

**Transcript**

*00:00:06:20 - 00:00:28:04*

*James Shooter*

Hmm. Hang on a minute. This isn't the usual relaxing introduction of singing birds or leaves rustling in the breeze. That's because today I'm on the banks of the river Meuse in the southern tip of the Netherlands and getting ready to explore this watery world by pumping up an inflatable kayak. Well, I'm not Gaby, my guide for the afternoon news.

*00:00:28:06 - 00:00:54:04*

*James Shooter*

I'm just pointing my weird, fluffy microphone towards her while she does all the hard work. This river, like many across the continent, has suffered decades of human engineering in a relentless attempt to control it. Sections were dammed straightened, dredged and fortified. We tried to tame its wildness, to make it predictable, practical, to behave how we wanted it to behave.

*00:00:54:06 - 00:01:19:24*

*James Shooter*

Of course, our manipulation of this channel had consequences, and we soon realized our approach needed to change. Thankfully, this river is now in repair. There's an army of excavators and dumper trucks busily working away behind me. They're scraping and shaping, shifting and lifting, steadily returning the river to a more natural state. The motivation behind all this is what's beneath my feet.

*00:01:20:01 - 00:01:59:01*

*James Shooter*

Gravel. This is a story of an unlikely pairing between miners and ecologists and how they came together to rewild a river. So before we head off merrily down the stream, I'd like to learn how gravel reshaped the course of this river's history. I'm James Shooter, host of The Rewild Podcast, and this is the Meuse Valley River Park.

*00:01:59:03 - 00:02:17:04*

*James Shooter*

I've been traveling through northern France, across Belgium and into the Netherlands to speak with some of the team involved in this unique partnership. I've been told to meet my first contributor on the banks of the river at somewhere known as Woodhenge. Colour me intrigued. How are you?

*00:02:17:06 - 00:02:18:20*

*Alphons Winden*

I'm fine. Hello. Alphons.

*00:02:18:22 - 00:02:19:19*

*James Shooter*

Thank you. Nice to meet you.

**The Rewild Podcast**  
**By James Shooter**  
**Episode 8**  
**Meuse Valley**



00:02:19:19 - 00:02:21:04

*Alphons Winden*  
James. James? Yes.

00:02:21:06 - 00:02:21:22

*James Shooter*  
Are you well?

00:02:21:24 - 00:02:23:21

*Alphons Winden*  
I'm well. Yes, Yes.

00:02:23:23 - 00:02:24:17

*James Shooter*  
So this is strange! What's this?

00:02:24:18 - 00:02:32:22

*Alphons Winden*  
Yeah, we made it. Did you? Yes. Oh, right. Amazing. So these are old

00:02:32:24 - 00:02:34:17

*James Shooter*  
trunks found in the watercourse or?

00:02:34:17 - 00:02:44:23

*Alphons Winden*  
Yeah, under the groundwater table. Sometimes we find trees. Yeah. And they are over 2000 years old. Wow. So they're really old.

00:02:45:00 - 00:02:46:08

*James Shooter*  
2000 years old!

00:02:46:08 - 00:02:50:02

*Alphons Winden*  
They say Julius Caesar, once walked around these trees.

00:02:50:04 - 00:02:51:07

*James Shooter*  
That's amazing.

00:02:51:09 - 00:02:52:09

*James Shooter*  
What a thought.

00:02:52:11 - 00:03:02:06

*Alphons Winden*

And a really little bit. Then. Of course, you have the better one, Stonehenge we made Woodhenge. And it's in such a way that the trees are in a in a line like that.

*00:03:02:07 - 00:03:02:24*

*James Shooter*

Yes.

*00:03:03:01 - 00:03:06:12*

*Alphons Winden*

And it's the same line as the meander of the river has. Oh, I like that.

*00:03:06:15 - 00:03:14:12*

*James Shooter*

Yeah. We take shelter from the wind beside one of these 2000 year old giants. So I can learn about the back story to the Meuse Valley River Park.

*00:03:14:14 - 00:03:29:15*

*Alphons Winden*

I'm from Alphons Winden. I'm an Earth scientist, and I'm specialized in landscape designing. So in areas where in the Netherlands, landscape is transformed because of all kind of transitions we are in. I'm the one who thinks about the new landscape.

*00:03:29:17 - 00:03:44:17*

*James Shooter*

We're in the most southern part of the Netherlands on the banks of the Meuse. This is the only free flowing part of the river saved from any major dams for 60 kilometers along the Belgium border. And it's this section that forms the River Park Restoration Initiative.

