

## **Transcript**

*00:00:03:22 - 00:00:21:23*

*James Shooter*

Now, I apologise in advance if these sound effects make you need a bathroom break before we even begin. Hopefully you're not at the start of a run or a long drive. You're not allowed to leave me a bad review, though, if you are. This is the risk you took tuning in to the immersive experience of The Rewild Podcast.

*00:00:22:00 - 00:00:46:12*

*James Shooter*

Anyway, the reason you're now crossing your legs is we find ourselves in the watery world of the river Verde's white clawed crayfish breeding centre nestled away amongst the mountains of Italy. This picturesque setting is home to hundreds of these tiny freshwater crustaceans. These babies may not be classic cute, but with their big black eyes and miniature pincers, they are pretty adorable in their own right.

*00:00:46:14 - 00:01:08:09*

*James Shooter*

Cuteness aside, it's their function in the ecosystem that the team here are interested in boosting. While the surrounding hills might be more famed for the conservation of bears, it's important not to forget the little guys. In the intricately complex web of life, every strand has a role to play. Take one of them out and the web becomes weaker.

*00:01:08:11 - 00:01:43:15*

*James Shooter*

Crayfish, bears and delightfully even cheese has a role to play in this rewilding landscape. And I promise you now, I won't be leaving until I explore every tasty morsel to figure out why - the cheese that is not the crayfish in the bears. That is my commitment to you. I'm James Shooter, host of The Rewild Podcast, and this is Central Apennines.

*00:01:43:17 - 00:02:09:00*

*James Shooter*

Italy, famed for its food, its football, its history, architecture and art. Perhaps it should be just as famous for its nature. This is, after all, one of Europe's most species-rich nations. And rewilding here is looking to cement its place at the top. As we all know, Italy takes the form of a giant boot on a map. So where I am now in the Central Apennines must be the laces.

*00:02:09:02 - 00:02:34:05*

*James Shooter*

Wait. Do fancy Italian boots have laces? Maybe the shin. Anyway, what I'm trying to say is I'm about halfway down the country. I've travelled to the small village of Pettorano sul Gizio, home to three members of the Rewilding Apennines team. It looks like a beautiful place to live. Terracotta roofed townhouses, tiered upwards against imposing wooded hillsides. There is certainly a rustic charm.

00:02:34:07 - 00:02:55:15

*James Shooter*

Mario, team leader for the organization, is picking me up from the base of the village where I spent the night in our camper. We wind our way up on snaking mountain roads to a high plateau 1300 meters above sea level. Juniper, beech, oak and pine stretch across the higher hills surrounding us. We walk a little way on snow covered tracks to take in the fantastic views of the valley beneath us.

00:02:55:20 - 00:03:26:14

*Mario Cipollone*

Central Apennines are the highest part of the Apennine Mountains in Italy. They are just in the middle of the Italian peninsula. It's a wildlife and biodiversity hotspot just a few kilometers from Rome. Lets say that from Rome, where you can drive an hour by car and you already get the first mountains of the Central Apennines. So we have a uniqueness of species.

00:03:26:16 - 00:03:37:12

*Mario Cipollone*

And this position in the middle of the Mediterranean Sea makes this place a real valuable biodiversity hotspot.

00:03:37:14 - 00:03:57:15

*James Shooter*

The Apennines and Italy in general have a large number of endemics. They have iconic subspecies like Marsican Brown Bear, which will come back on to in more detail, the Italian Wolf and the Apennine chamois, but also full endemics on the Apennine yellow bellied toad, the Italian sparrow, Apennine shrew and brook chub.

00:03:57:16 - 00:04:38:07

*Mario Cipollone*

The Central Apennines have experienced a lot of human interferences or human works in over the landscape. There were a very severe logging and there was this widespread sheep farming called the trans humans, which actually modified the landscape. So many trees were cut. There was a prevalence of meadows, grasslands. And in fact, even here, if you look at these mountains around, some of them are bare of trees

00:04:38:09 - 00:04:54:00

*Mario Cipollone*

because of this tradition of sheep farming and the goal is, as rewilders, we want to help nature to restore itself. We know that nature can do the job much better than us.

00:04:54:04 - 00:05:17:23

*James Shooter*

On a European level, Italy has done pretty well in preserving its nature, helped along by huge mountain chains that act as ecological corridors. The Apennines running down the centre and the Alps, connecting to other countries in the north, east and north west.

Whilst these undulating regions have escaped the most intense human developments they are still heavily utilized and fall short of the pristine wilderness they once would have been.

*00:05:18:00 - 00:05:41:19*

*Mario Cipollone*

Some people are still stuck to this idea of development that dates back to post-war period, and they think that mountains must be just turned into ski resorts to be profitable for the local communities. We believe actually that mountains and nature is the main asset of this country.

*00:05:41:21 - 00:05:59:08*

*James Shooter*

And so if you if you if you get this right, the bigger, bigger vision would be for the Apennines to connect through to the Alps and then onto Europe as well. So then that's one huge rewilding area for nature. And, and importantly, I guess as you say, a corridor of connectivity.

