the best working instruments to protect and promote nature and biodiversity. The Natura 2000 network is a wonderful tool even though it is not yet fully operational. It does deliver for nature (of course not enough) and will become better in the future. Finally investors and men of industry know that a Natura 2000 area is not something you can neglect. On the other hand the EU is a very good destroyer of local cultures, landscapes and biodiversity and has even better tools to do that than it has to solve the problems these policies cause.

The European DG environment tries to create legislation that works in the member states. Member states are not always in favour of the new directives and often try to water down the effects of the policy. That is why these policies are designed with the possibility to add local accents but still very strict so that member states cannot cheat easily. A problem with that is that you create a legislation at a European scale that sets out the rules for everybody. If you get agri-environment money for delayed mowing for example, everybody in Europe mows these important grasslands at the same date. Not very friendly for biodiversity although it is often a good thing to delay mowing for birds and plants. This example just to say that it is almost impossible to make rules at a large scale (EU wide) that promote heterogeneity at a local level.

Another fact is that the EU gives a lot of subsidies for agriculture, rural development and the cohesion policy. In practice this money and the internal market policy tries to create a level playing field and thus is meant to destroy local diversity (culturally and biologically). There are repair mechanisms to protect local products and local nature but in terms of design the main policy keeps destroying diversity.

In the end I changed my opinion and think that it is a bad idea to have more countries in the EU for the moment. Of course there are also positive aspects of joining Europe. But on the short and long run it will also mean more loss of biodiversity, a destruction of cultures and societies and probably people will not be happier than before. I could clearly see it in Bosnia Herzegovina, they were not a fan to join the EU. Other people also had their ideas about the EU and their regulations. A Croatian who had a Hungarian girlfriend picked me up during hitchhiking, he said that the EU does not necessarily bring more economic prosperity. He saw it in Hungary and a bit later also in Croatia. When countries can join the EU there are already many aspects of the economy that are increasing. Europe just joins this increasing momentum and adds some money but in the end much more money is diverted to the stronger economies of the EU to maintain their economic position. This Croatian driver said that the EU is a kind of pyramid where the lower countries stay in the same position towards the countries higher on the pyramid. The pyramid just becomes bigger. A Czech girl that drove me to Prague said that the EU organises everything to create more competition and does bad things. She gave the example of the good Czech cheese that they produced. Before the EU period they had local farmers that made good cheese that stayed fresh for one week and you could buy it just next door so there was no problem. Now the cheese farmers were obliged to add a lot of chemicals in order that the cheese stays fresh for one month but it tastes not as good anymore as before. Because there is an internal market, countries who produce even worse tasting and cheaper cheese can now sell their cheese to Czech people. She said that you now had to choose between bad cheese from her home country and cheaper bad cheese from other countries: more choice but a decreased quality.

Options for the future

I have seen many good examples of good management practices and learned a lot on wilderness and the restoration options for wild nature. In the sections I have written above my preferences on wilderness management are clear or undecided. In this section, options for the future, I give a conclusion on the things that are important to me and where I changed my opinion upon after I undertook these site visits. My suggestions for the future are no options to change the management of a certain nature reserve or an action that we should do to preserve some wilderness or wild place. Rather than doing certain actions it can be worth it to do nothing, but this may be even more difficult than to do something for wilderness. I see it as new actions and options that I personally will explore and try out in order to minimise my impact on the environment and promote wilderness. This because wilderness will only have a chance if we start lessening our impact on the earth. If we not succeed in that, 7 billion people, and even more, using our earth such as we do in Belgium will do no good for nature.

In 2010, the international year of biodiversity, there was the slogan of countdown 2010. During the organisation of the European Youth Perspective Conference in 2010 in Belgium the slogan inspired us in our talk on a EU presidency biodiversity event. As youth we thought of a new slogan for the next decade: "let's go from countdown 2010 to fastforward 2020" in the hope that in 2020 politicians will have done what is needed so that nature would be better off.

I understand that my findings until so far were not always that positive. Still I am an optimist and maybe it is indeed a moral duty to be an optimist. In this last section I will try to formulate some options that possibly can help in finding a way forward by minimising our impact on the planet to give wilderness a place.

Environmental protection and rational consuming go together

One of the most important facts that we should not forget is that all over Europe people believe that nature and biodiversity is important to them. They also indicate a stricter regulation of the economic sectors as the first priority to protect biodiversity. This combined with the evolution that people tend to buy from a social or environmental responsible company, if the option is available, means that there is a good starting point for a greener and social responsible (r)evolution. Despite these thoughts of the people, nature is not better off yet and change is coming only slowly. One of the reasons can be that large corporations can slow down this positive drive and the fact that there is a lot of greenwashing. I think it would deliver if the environmental NGO's could engage more with the economic sector and give clarity to consumers on what is good and what is bad. NGO's are seen as trustworthy by the people and can put an enormous pressure on companies by changing the consumers behaviour. If this informative chain could become reality IKEA will think twice before they buy wood from old growth forests in Poland.