*00:03:44:19 - 00:04:08:01*

*Alphons Winden*

I think to compare it, it's a little bit like the same the Thames in England. Quite quite the size of the river. And the special thing about this river, it's gravel where it's flowing. So not sand or clay, it's a gravel river. That means that the whole soil here underneath us is made of gravel, and that gravel was transported by the river in former periods in the ice age.

*00:04:08:03 - 00:04:38:19*

*Alphons Winden*

And it comes from the Ardennes. It's a middle mountain region not so far away. When you 50 kilometers south of of of where we are, there are the mountains, maybe six, 700 meters high. And during the ice age, there were no trees. And the river and the water, the melting water took all the material from those hills down to the river and the Meuse transported it to this area for a big layer of about five to sometimes 15 or even 50 meters of gravel was deposited in this area.

*00:04:38:21 - 00:04:43:11*

*Alphons Winden*

And the Meuse is now flowing between those gravel banks.

*00:04:43:13 - 00:05:07:19*

*James Shooter*

Since the Ice Age. The temperate climate embrace woodland and the braided channels that might have stretched as wide as a kilometre and a half became a more meandering system as the trees stabilised the substrate. Since then, humans have played their part, removing most of the woodland once again and utilising the flat, fertile ground for agriculture, which has become exponentially more intensive in recent years.

*00:05:07:21 - 00:05:27:11*

*Alphons Winden*

It's the second largest river in the Netherlands, and next to the Rhine we have the Meuse. And it's also quite a big river for northwestern Europe, not as big as the Loire or something like that. But it's 800 kilometers long, so it's quite a long river. And it's specialty is that the discharges are very fluctuating.

*00:05:27:11 - 00:05:49:04*

*Alphons Winden*

So in summer there can be only ten or 15. So you can cross the river without a Yeah, without swimming. And in the winter it can go up to 1000 or 1500 and it's sometimes but that's only once in 50 years or something can go, can go or even two or 3000 cubic meters per second. It's just nice for nature that there are floods like that.

*00:05:49:04 - 00:05:58:16*

*Alphons Winden*

So we, we, we are always a little bit happy when there are floods. Not, not everyone is very fond of that. But for the natural dynamics, it's good that there are floods.

*00:05:58:18 - 00:06:20:19*

*James Shooter*

River systems have been formed over millions of years, carving their way through the earth and leaving gorges, valleys and floodplains behind them. A wild river is a wonderful thing, perfectly designed to accommodate changes in water levels across the seasons. Tranquil and serene in one moment and in the next, raw, unencumbered power.

*00:06:20:21 - 00:06:48:03*

*Alphons Winden*

Of course, the climate is changing rapidly. We see it everywhere in the world and also in the Netherlands. And the I think the major thing for this river is the droughts and the longer periods of low water discharge, because then for all species which like the water itself, its very difficult. And also during periods of low water discharge, the pollution which is still in the river there, it's less mixed.

*00:06:48:05 - 00:06:53:00*

*Alphons Winden*

So it's the contamination is higher than when it's when there's a lot of water.

*00:06:53:02 - 00:07:27:22*

*James Shooter*

At the other end of the scale. When the river roars with 300 times the volume of water, the banks are breached and water should spill out onto the floodplains surrounding the main channel. As the volume drops, the water melts back into the river, dropping nutrient rich sediment on its flanks in the process. This normally happens in winter, but in summer 2021, when the river normally sits at 50 cubic meters, a second unseasonal heavy rain that lasted for several days saw the highest discharge for 110 years.

*00:07:27:24 - 00:07:54:01*

*James Shooter*

A phenomenal 3260 cubic meters a second. The devastating part of summer floods is that it's the growing season for life on the river. These rare events rip young vegetation from the banks, wash out fish fry that seek shelter in the gravel and are devastating for waders, gulls and terns nesting on the pebble banks. Nature can handle the odd, rare event.

*00:07:54:03 - 00:08:15:15*

*James Shooter*

But if these become more regular, that's when we get problems and a system shackled by human engineering designed on past peak flows, they won't stand the test of time. The inhabitants of Maasband just upstream had to be evacuated that summer, ultimately saved by a couple of centimetres of the final break on the defensive wall.

*00:08:15:17 - 00:08:40:00*

*Alphons Winden*

The biggest change has been made about 150 years ago when we fixed the banks of the river. By that moment it was the industrial age, industries came up and you have the Midlands with all the mines, etc. We had that also here over the border in Belgium. In the along the Meuse there were big companies for coal and iron and all that stuff.