*00:05:59:10 - 00:06:16:04*

*Mario Cipollone*

And this work, I think can be really the work of NGOs, because we as NGOs are complementing the work of protected areas, outside protected areas. So we want to make the whole country a wilder place.

*00:06:16:06 - 00:06:43:10*

*James Shooter*

With so much nature remaining in the region, a large part of the rewilding team's work here is around promoting coexistence. Perhaps the term coexistence has negative connotations, though. Maybe we need to work towards co-prosperity rather than settling merely for existence. Sure, there can be some challenges with bears and wolves on your doorstep, yet there's no reason these can't be overcome with some relatively simple solutions, so that all species can then flourish, including humans.

*00:06:43:12 - 00:06:52:23*

*James Shooter*

Ongoing monitoring of both habitats and species also keeps the team busy. You can't protect or restore what you don't fully understand.

*00:06:52:23 - 00:07:26:04*

*Mario Cipollone*

Through tagging Griffon Vultures, we want to know the movements of these birds, and we want to address some threats. Identifying them, of course, through the GPS points we can follow the vultures, we can understand which dead animals they are feeding on. And in some cases, we can find the poisoned animals and we can prevent that poison, poisonings become more serious.

*00:07:26:04 - 00:07:56:15*

*Mario Cipollone*

Because sometimes we found the dead vultures. And we can remove the source of the poison before other vultures or other scavenging animals die. The population of the Griffon Vulture, because at the moment we have only Griffon vultures thanks to reintroductions in 1990s by the Forestry Corp at the time, the population is about 350, 380. This is an estimate.

*00:07:56:16 - 00:08:08:10*

*Mario Cipollone*

It's, I'd say, quite a good population, but not enough, especially if we don't reduce mortality due to interactions with humans, lets say.

*00:08:08:10 - 00:08:35:14*

*James Shooter*

The vultures aren't necessarily being targeted themselves. As scavengers their deaths are an unfortunate and predictable result of poison being used for other species. It once was legal in Italy to use poison for controlling animals, and in actual fact, the practice was encouraged by the state as an efficient control method for certain species. The laws changed in the 1970s, but it still lingers on illegally in some areas, usually in retaliation against wolves killing livestock.

*00:08:35:16 - 00:09:02:22*

*Mario Cipollone*

So the main stakeholders, in my opinion, are the citizens, all of them. But of course we have to work a lot with the livestock breeders, with farmers, with hunters, with the truffle pickers and getting back to poisoning they can also poison the dogs in general, but wildlife, if foxes or other carnivores are eating the baits that they leave on purpose to kill their competitors dogs.

*00:09:02:24 - 00:09:32:13*

*Mario Cipollone*

It's every day job speaking to everybody trying to engage all of them in our work because really I believe that killing animals or polluting rivers, all of these environmental crimes are against the whole community, against humanity in general, and we need everybody to be conscious of this.

*00:09:32:15 - 00:09:55:22*

*James Shooter*

Truffle pickers really weren't on my radar as a stakeholder group needing to be engaged against indirectly poisoning wildlife, yet it's not surprising when there's money to be made, there's usually a dishonourable few who are willing to overstep the mark and cross over into illegal activities. And there's plenty of money in truffles. You can sell these prized fungi for hundreds to thousands of euros per kilo.

*00:09:55:24 - 00:10:21:22*

*James Shooter*

They're worth so much because they're highly seasonal, notoriously difficult to farm, and need specific habitats to thrive. A truffle hunter, or cavatore, utilize the powerful noses of dogs to find their treasure. A well-trained dog is worth its weight in gold, Mario tells me of a case recently at a nearby gas station where bait was spread around and 30 dogs were killed, as if that wasn't bad enough, baits can, of course, be picked up by the vultures,

*00:10:21:22 - 00:10:36:20*

*James Shooter*

Bears, or find their way into the soils and watercourses. Appealing to hearts and minds is a constant challenge. But by increasing our knowledge, the behavioural patterns of the past should change with the times. And that's true for most aspects of rewilding work.

*00:10:37:00 - 00:11:16:15*

*Mario Cipollone*

We have mapped many barriers in the rivers in our landscape, in the Central Apennines, and the numbers we collected of these dams are very, very large. So we are concerned about this river fragmentation, which of course makes the life of some fish very hard. And our work is aimed to reconnect to some river stretches, it's not easy because of course we have a tradition, let's say in the river fragmentation.

*00:11:16:15 - 00:11:23:14*

*Mario Cipollone*

So many engineers are more trained to build dams than destroy them.

*00:11:23:15 - 00:11:24:16*

*James Shooter*

You can imagine that.

*00:11:24:20 - 00:11:41:19*

*Mario Cipollone*

And so for us, it's a real challenge even to change this culture and make people aware about the importance of having free flowing rivers. We are building the expertise to get to the point we can demolish those weirs.

*00:11:41:21 - 00:12:09:08*

*James Shooter*

When you think of wildlife on the river, what do you think of? Salmon, trout, herons and kingfishers, perhaps even otters and beavers? Have you ever thought about crayfish? Well, thankfully, the Rewilding Apennines team do. And when I heard they have a captive breeding centre for these native crustaceans, I had to request a visit to see how it all worked and why they were deemed important enough to dedicate substantial resources to.