There is too much choice and too much choices must be made when you want to buy your food in a supermarket. Although they want to be green consumers, it is just too complex. Products come from all over the world and it is difficult to take an objective decision on the footprint of each product. The result is that most people give up their drive to buy green products and just buy something else. Another example of the 'emptiness in the mind' in todays society. It would be a good thing if we recognise the fact that globalisation has brought us some good things, but that most of the products we buy should be made locally. If products like beef, vegetables, televisions, clothes, ... would be made in our neighbourhood or closer to our home than is the case now, this would save a lot of fuel, and imply less social abuse and less consumption. We would regain the possibility to make rational choices since we can see the real impact of the production of what we consume. I strongly believe that environmental destruction would be much less if things would be produced more locally. Being able to comply with the common values of nature protection and the green consuming would probably make us a lot happier.

Intrinsic and anthropocentric views on nature

It is a recent evolution that the nature sector uses a lot of anthropocentric arguments to convince people and politicians of the need to protect nature. "What is in it for me, well you get some cultural, provisioning and many other ecosystem services". It is a valuable argument and a good evolution that more scientists investigate the relation between the functioning of our environment and us.

In the past, moral arguments were the most common reasons to protect valuable wilderness and nature. It was also a romantic thing to do. In times of destruction of the last wild forests in Germany and England it became even more important to protect nature, and this in an even more romantic way. These days the conservation movement seek salvation in the use of concepts such as ecosystem services and often deny the moral reasons to protect biodiversity. I rather think that moral arguments are one of the components of a good communication. If we put all our eggs in the ecosystem basket we will have a problem. Nature and biodiversity will just become another tradable good with its own price and no 'moral' value.

Opponents of environmentalists often say that it is almost a religion, how we 'preach' to protect our environment. We often deny this and argue that there are scientific arguments to take action. Strange to see, while environmentalists historically used to be against science, now we embraced science and use it as means to reach our goals. Indicators show us that people do more agree with the reason that it is a moral obligation to halt biodiversity loss as our responsibility to look after nature, rather than the reason that our well-being and quality of life is based upon nature and biodiversity. This to say that it would be a good thing if we still use the moral argument to protect the environment. The environment surrounds people and it is also a part of the identity of the person. So no wonder they see it as a moral duty to protect that nature. We should not be ashamed to use these moral and intrinsic arguments, they are also valuable and a valid reason for most people to act, just as the more anthropocentric view of ecosystem services.

The future of nature conservation is participative, or not?

Is the green future participative or not? This is a question that still wanders in my mind and where I would not know what the answer is. The optimist in me says yes, but on the other hand many of the wilderness areas we have left were more the result of a domination by powerful people rather than the wise and participative decisions taken by locals.

Let's start with the arguments pro for decisions by few people. The history of two sites I have visited were characterised by domination. Kopački Rit and Białowieża were royal hunting areas. In Białowieża it were first the Polish and Lithuanian kings who kept the area for themselves to shoot the famous Bison. They had to protect their Bison and it was even 'necessary' that the hands of Bison poachers were cut off for this purpose. Later on it was the Russian Tsar and even later it was Göring who also stopped the felling of trees in the strict reserve because it was an amazing forest and hunting ground for him. Kopački Rit was one of the private hunting grounds of Tito. And poachers were also here punished very hard. Many other important nature reserves were the result of a government or rich person that decided that certain areas were no go zones in order to protect them or preserve them. Somebody told me that we should not think that local people will protect their forests just out of themselves, especially not if they have chainsaws. It is necessary for nature protection that some people with an overview on things dominate and take decisions that are not supported by a majority of (local) people. That is true, if that would not have been the case there would be no nature reserves in Belgium and even the last fragments of rare habitats would have been destroyed.

You often hear that the future will be participative, cooperations and open source software are the new standard in the participative future. They argue that with free flow of information the open source community is much smarter and faster than the structured teams of engineers of a software

development company. Will this participative mindset also become important at the nature conservation scene? Somehow I think it will, especially since many people think of biodiversity as something important. In Belgium the NGO Natuurpunt is that influential just because it has an amazing amount of volunteers who participate in its actions for nature: acquiring land, managing it, lobbying, ... As said before there is a strong drive in people to protect biodiversity. By using participative approaches we can gather more support for environmental protection. During restoration activities and landscape management plans it is worth incorporating the opinion of the local people if we want their support, even though we think we could do more for nature by not incorporating their views. These and many other domination or participation options are worth to be explored in the future.

As always there is no holy grail and reality is influenced by many actors who have an effect on each other. Future will tell us what we needed most, domination or participation.

Word of thanks

First of all I would like to thank the Toepfer foundation and the Europarc Federation for supporting my proposal to find out what we can learn from wilderness to restore wild nature in Western Europe. It was a wonderful experience that I will never forget. It supported me to live a good life and try to give nature and especially wild nature the place it deserves in Western Europe.

These trips would not have been the same without the local people that I have met. Rasim, Edo, Nuria, Adam, Andrej, Dražen, Natasa, Samer, Mirek, Ms Konopka, Endre, Suza and many, many other people...

During some trips I was accompanied by Klaasman and Céline, my travel mate and my girlfriend. They are wonderful people to travel with.

Travelling means that you are away from home where Céline, and later with Janne in her belly remained. It was not easy for her, knowing that your boyfriend is away in the wilderness, only getting one sms each two days and some letters. I want to thank her for this chance.

Another word of thanks goes to the people that in one way or another protected and are protecting our last wilderness areas.