*00:08:40:00 - 00:08:59:13*

*Alphons Winden*

And then they wanted for shipping, they needed transport to the sea. So then they, they, they fixed the river Meuse in the course with, with dams and longitudinal dams along along the river. So he he couldn't move again. So the dynamics collapsed and that was done for the ships.

*00:08:59:15 - 00:09:35:05*

*James Shooter*

It took around 20 years for the dams and embankments to be completed, but at that point technology had moved on and ships were already bigger. The summer months rendered the river useless for transportation and the mining companies couldn't have three months of the year without shipping. So their attention turned to canals. Now, if you're from the UK like I am, when you think of canals, your thoughts may take you to a

leisurely weekend drifting down a disused canal on a narrowboat with the odd water vole or coot stopping by to say hello. Canals in the Netherlands on a slightly different scale.

*00:09:35:07 - 00:09:45:01*

*James Shooter*

The Juliana canal just to the east of where I am stood, was recently widened and can now take ships 11 meters across and 190 meters long.

*00:09:45:03 - 00:10:23:14*

*Alphons Winden*

Those canals need water and especially when you have three canals and every canal needs about 10 to 15 meters cubic per second for the maintenance of the over the water level in the canal. That means that in summer, the Meuse itself gets only a very little bit of water. After we made it start to make those canals, we also brought on them later when shipping, when ships became more big, we just transformed those canals and yeah, that's, that's it's good for the river because it doesn't have, because shipping is often the main reason that rivers can't go their own way.

*00:10:23:17 - 00:10:45:20*

*James Shooter*

To restore this river to its former glory. You need space. The 60 kilometre stretch would need to reclaim its floodplains if water is going to lead the way once more. Trouble is in a bid to compete in the global market, agriculture had expanded right up to the water's edge. So these ambitious plans called for bold decisions.

*00:10:45:22 - 00:11:09:05*

*Alphons Winden*

And then to restore nature everywhere in the Netherlands, the government, they gave us a plan. We should restore nature. And they said, okay, we will restore in the next 25 or 30 years, we will take out, we will buy agricultural land, about 200,000 hectares. So that's almost 500,000 acres. We will buy them from agriculture and transform it into nature.

*00:11:09:07 - 00:11:35:15*

*Alphons Winden*

And they were of course that was not an easy discussion, but the agriculture, they said, okay, the best place for us to do that is along the rivers because the lands over there are not so, so good for us because it's flooded sometimes. There's also pollutants in the in the soil, but we divided the area. Okay. The agriculture in one part and more natural parts next to that.

*00:11:35:17 - 00:12:04:13*

*James Shooter*

As farms began to compete on international markets, only the large survived, cranking up production, decreasing costs and leaving smaller operations out on a limb. 30 years ago, when Alphons first started his job, there were 300,000 farms in the Netherlands.

Today, there are just 50,000 left standing. In a newly competitive world, selling land to the government at market rate was suddenly quite a nice proposition.

*00:12:04:15 - 00:12:34:01*

*Alphons Winden*

The area is quite long. It's not a wide area. It's because of the banks of the river. So the river itself is you still 50, 60 meters broad. And then you have the banks and of course sometimes some extra agricultural land is bought so now it's a stretch. And also on the Belgian side they made nature. So maybe we in my, our hope is that it will be, you know, at the end maybe one or one and a half kilometres, maybe two kilometres wide, a natural area along the river with the river itself in the middle.

*00:12:34:03 - 00:13:08:07*

*James Shooter*

A corridor of fully functioning wild river habitat, a kilometre or two wide, would be a huge bonus for nature in a country with such an agricultural landscape. I leave Alphons with the 2000 year old trees and decide to walk the mile north along the river to my next meeting point with Francois. This section of river was one of the first to be restored to the water fans out across several channels with intricate islands stacked in the middle. A kingfisher flashes electric blue as it pipes across the bank and cormorants are drying their outstretched wings in the morning sun.

*00:13:08:09 - 00:13:32:14*

*James Shooter*

I decide to take a shortcut through a copse of willow, shimmering silver in the breeze. Unfortunately, this is a James shooter shortcut and I get momentarily lost and tangled in a jungle of nettles. Ow. Ow. Eventually I reach the car park where I'm to meet Francois. He's the project leader for the construction companies so I can spot his 4x4 caked in dust a mile off.

*00:13:32:16 - 00:13:38:01*

*James Shooter*

I'm intrigued to hear how river restoration has become the unlikely partner of gravel extraction.

*00:13:38:03 - 00:14:01:04*

*Francois Verhoeven*

There's a little bit of history in it. Only in Limburg, in this part of Holland, in this province, there was a gravel extraction, and we used to do the gravel extraction in the in the middle of Limburg, and there was no nature development around it. It was only extraction. And then when we finished, we left, left, left a large lake.