*00:12:09:08 - 00:12:32:11*

*James Shooter*

Mario's agreed to take me to meet Giuseppe. He's been the man in charge of the white clawed crayfish breeding facility since 2008. He feeds them and breeds them, whilst also organizing education activities involving schools and local communities. Happily, for me, he also runs a local hotel, which meant that before we ventured out, we sat down to an enjoyable lunch of homemade ragu with a local beer to boot.

*00:12:32:13 - 00:12:36:14*

*James Shooter*

I am truly on board with the visiting Italian rewilding initiatives.

*00:12:40:18 - 00:12:53:17*

*James Shooter*

After warming ourselves up by the fire, we head back out into the cold Apennine air and wind our way up to the breeding facility, which sits on the edge of a pristine looking river, cascading through ancient beech woods. This is essentially perfect habitat.

*00:12:53:20 - 00:13:10:15*

*Mario Cipollone*

Yeah, it's good because as you see, the water doesn't flow very quickly. It creates this kind of pools where they can stay. And I mean, there is no, you know, a strong stream north of them.

*00:13:10:17 - 00:13:20:05*

*James Shooter*

We head through the padlocked gates and in front of us is the cabin which houses the tanks for the juveniles. There's an outdoor pond where the adults are taking shelter under some makeshift caves.

*00:13:20:07 - 00:13:21:11*

*Mario Cipollone*

Speaks Italian.

*00:13:21:16 - 00:13:25:06*

*Giuseppe Di Renzo*

Speaks Italian.

*00:13:25:08 - 00:13:29:08*

*Mario Cipollone*

There is a claw just sticking out from the surface.

*00:13:29:13 - 00:13:30:20*

*James Shooter*

Ah yes, I can just see it.

*00:13:30:20 - 00:13:41:06*

*Mario Cipollone*

Yeah, they are in their hotel. Crayfish manor.

00:13:41:08 - 00:13:44:16

*Giuseppe Di Renzo*

Speaks Italian.

00:13:44:18 - 00:14:24:03

*Mario Cipollone*

Crayfish is a crustacean and is a keystone species of river ecosystems is also a bio indicator. Means that's when you have a crayfish, the water is very pure. At least there is no chemical pollution. And we are in the Cascata Verde regional nature reserve and the Verde river was once full of crayfish. There was a very abundant population, but because of the crayfish plague in 2013, this population has been almost wiped off, destroyed.

00:14:24:05 - 00:14:59:05

*Mario Cipollone*

So that crayfish is very important for the riverine river ecosystems because, as we said, is a bio indicator, but also is at the basis of the trophic cascade. But it also can be prey for birds, waterbirds, otters, trout, but can be also a predator. So it acts in many different roles and for this reason, we believe that its a keystone species.

00:14:59:07 - 00:15:21:04

*Mario Cipollone*

And thanks to this breeding centre that Giuseppe is managing with Rewilding Apennines, we are releasing young crayfish bred in the breeding centre back into the river, and we aim to restore their population of crayfish in the Verde River.

00:15:21:06 - 00:15:43:18

*James Shooter*

Although crayfish need very clean water to thrive and are extremely sensitive to chemical pollution, one of the main accelerators of the demise was actually crayfish plague. This disease is a water mold that infects some species of crayfish. It kills the native white clawed within just a few weeks. It was most likely brought to Europe by imported signal crayfish from North America.

00:15:43:20 - 00:16:11:17

*James Shooter*

They host the disease but are unaffected by it, meaning that once they get into a water system, they quickly replace the natives. Here on the river Verde, there aren't any invasive species, but the mold was probably brought in by poachers or people releasing trout into the river that use the same water where non-native crayfish were present. Thankfully, if the American signals aren't around, the spores of the mold leave the water source relatively quickly and you can then start restoring the native species with great success.

00:16:11:19 - 00:16:15:00

*Giuseppe Di Renzo*

Speaks Italian.

00:16:15:02 - 00:16:50:00

*Mario Cipollone*

So, in the centre there are some tubs for adult crayfish, and they are the tubs are actually for the adults are outside and the adults are mating breeding in the period between September and November. So now we have some females with eggs and they stay outside. While inside the building there are tubs with juvenile crayfish and in general the females are actually there.

00:16:50:06 - 00:17:22:07

*Mario Cipollone*

The eggs are hatching in June, around June, the larvae are staying around their mother for at least one month. Then the adults are going back to the external tubs while the juveniles are growing inside and ready for a release in the river or soon after this month they have spent with their mothers or later even the next spring, when they are one year old and their shell is stronger.

00:17:22:09 - 00:17:40:20

*James Shooter*

Every year around 4000 juveniles are produced in the facility and generally around half of those mature and become eligible for release after taking into account the natural mortality at the larval stage. They're put into pools in the neighbouring river when the temperatures are warmer, giving them the best chance of survival in the new wild home.

00:17:40:22 - 00:17:43:14

*Giuseppe Di Renzo*

Speaks Italian.