*00:14:01:06 - 00:14:43:09*

*Francois Verhoeven*

So a lot of gravel companies bought the land on this riverside. And then the plans were made a lot of criticism was there for leaving only lakes. So the government and environmental organizations, they wanted to have more nature development around the

gravel extraction pits, gravel extraction. So then there came a plan. It was from the beginning of the nineties to make green for gravel so there would be gravel extraction around this area and nearby the river Meuse, and there would be also some nature of development.

*00:14:43:11 - 00:14:57:19*

*Francois Verhoeven*

So then Bureau Strooming. You met Alphons Winden. He was one of the founders, formed the organization and they made a plan for the government and this was for, how do you call it the future of Gravel River.

*00:14:58:00 - 00:15:22:19*

*James Shooter*

So local people were behind the positive change here, and the government listened and the gravel company started to work with the communities to develop a more sympathetic plan that would leave their sites in better standing than when they found them. After the severe floods of 1993, the disaster kickstarted better flood protection into the restoration process too. This river stretch would be constrained no more.

*00:15:22:21 - 00:15:57:01*

*Francois Verhoeven*

The local residents, and they were very sceptic about this project because the project has to be paid with gravel. And they expected a lot, a lot of rumours of noise. The project was executed in a very long period from 2005 till 2027. So the people in the rest of the Netherlands, all high water protection is paid by tax money.

*00:15:57:03 - 00:16:14:24*

*Francois Verhoeven*

And this project had to be paid by the money we make by selling the sand and gravel. So to the citizens was very important to get to get their support. The momentum we gained after the floodings in 93/95. If it weren't for the floodings there, I think this project never would have happened.

*00:16:15:01 - 00:16:43:18*

*James Shooter*

The pilot project designed by Alphons and his team in 1999, back on the stretch at Wood Henge, paved the way for showing the government and local residents what could be achieved. In essence, the landscape is transformed from a constrained river with embankments and intensive agriculture, into a construction site with extraction and restoration efforts being carried out simultaneously, followed closely by nature, finally reclaiming the newly vacated land.

*00:16:43:20 - 00:17:06:15*

*James Shooter*

The restoration works were shaped by previous depictions of the river's path in old maps before the embankments were brought in. Since then, villages have been built and a huge canal runs parallel. So it's not surprising that the new old course has been



reimagined somewhat to bounce between these modern day barriers when considering all the human infrastructure surrounding it.

*00:17:06:17 - 00:17:12:07*

*James Shooter*

The reshaping of this landscape has been and continues to be truly pioneering.

*00:17:12:09 - 00:17:41:07*

*Francois Verhoeven*

The Dutch province with gravel companies, some contractors, they all have to work together. We have to get the funds because we first need money to start this project because everything has to pay with the selling of sand and gravel. So we had to build some processing harbours where our processing plants are floating processing plants we can place.

*00:17:41:09 - 00:18:07:00*

*Francois Verhoeven*

We have to build harbours, we have to remove roads, build bridges, we have to do anything like here. The bridge has to be here before we can open the side channel. So we has to to gather a lot of money before we get started with the project. And this is a private company who is executing this project. The government is not the client, but it's only a partner.

*00:18:07:02 - 00:18:11:14*

*Francois Verhoeven*

We do it for our own risk. So it takes a lot of effort.

*00:18:11:16 - 00:18:33:19*

*James Shooter*

Looking across to the Belgian side of the river on the opposite bank, the water has carved into the land and you get a perfect cross-section of the substrate. The top of the eroded bank is green with vegetation. Underneath that is a metre or two of topsoil, and beneath that four or five meters of gravel down to the low summer water level and probably another four or five under that.

*00:18:33:21 - 00:19:02:13*

*James Shooter*

As an interesting side note, the Meuse formed the border when Belgium separated from the Netherlands in 1843. Since then, sections had been straightened, so the original meandering borderline now cut off little parcels of land on opposite sides of the river. These inaccessible fragments of nations became lawless. In 2012, a passerby discovered a headless body on one of these banks and alerted the Dutch authorities only to be told it was actually Belgium's problem.

*00:19:02:15 - 00:19:24:10*

*James Shooter*

The Belgian detectives had to get across the river by boat in order to investigate. It was a jurisdictional nightmare. So the countries agreed to a small land swap that would switch the border line to the Meuse's new channel. As the river begins to reshape once more, you can imagine more territorial headaches are incoming. Anyway, back to business.