00:17:43:14 - 00:18:14:05

*Mario Cipollone*

So, we are quite happy with what we are achieving only with the Borello Breeding Centre. The thing is that we aim to release at least 1000 or 2000 more than probably we are achieving next year anyway, so within the timeframe that we were planning and of course if we had other three fully functional breeding centres, we would scale up the numbers of crayfish released.

00:18:14:07 - 00:18:43:04

*Mario Cipollone*

And of course the ambitious ambition is to have the same population as before, as before this plague. So if Giuseppe remembers that there were almost 100 crayfish in a single pool of the of the river, we want to get to the same result. But it seems that there is still quite a long way to do this result.

00:18:43:06 - 00:19:06:04

*James Shooter*

Using that single pool as a population indicator, the number of crayfish plummeted off a cliff edge from around 100 to 0. They all died from the plague. As of last year, they were



delighted to count 20 in there. Numbers a rebuilding. With many more juveniles waiting to head out the doors soon, the population of breeding adults in the wild will hopefully continue to rise.

*00:19:06:06 - 00:19:09:13*

*James Shooter*

Crayfish manor will be rebuilt in its natural home.

*00:19:09:15 - 00:19:11:23*

*Giuseppe Di Renzo*

Speaks Italian.

*00:19:12:00 - 00:19:55:08*

*Mario Cipollone*

What Giuseppe realized is that all the children, the young people coming and visits the breeding centre gets totally surprised and interested in the crayfish. And he can notice that then they are real, real ambassadors of this species. And of course, the final goal is that everybody is engaged with the conservation of the crayfish. And Giuseppe believes that the crayfish is the symbol, the iconic species of the area, and many people are getting aware of that.

*00:19:55:10 - 00:20:18:19*

*James Shooter*

First-hand experience is so important for building interest and growing love and support for wildlife and wild places. And let's be honest, it's a wee bit easier getting hands on with crayfish than it is with bears. That, my friends, is ill advised. However, the team don't shy away from the bigger challenge of bear conservation. No, no. They are committed to the big and the small.

*00:20:18:21 - 00:20:44:19*

*James Shooter*

I'm excited to learn about this iconic mammal and what's involved with saving a subspecies of Europe's largest terrestrial predator. We leave Giuseppe and the crayfish behind as we get back on the road to meet Angela Tavone. As we drive along the highway, every second sign is a warning about watching speed for crossing bears. Angela is a communications manager here and she's long volunteered for NGOs involved in bear conservation.

*00:20:44:21 - 00:20:48:08*

*James Shooter*

She's encyclopaedic on everything to do with these large mammals.

*00:20:48:10 - 00:21:22:12*

*Angela Tavone*

The Marsican Brown Bear is a subspecies of brown bear, which is unique in the Central Apennines of Italy is an endangered subspecies because just 60 or 70 are left. This population is unique because, according to a recent research, the Marsican Brown Bear

went away from the Brown bear in Europe just three or 4000 years ago. So they were isolated in the peninsula of Italy and centennial by centennials,

*00:21:22:14 - 00:21:37:02*

*Angela Tavone*

humans threatened this subspecies and they were just on the brink of extinction like 100 years ago. They are still endangered and they are protected since 1939.

*00:21:37:04 - 00:22:00:02*

*James Shooter*

The Marsican brown bear differs from other subspecies of European brown bear in a number of ways. They live more of a vegetarian existence than some of their cousins with around 80% of their diet focused on plant matter, berries, nuts and seeds. They also differ in the winter hibernation, with less of a single consecutive slumber and more of a series of very long naps. Eat, sleep, wake, repeat.

*00:22:00:07 - 00:22:29:11*

*Angela Tavone*

Another characteristic, which is very unique about the Marsican brown bear is its behaviour. Lets say, its not aggressive. Probably this behaviour evolved accordingly with the persecution of humans as well as the food resources that he found. He always found in the in the Apennines. In the past, humans were able to kill and to hunt on the most aggressive individuals.

*00:22:29:13 - 00:23:01:13*

*Angela Tavone*

So, during the generations, only the less aggressive ones reproduced. And so these characteristics was of course brought to a head in terms of genetics. And another explanation is that there is not such a big competition for the Marsican bear in terms of food resources. And so this brought the subspecies to do not have a very aggressive behaviour.

*00:23:01:15 - 00:23:24:19*

*James Shooter*

The hibernation that bears undertake is still somewhat of a mystery for animal biologists. The fact that such a large animal can go from eating thousands and thousands of calories every day to slowing down all its bodily functions and slip into a season long sleep is pretty incredible. Whilst other hibernated allow their body temperatures to drop, bears hardly lose any heat at all.

*00:23:24:21 - 00:23:37:12*

*James Shooter*

They somehow manage this despite their heart rate plummeting by 75%. They stop defecating and urinating. Heck, they don't even eat or drink. Females do all this whilst even having to nurse twins or triplets.

*00:23:37:16 - 00:24:11:17*

*Angela Tavone*

They hibernate from December to March or April. It really depends on how the winter season goes, but we are observing year after year that these periods is becoming shorter and shorter, probably because of the effect of climate change. We have always many warmer days during winter time and when the temperatures rise, they simply fail to wake up and go around not far away from then looking for food.