*00:19:24:12 - 00:19:48:21*

*Francois Verhoeven*

On the river site, you can see there is only a top layer about two or three meters, depending on what area you look. And there is some gravel, a package of gravel about, I think here in this area, about seven or eight meters thick. So on the riverside you saw also in the location Meers where you walked. And you could also see the sea.

*00:19:48:21 - 00:20:14:06*

*Francois Verhoeven*

Here we remove about approximately two or three meters of the top layer, the whole top layer, and then only the gravel till the water level. So as you can see it now, it's on the river as itself. It's not deepened. And that made it no deeper. We didn't excavate gravel in the river, but only in the widening of the riverbed.

*00:20:14:08 - 00:20:43:07*

*Francois Verhoeven*

And from there the water level, from the Meuse at normal discharge, about 30 or 40 cubic meters per second. Then there was a very deeply excavated the gravel and ended on a very shallow slope at the top of the two level. So here on the river side, there's a lot of gravel left for the river to play with.

*00:20:43:09 - 00:20:59:08*

*Francois Verhoeven*

And then we have in the project about eight deep gravel pits because we have to pay for the project, we must excavate about to, to pay for the project. I think about 54, 55 million tons of gravel.

*00:20:59:10 - 00:21:42:06*

*James Shooter*

The physical alterations to the watercourse here are river widening and floodplain lowering. In essence, this makes more space for water and allows river dynamics to play out naturally once more. Nature is able to take control of the floodplain in the place of productive farmland and natural processes now better protect communities from flooding. Artificial dikes and embankments may work for a while, but they usually just shift the issue somewhere further downstream, not to mention that there will now be more water spilling out after rushing through the protected section. Equally under extreme circumstances when water levels are so high, they breach the V-shape of embankments, the water actually becomes trapped on the floodplain side because, unsurprisingly, the flood

*00:21:42:06 - 00:21:54:10*

*James Shooter*

protection works both ways. These defences disallow very high floodwaters from seeping back into the river channel, which means they can actually make a situation worse as the water then hangs around for longer.

*00:21:54:12 - 00:22:20:07*

*Francois Verhoeven*

Widening the river beds and lowering the floodplains. There's a lot more river of room for the river, so the water levels drop here in this area. About by the sudden we built a side channel. Now we are building and it will just reduce the water levels by 40 centimeters from this area. And we also have some areas more near Maastricht.

*00:22:20:09 - 00:22:34:20*

*Francois Verhoeven*

They have a lot of the water, a lot of floodings in the 93, 95 by more than one meter level reduction with high water levels. That's a lot. Yes. So people don't complain here anymore. So don't they have to leave.

*00:22:34:23 - 00:22:55:11*

*James Shooter*

In some ways, the gravel extraction acts like a big flood event. It rips out what was there and leaves a section of land ready to be taken over by Pioneer Species. There's no planting here, but the exposed substrate quickly embraces greening up, encouraged into a diverse mosaic of vegetation by a team of grazers and browsers.

*00:22:55:13 - 00:23:23:11*

*Francois Verhoeven*

The cost of the whole project is approximately €700 million. So by we have to pay all the costs for the project. The taxpayer doesn't pay anything. So we sell 64 million tonnes of gravel and sand. So you can't you can count out it's about 11 or €12 per tonne. We have to sell it to pay for the whole project.

*00:23:23:13 - 00:23:37:03*

*Francois Verhoeven*

So the nature develops here by selling sand and gravel and that's only the that's the only way we can execute this project. By for no money paid by the taxpayers.

*00:23:37:05 - 00:24:04:08*

*James Shooter*

Flood alleviation and nature restoration, all the princely sum of €0. Locals were sceptic at first, but when their homes remain dry, even after the unexpected floods of summer 2021, the ultimate test was overcome. Just. As the work continues, hopefully that will further increase capacity in the Meuse, and it will need to. The 2021 summer extreme of almost three and a half thousand cubic meters

*00:24:04:08 - 00:24:28:18*

*James Shooter*

a second pales in comparison to the climate change projections of over 4000 cubic meters a second. Francois takes me to meet Gaby, an ecologist for the Dutch NGO Natuurmonumenten. We meet for lunch in a brewery and enjoy some mushroom croquettes. And it would have been rude not to sample some of that beer too, only one, though, because Gaby's the one taking me kayaking and snorkelling down the river.

*00:24:28:20 - 00:24:47:20*

*James Shooter*

She casually mentions that I should leave my valuables behind because the last time she took a photographer, the kayak flipped and her camera drowned. Hmm. Maybe I will have that second beer. A bit of Dutch courage needed perhaps. Oh, exciting. Thank you for suggesting this.