*00:24:11:19 - 00:24:50:02*

*Angela Tavone*

So it's a metabolism response and who knows if it effects on their health in the future. The first ecological role that comes to my mind is that the bear can spread the seeds of several fruit plants. For example, the bear eats a lot of fresh fruit. So while is its eating, it moves a lot in the landscape and through its excrement it can spread these seeds. In a way the bear can also shape

*00:24:50:02 - 00:24:51:13*

*Angela Tavone*

in a way the landscape.

*00:24:51:19 - 00:24:52:22*

*James Shooter*

Shapes his own environment.

*00:24:52:22 - 00:24:53:18*

*Angela Tavone*

Yes.

*00:24:53:20 - 00:24:55:09*

*James Shooter*

Yes. Grow its own food resource.

*00:24:55:09 - 00:24:56:11*

*Angela Tavone*

Exactly.

*00:24:56:13 - 00:25:23:07*

*James Shooter*

The answer to the ancient proverb does a bear sh\*t in the woods is absolutely yes. And it's a good job they do too. Whilst they may well be mostly vegetarian, they're opportunistic in their predation and scavenging and so help to keep food webs balanced and nutrients recycled. Their size and foraging behaviour, sometimes turning over rocks, digging out ants or clawing at rotten wood opens up a wave of mini opportunities for other species to take advantage of.

*00:25:23:13 - 00:25:50:18*

*Angela Tavone*

The female bears can reproduce every three or four years, but they start reproducing just when they are five or six years old. If you think that a bear can live until 20/25 years, you can count how many reproductive seasons they can have. So not very much. And every year we have five or six or seven female bears that can reproduce.

*00:25:50:20 - 00:25:53:10*

*Angela Tavone*

But it really depends on many factors.

*00:25:53:10 - 00:26:07:19*

*James Shooter*

I mean, it's quite shocking to hear, isn't it? Because if you think of the overall population of Marsican brown bears, you said it was 50 or 60, but then you narrow that down to the amount of breeding females is only five, six, seven. That's quite a scary number, actually.

*00:26:07:20 - 00:26:38:07*

*Angela Tavone*

Yes, it is. What we really want to see is that female bears can move away from this core area, which is the Abruzzo, Lazio and Molise National Park, where the population resided during the last centuries. And if the females can move away in other suitable areas, like other protected areas of the Central Apennines so they can start new families of bears.

*00:26:38:09 - 00:27:18:12*

*Angela Tavone*

So, this is the first input to the population growing in terms of numbers of births and to expand their home range. According to a study of the University of Rome, La Sapienza, the central Apennines is suitable for a bear population of 200 250 individuals. So this number can be a good achievement. Probably we can at that time, if either happens, can feel much more relieved in terms of bringing it back from the extinction, this iconic species.

*00:27:18:15 - 00:27:22:11*

*Angela Tavone*

But I think there is a need a lot of work to do.

*00:27:22:13 - 00:27:52:09*

*James Shooter*

Several studies have shown a strong relationship between a female's body condition in the autumn and their reproductive success. This would suggest the best way to ensure the longevity of the subspecies is to make sure their environment is in tip top condition. Well-nourished females have larger litter sizes can lactate for longer and produce higher quality milk. These bears run a biological process called embryonic diapause, meaning the fertilized eggs have delayed implantation until the mother is in good physiological condition.

*00:27:52:11 - 00:28:19:08*

*Angela Tavone*

And the cubs are very tiny, like three 500 grams. They completely depend on their mom and they bring mother milk in the in the den during the hibernation season, when they are five months, more or less, they can go outside the den and follow the mother to explore their new world and to understand where to eat and what to eat and what are the threats.

*00:28:19:10 - 00:28:41:11*

*James Shooter*

The main threats to the Marsican brown bear tend to surround human infrastructure. Roads, railways and settlements all have an effect. On average, a single bear a year is lost to road traffic collisions, which may not sound a lot, but when the population is sitting at the 50/60 mark, each loss is catastrophic. Hence all the warning signs and speed limits.

*00:28:41:13 - 00:29:05:24*

*James Shooter*

They're even trialling specialist sensors on some of the danger points on the highway, where warning lights signal to the drivers that animals have been detected nearby, an auditory warning, such as recorded dogs barking are played to the wildlife to try and spook the animals away from the road. In the mountains, a number of open water wells that were used to collect rainwater for flocks of sheep have led to several bears falling in and drowning.

*00:29:06:01 - 00:29:34:22*

*James Shooter*

They're now being made safe with metal grids. These simple but effective measures are crucial because every bear counts. The Apennines team are also hoping to reduce human bear conflict. Remember that 20% of the Bear's diet, which isn't vegetarian? Yeah, well, they have been known to help themselves to the odd chicken, sheep, calf and of course, beekeeper's honey. How can Angela and her team ensure co-prosperity with this situation in mind?

*00:29:34:24 - 00:30:30:24*

*Angela Tavone*

In order to avoid conflicts or to mitigate conflicts, since 2014, we have been installing many preventive measures to protect these little farms and these beehives around the landscape. So nowadays there are more than 350 preventive measures that we installed all around the landscape. These preventive measures can be a practical tool in order to avoid, of course, damage. But also it's an important communication tool as well because our team members go to these breeders or beekeepers, for example, can speak to them, can make them understand importance of protecting their goods, and to keep these, for example, electric fence always very functional in order to avoid any damage.