*00:24:47:22 - 00:24:53:05*

*Gaby Bollen*

Yeah, sure. It's the best way to explore the river.

*00:24:53:07 - 00:25:09:01*

*James Shooter*

I always. I mean, I don't do it often, but every time I'll go in a canoe or a kayak or just such a nice way to explore. Wildlife doesn't really. Yeah, you know. Sure. Yeah. Bother with you Like you're quiet your. You feel like part of nature.

*00:25:09:06 - 00:25:09:11*

*Gaby Bollen*

Yeah.

*00:25:09:11 - 00:25:28:18*

*James Shooter*

It's nice. Gaby tells me we're heading off into the wind to start with, so we need some strength to get round the corner, thankfully, and with the muscles from Brussels. And she helps us power down the course. I mean, actually, she's from Neerpelt, but that doesn't have the same ring to it.

*00:25:28:20 - 00:25:31:17*

*Gaby Bollen*

And of course, we have the beaver likes Willows do.

*00:25:31:17 - 00:25:53:20*

*James Shooter*

Yeah, I saw a few because I walked along here this morning. I saw a few burrows coming up into the ground, so I assumed that was the beaver. Yeah, going towards the stand of trees that. Oh, herons. Yeah, yeah. Three, four, five. Lots of cormorants.

*00:25:53:22 - 00:25:59:07*

*Gaby Bollen*

That's also a good part of the...

00:25:59:09 - 00:26:01:03

*James Shooter*

Oh another kingfisher!!

00:26:01:04 - 00:26:02:11

*Gaby Bollen*

Yeah.

00:26:02:13 - 00:26:03:21

*James Shooter*

Flash of blue going down.

00:26:03:24 - 00:26:16:06

*Gaby Bollen*

So fast! Lets try to paddle to the islands. Okay. I'll see if we can go scuba diving through the dead trees.

00:26:16:08 - 00:26:30:24

*Unknown*

Okay, we'll go over there.

00:26:31:04 - 00:26:50:24

*Gaby Bollen*

I think that's the best place you see to the. To the branches. Yeah. Yeah. It's just one morning and because of the current, you can get entangled in the trees. It's not very dangerous, but you have to be aware of it. It's not a pool or something. It's still water. Yeah. This current on it. Okay. And also with the swimming.

00:26:50:24 - 00:26:52:18

*Gaby Bollen*

You are a good swimmer? Yeah. Yeah. Okay.

00:26:52:20 - 00:26:53:15

*Francois Verhoeven*

So normally.

00:26:53:20 - 00:26:59:21

*Gaby Bollen*

Yeah, because it's quite a distance. It's deceiving, but I think you'll be fine.

00:27:00:02 - 00:27:01:20

*James Shooter*

You'll be fine. I think I'll be alright with that. Yeah.

00:27:01:20 - 00:27:06:24

*Gaby Bollen*

Yeah. The current is not very strong here. It's more over here right now. Okay. But there is currents.

*00:27:07:04 - 00:27:16:03*

*James Shooter*

Yes, that sounds good.

*00:27:16:05 - 00:27:50:07*

*Gaby Bollen*

Little bit chilly, but it's fine over here. You see some river plants underneath the tree trunks. It's a low part of the river where some dead trees are washed on and in early spring you can see shellfish on the trunks. Behind the trunks, you get low current places where a micro fauna.

*00:27:50:07 - 00:28:02:12*

*Gaby Bollen*

Yeah. Like dragonfly larvae and everything. They dig themselves in the sand and they predate on the food. Yeah.

*00:28:02:14 - 00:28:33:07*

*James Shooter*

Very cool. We swim back to the island, breathing hard against the current through the snorkel. Every time I look up to see where the boat is, Gaby's an extra ten meters ahead. I double down to try and catch up. My mask, fogs up, I swallow some river water. And when I resurface, Gaby is already standing, waiting for me. Perhaps she felt sorry for me, but she kindly tells me that she's been training for a triathlon, and so I feel slightly less inferior that I couldn't keep up. River swimming offers a truly special connection to this fantastic habitat.

*00:28:33:09 - 00:28:39:15*

*James Shooter*

I just need to work on my front crawl. Rivers a more than just an opportunity for exercise, though.

*00:28:39:17 - 00:29:18:00*

*Gaby Bollen*

They're an essential part of the ecosystem. It's an ecosystem on itself. It provides water, food, shelter for a lot of animals. And the river Meuse is one of the only rivers in the Netherlands that have a north south orientation. And therefore it's a very important migration route for cranes, for example, a lot of processes are involving in rivers, um, because of the currents you get a real feels species, they need a lot of oxygen and then you have a lot of currents and water that brings oxygen into the currents.

*00:29:18:02 - 00:29:24:24*

*Gaby Bollen*

So this is a river with a lot of currents and it brings a lot of oxygen into the water.

00:29:25:03 - 00:29:45:19

*James Shooter*

The embankments that were built to make them use better for shipping not only affected the morphology of the river itself, but its ecology, too. By fortifying its banks, the river hasn't been allowed to rip through the vegetation and wipe the slate clean. Where trees and woods may have succumbed to heavy flows. They've stood in safety for many years.

00:29:45:21 - 00:29:59:15

*James Shooter*

That may sound like a good thing, but it starves the ecosystem of its dynamic power and holds habitats in the status quo. With more processes at play, the diversity of species is starting to improve once more.

00:29:59:17 - 00:30:24:22

*Gaby Bollen*

Some species have come back, uh, like Barbel and Chubb are coming more and more. We find them more and more in the water because of the cleaner water and because of the dynamic in the in the stream, more oxygen is in the water, so these species are dependent on more oxygen in the water. We see them more often.

00:30:24:22 - 00:30:58:20

*Gaby Bollen*

Common nase, we also see sea trout and even Atlantic salmon are seen in the river, but that's also due to reintroductions. But they manage and they can survive. River lamprey, sea lamprey are back. On the Belgian side we have tree frogs back in the in the ecosystem. On the Dutch side, we have another Natterjack toads coming back from the lands, upper lands into the valley.

00:30:58:22 - 00:31:32:23

*Gaby Bollen*

And not only in summer, the river is a very important ecosystem, but also in the winter, because of the fresh shellfish we get in winter goosander, smew, Common Goldeneye, and we also see a lot of more species of longhorned beetles and longhorn beetles are probably, we think it's not been proven yet, but we think that the Longhorn beetles are being transported by the wood that has been transported by high water. It's been eroded on the banks

00:31:32:23 - 00:32:07:15

*Gaby Bollen*

Banks as trees fall in and the wood, the longhorned beetle larvae that are in the woods are being transported on new places and new species are coming up on the in the in the river Meuse. A new species are also the badger. The wild boar has been seen. And we even think the otter is also has been seen in the in the river Meuse. To speak of the settlement is too early and that there has to be a little bit more time before the otter is resident.

00:32:07:17 - 00:32:14:05

*Gaby Bollen*

But there are some signs that he is is coming to check out the Meuse.

00:32:14:07 - 00:32:34:06

*James Shooter*

The fascinating thing about this restoration initiative is that you can see multiple stages of the process as you kayak along the course from the construction site with Francois, to the recently restored with Alphons and now further north with Gaby, where we're entering a more mature section with riparian woodland succession happening before our eyes.

00:32:34:08 - 00:33:03:14

*Gaby Bollen*

The willows are now about 40 years old, and that's an aged willow, Grandpa willow. So now it's quite normal that they collapse and within the willow tree, you see all the species standing ready to take over. Alder, walnut? Yeah. Walnut. Okay. It's also a species from here are ready to take over. And next to the young willows make a new, new kind of forest.

00:33:03:14 - 00:33:05:14

*James Shooter*

Yeah. It's interesting dynamic, isn't it?

00:33:05:14 - 00:33:18:00

*Gaby Bollen*

Yeah. And the old trees are that trees are also very good for woodpeckers. They saw a little hole from the last breeding season. And we have a lot of woodpeckers now over here.

00:33:18:02 - 00:33:40:19

*James Shooter*

Fantastic. It's not just old age that is felling trees here. Beavers are hard at work, too. Marsh frogs are singing out from one of their wetlands. And interestingly, butterflies are coming to feed off the weeping sap of a freshly chewed willow trunk. I wouldn't have guessed that beavers benefit butterflies, but that's just one of the wonderfully surprising connections of interspecies relationships.

00:33:40:21 - 00:34:06:24

*Gaby Bollen*

When a tree enters the water, for example, when a bank is eroded and the tree falls into the water, it's been taken along the currents to a certain place and there it stays. The tree itself, for example, is like a cage to protect young fish. We have a lot of cormorants in the area and cormorants like eating fish and the young fish can go into the tree with, uh, with branches and everything.

00:34:06:24 - 00:34:23:02



*Gaby Bollen*

Like it's got some kind of cage to get protection for the cormorants. And on top, when the tree sticks out a cormorants or a kingfisher, for example, as a viewing point to fish and have a view on the habitats. Yeah.