*00:30:31:04 - 00:30:55:08*

*Angela Tavone*

So, it's also an important tool to educate in long term these people to be more tolerant towards the bears, to accept the presence, and also to spread the word to the dispersal,

for example, to speak about in a good term of the function of these electric fence, or we also install the metal gate in the chicken coops.

*00:30:55:10 - 00:31:03:15*

*James Shooter*

Which is probably the most important or effective tool you can get is when you get farmers speaking to the farmers in a positive fashion. Right?

*00:31:03:15 - 00:31:04:21*

*Angela Tavone*

So exactly. If you.

*00:31:04:21 - 00:31:09:00*

*James Shooter*

Light that touch paper and it goes, that's probably the most effective way to get the message.

*00:31:09:00 - 00:31:10:15*

*Angela Tavone*

Across. Yes, absolutely.

*00:31:10:17 - 00:31:30:09*

*James Shooter*

We can learn a lot from other people's experiences. For me, that's a large part of why I'm doing this podcast, to accumulate ideas from across the continent and to share them with others. I absolutely intend to take one or two back home to Scotland and try to figure out how similar approaches could work there. The rewilding Apennines team did the same.

*00:31:30:11 - 00:31:36:24*

*James Shooter*

They realized they could learn a lot from Canadians who've been developing bear smart communities to address concerns around black bears.

*00:31:37:01 - 00:32:05:04*

*Angela Tavone*

Some team members went to British Columbia because of this co-funded EU initiative, which is called Life Bear Smart Corridors. We started this initiative in 2022 to and the first step was to understand in another place in another country what is a bear smart community, how it works, and what are the characteristics that we can bring to to our landscape.

*00:32:05:04 - 00:32:36:03*

*Angela Tavone*

They understood that the bear smart community was a need, that communities had from grassroots because over there is a huge population of black bears, but a lot of these bears were killed because they used to go to the urban areas. At some point people

started to ask themselves, but why are we allowing all these bears killing? Because of our bad behaviours.

*00:32:36:05 - 00:33:02:03*

*James Shooter*

In the central Apennines bear small communities will utilize bear proof bins, install electric fences for gardens with fruit trees or chickens, and have conservation officers that will be on hand to advise on best practices. They'll maybe even restore previously abandoned orchards up in the hills to provide a bit of a helping hand to this critically endangered subspecies, whilst encouraging them away from more urban larders and crucially, away from the roads.

*00:33:02:05 - 00:33:24:21*

*James Shooter*

Every calorie consumed in safety is one less they may need to venture into a village for. For bear smart communities to truly succeed, they need the buy in and driving force to come from local people. Outsiders can help, but it's those actually living alongside these animals that will make or break this approach. I'm always fascinated by the different relationships people have with rewilding.

*00:33:24:23 - 00:33:48:10*

*James Shooter*

Opinions differ from person to person, town to town and country to country, and they're almost always driven by emotion. One of the people working on fostering these relationships is Valerio, the Rewilding, Apennines enterprise manager. We meet at a viewpoint overlooking Pettorano sul Gizio. As it started raining, Valerio suggests we head for a coffee at one of the local producers he works with.

*00:33:48:12 - 00:33:58:17*

*James Shooter*

And so what's what's different about the way that this lady does cheesemaking to say someone I don't know in another region that does cheesemaking what's the sustainable bit?

*00:33:58:19 - 00:34:27:17*

*Valerio Reale*

One you know she's she's she's making cheese in a territory with a high density of predators of wolves. So you know she needs to think about this every time. So she needs to, first of all, to make a living out of it. She needs to find new solutions to prevent the conflict or to mitigate the conflict. So the example, you know, they have increased the number of guardian dogs on their farm.

*00:34:27:19 - 00:34:51:11*

*Valerio Reale*

And I think Guardian dogs are still one of the most recognized coexistence tools we have in this area. There is a specific breed of dogs called *Abruzzese*, which you might have seen

at some point. They are big white and hairy. People from all over the world, they come here to understand how you can breed an Abruzzese dog.

*00:34:51:13 - 00:34:54:03*

*Valerio Reale*

Is that a dog? Is that an Abruzzese dog? Looks like one.

*00:34:54:03 - 00:34:55:20*

*James Shooter*

Well, I mean that was fortunate timing.

*00:34:55:23 - 00:35:03:22*

*Valerio Reale*

They have also got some donkeys who are quite sensitive to predators.

*00:35:03:24 - 00:35:05:08*

*James Shooter*

That's interesting.

*00:35:05:10 - 00:35:36:00*

*Valerio Reale*

And so they you know, if if you can hear a donkey, if there are wolves around, but, you know, generally speaking is about the that the relation that they have with this land, that they are fully aware that, you know, this is you know, this is nature and they are not trying to go away from it. They're not, you know, to go away from the conflict.

*00:35:36:00 - 00:35:55:19*

*Valerio Reale*

They try to accept it. And I think we need conflict in our life. It's true that we work a lot on the prevention of conflict, but conflicts, you know, have a huge impact on your life. And so I like to think that you can become a better human being through the conflict.