*00:34:23:03 - 00:34:46:24*

*James Shooter*

I've seen more kingfishers than a day here on the Meuse than I would in a year back home. So it feels like it would be rude not to highlight the brilliance of this little bird. Kingfishers are inextricably linked with rivers and they are gratifying indicator of healthy freshwater habitat. They need to eat around 60% of their body weight daily, so they thrive when fish populations are doing well and the waters are clear.

*00:34:47:01 - 00:35:15:09*

*James Shooter*

So far, so good for the Meuse. They hunt from perches above the water, plunging into the river with open eyes protected by a transparent third eyelid. Yes, kingfishers come with their own, built in goggles. The majority of food items are fish, but they also go off the dragonfly larvae, water beetles, freshwater crustaceans and even amphibians. They breed in burrows, which they excavate into eroded riverbanks.

*00:35:15:11 - 00:35:38:05*

*James Shooter*

I've actually come across a disused nest site in Scotland while swimming in a river back home. There were two perfect little kingfisher foot sized grooves at either side of the tunnel, and I could just picture them waddling relentlessly back and forth to feed hungry chicks. In short, kingfishers are awesome and they go hand-in-hand with dynamic rivers. All hail the King.

*00:35:38:07 - 00:35:51:17*

*James Shooter*

So the Meuse is showing good signs of returning health. There's flashes of blues zipping back and forth, giving their royal seal of approval. But river ecosystems rely on the whole catchment being in good nick. And that's difficult when urban encroachment is on the march.

*00:35:51:20 - 00:36:21:00*

*Gaby Bollen*

The corridors to the higher the nature reserves, higher up the flanks is not a not guaranteed for the future. So we as Nature Conservation organization are now lobbying within province and within governance to uh, to keep those corridors and to restore it for nature so migration can take place also on the higher flanks of the river.

*00:36:21:02 - 00:36:44:06*

*James Shooter*

My trip down the Meuse has been a fascinating experience, if a little chilly at times. If you've never taken a trip down a river by boat, kayak, canoe or paddleboard, I urge you

to, you'll find a greater connection than looking down on it from the banks. Just be sure to leave your valuables behind. It can be hard to balance the needs of extraction with the needs of nature.

*00:36:44:08 - 00:37:08:07*

*James Shooter*

The two don't really seem to fit, but here the parties have found a solution that works for all. Now I'm certainly not suggesting we can start extracting from already wild places with nature in mind. Please don't do that. But here in The Netherlands, in a historically modified landscape to begin with, gravel extraction brought the finance and manpower to get things done.

*00:37:08:09 - 00:37:30:02*

*James Shooter*

Yes, it would be great if governments were willing and able to pay for all the restoration work required. But in a world where we need to make so many changes to what humans have done, private finance will be key to unlocking some of that potential. It's important to see here that whilst gravel extraction was a driver, it was people power that shaped the way it was done.

*i*

Local communities made sure their voices were heard and it changed an entire system for the better. How often do we hear positive news stories like that? So use your voice in unison with others and let's make change together. We don't have to accept the way things are and we don't have to go with the flow. Unless you're swimming in a river, of course.

*00:37:53:11 - 00:38:01:18*

*James Shooter*

And then it's always advised.

*00:38:01:20 - 00:38:25:21*

*James Shooter*

Thanks for tuning in to episode eight of The Rewild Podcast. Hopefully an insightful discussion on how we might find compromise for the greater good. Whilst mining companies probably don't first spring to mind when thinking of likely collaborators, I think the Meuse Valley River Park has shown positive results can be achieved when different stakeholders come together and more importantly listen to one another.

*00:38:25:23 - 00:38:53:08*

*James Shooter*

Thanks as always, to the brilliant contributors and especially to Gaby for not capsizing us on the kayak, even if it did feel like it was going that way a couple of times. Andrew O'Donnell of Beluga Lagoon provided the tunes and Gemma Shooter created the art. The Meuse Valley River Park is a member of the European Rewilding Network, a collection of groundbreaking initiatives across the continent brought together by Rewilding Europe as part of a broader rewilding movement.

***The Rewild Podcast***  
***By James Shooter***  
***Episode 8***  
***Meuse Valley***



*00:38:53:10 - 00:39:15:11*

*James Shooter*

This is an organization making rewilding happen through positive action on the ground. Do join us next month for our first visit to a Danish site. I'm also thrilled to say we've now surpassed 50,000 downloads of the podcast. If you get a moment, please do leave a rating or review. It really helps us reach more people. Here's to the next 50,000. Catch you next time.