*00:35:55:21 - 00:36:28:07*

*James Shooter*

We reach the town of Simona, where Valerio leads me through the most enchanting doorway, stone arched with a large oak door inscribed with A la Casa Vecchia, which translates as 'to the old house'. A goat statue, goat shaped wooden planter and goat door sign give me a little hint as to the type of cheese they make inside. We descend the stairs into the most beautiful room, with a crackling open fire, copper pans adorning the walls, an array of chilies, garlic and grapes hanging from a drying rack above.

*00:36:28:09 - 00:36:50:01*

*James Shooter*

They make the cheese in the back and below us is a single dining table where people drop in to have some coffee or baked goods whilst purchasing some of the fantastic looking cheeses. Virginia, who runs the farm and business with her family, is kind



enough to bring us both. I remind myself I'm here to find out what Valerio does and that I must not get too distracted by the edible delights in front of me.

*00:36:50:03 - 00:37:23:11*

*Valerio Reale*

And my role is very much connected to trying to connect rewilding with the different types of economies we have in the area. So that means I am heavily involved in food and tourism. We're creating a network of businesses we work with. So a lot of the work that I do is with small or medium sized enterprises who are trying to have a business in this area.

*00:37:23:13 - 00:38:25:12*

*Valerio Reale*

And then there is also work towards trying to align land management practices with rewilding and trying to find new ways to generate revenues out of it. In my experience, I think one of the mistakes that traditional and conventional conservation actors have done in the past was to leave the local enterprises out of the picture. And so in the past, if they have been concerned to make deal with public landowners, i.e. municipalities to create this initiative to conservation initiatives, but they weren't really considering, you know, once we create an initiative, how do we ensure that people can stay, that the young people can still continue to make a living out of it?

*00:38:25:14 - 00:39:08:21*

*Valerio Reale*

And so that's why I think is important for for a rewilding initiative to understand what is the role of an entrepreneur in a rewilding landscape. And and I think in the case of Central Apennines, this is even more important because people are leaving and and there has been a depopulation population process for the last 100 years. But most of the initiatives across the territories are not focusing on how can we think about small economy?

*00:39:08:23 - 00:39:39:11*

*Valerio Reale*

And by small I mean that I'm not looking for a large scale solution here, but I'm looking to lots of little initiatives focused on quality, whether it's a bar or a restaurant or a or a or a wine producer. How can we can think about all these little activities focused on quality and artisanality in this rewilding landscape and how we can do it all together within and beyond the borders of protected areas.

*00:39:39:17 - 00:40:04:04*

*James Shooter*

One area Valerio wishes to work on is by looking at the common lands in the hills. Most of the surrounding lands here are owned by the municipality and they rent that out to raise revenue. Usually to farmers for grazing or foresters for harvesting trees. They're extractive. What if they could rent that land for rewilding activities and then sell on the product, so to speak, as biodiversity credits?

00:40:04:06 - 00:40:27:01

*James Shooter*

Although there's no legal framework for this in Italy yet, the municipality would still raise money from leasing their land, and rather than taking from nature, they'd be adding to it instead. You've probably all heard of carbon credits where you can effectively sell the carbon stored from a particular action like tree planting. Well, biodiversity credits are the same, but the measurable outcome is more nature rather than just carbon.

00:40:27:03 - 00:40:41:03

*James Shooter*

It's early days in this form of trade. I've heard both good and bad stories from the carbon market. If done well, though, with principled organizations and transparent actions, they could channel private money into net nature gain.

00:40:41:05 - 00:41:17:10

*Valerio Reale*

One of the initiatives we are exploring with a local online platform called RUSI is to create this Bear Smart box, which includes products from different Bear Smart communities so that they can first and foremost have a platform where they can have a conversation. And so they meet regularly, they talk to each other and the other day I realized that one of the farmer is now selling his products to one of hotelier that we have in this network, and I didn't know about it.

00:41:17:12 - 00:41:49:15

*Valerio Reale*

So there are lots of things that are happening behind the scenes, and I see our role as an NGO to create these opportunities because nobody is creating the opportunities to collect people. People didn't know that there was a cider farmer in the, people weren't aware about Virginia's cheese. And I think our role as an NGO is to give them a possibility to know each other and trying our best to create promotional activities so that we can give more visibility to what they do.

00:41:49:20 - 00:42:19:20

*Valerio Reale*

And the bear smart box goes in that direction. I also think we should also think about not just the production, but also the consumption of this product, because we are always thinking about how do we produce products that are more environmentally friendly. But we should also think how do we consume this product? And today there are some fantastic wines that are made in Italy, that are sold in Japan, that are sold in the US, and nobody knows about these products in the area.

00:42:19:22 - 00:42:48:16

*Valerio Reale*

I want to live in a world where everybody is drinking cider, everybody's having raw milk cheese at their table and this should be done with a local focus. So there is a huge amount of work to be done in that direction because it's not enough to produce an

environmentally friendly product its also important to understand where that product is consumed, how that product is consumed, what is the impact of the trade of that product.

*00:42:48:18 - 00:43:10:15*

*James Shooter*

I like Valerio, he's very philosophic in his outlook. He's also completely right. Every product we buy is a choice and that can be a sustainable one or an unsustainable one. Not every choice is going to be perfect, but we can certainly try to tip the scales in the right direction. Sustainable products aren't limited to things you can eat.

*00:43:10:17 - 00:43:23:17*

*James Shooter*

They can be experiences too. There's a growing number of people who want holidays that give back. If you listening to this and like the sound of rewilding in the central Apennines, good news, you can get involved.

*00:43:23:19 - 00:43:51:05*

*Valerio Reale*

And so we came up with this idea of the rewilding week, which is really based on our activities. So every week we have a volunteering program. We have been doing this for a while now and we every day we have activities that we have to do. And so the rewilding week is not designed on the needs of the participant its pretty much designed on our necessity.

*00:43:51:07 - 00:44:27:24*

*Valerio Reale*

You know, we end up having a nice glass of wine every now and then, but, and we also visit some of these local businesses. But it's really important that we keep the focus on this aspect. And so people come with us, small groups, a maximum eight people, and they spend time with the field offices and they are now we are also doing rewilding weekends like Portugal and also rewilding days, because maybe people don't have enough time to do a whole week so that they can come and tackle a specific topic.

*00:44:27:24 - 00:44:48:16*

*Valerio Reale*

So maybe we we try to tie the rewilding day to the Griffon Vulture project and we explore that and next one hopefully will be on the 10th of December where we're launching a new beer, a new recipe that we have done with a local brewery. And so there will be an excursion, a walk in the morning and a beer tasting in the end.

*00:44:48:18 - 00:44:51:05*

*James Shooter*

Put me down for that one.

*00:44:51:07 - 00:45:03:09*

*Valerio Reale*

There will be a reflection on the bears smart Community initiative, what's working, what's not working. And so that's the spirit of of of of the concept let's say.

*00:45:03:11 - 00:45:28:24*

*James Shooter*

For me the Central Apennines has it all iconic wildlife, spectacular scenery, awesome food and a team absolutely passionate about people and place. They are 100% committed to this vision of co-prosperity where Marican brown bears are no longer on the brink, where crayfish fill the pools at the local rivers and local communities are thriving on the back of a nature based economy.

*00:45:29:01 - 00:45:52:13*

*James Shooter*

I so hope that Mario and his colleagues achieve their vision of growing the Apennine ecological corridor all the way up to the Alps, connecting these great mountain ranges as one and allowing a highway of Italian wildlife to merge into the continent. I have one last experience before my time ends here. I promised you right at the beginning and it wouldn't be right of me to bow out now.

*00:45:52:15 - 00:45:54:16*

*James Shooter*

You deserve better that.

*00:45:54:18 - 00:46:21:04*

*Valerio Reale*

I want you to try some of the cheese. Speaks Italina. Based on seasonality, you really taste the difference in the end product. So in spring, in March, April and May, there is more variety of plants so it's a more of an automatic cheese. Well, now in autumn there are more wild berries around.

*00:46:21:04 - 00:46:45:13*

*Valerio Reale*

So the diet of the animal is different and the fat content is higher. So the one from spring is more, it has more aromatics, but the one from now it is higher fat content. So it's tastier. And traditionally speaking, if you would speak to an old shepherd, they would always prefer the cheese of the autumn because it's more tasty.

*00:46:45:16 - 00:46:46:16*

*Valerio Reale*

Yeah, yeah.

*00:46:46:18 - 00:47:05:13*

*James Shooter*

I never think of these things, but it makes perfect sense. And I suppose shows the difference between just raising animals on monoculture grass to a more natural kind of grazing process it adds all the flavour and all that goodness into the into the cheese.

Amazing. Virginia brings out a selection of five of her cheeses from all the different seasons.

*00:47:05:15 - 00:47:31:18*

*James Shooter*

It's a literal smorgasbord of cheese, and I'm here for it. Now. I'm not going to make you sit through an entire tasting, but here's a quick highlight reel. Mmm. Yep. That is delicious. Really, really nice. Delicious. yeah. People often say to me that it must be a glamorous job visiting all these inspiring, rewilding initiatives in some of the most beautiful locations across Europe.

*00:47:31:20 - 00:47:39:13*

*James Shooter*

Well, sometimes when it's rainy and cold outside, you've got to forgo the adventure, sit indoors and take one for the team.

*00:47:39:15 - 00:47:42:22*

*Valerio Reale*

Do you want a glass of wine? Yeah.

*00:47:57:16 - 00:48:20:22*

*James Shooter*

Thanks for joining me for episode 12 of The Rewild Podcast. If I made you hungry right at the end there, I make no apologies. Trust me, food tastes better when it gives back to nature. Huge thanks to Mario, Giuseppe, Angela, Valerio and Virginia for your insights and your hospitality. As always, thanks to Beluga Lagoon for the tunes and Gemma Shooter for the artwork.

*00:48:20:24 - 00:48:44:02*

*James Shooter*

The biggest of thanks goes to Rewilding Europe, for collaborating with me on this series, the Central Apennines is one of ten inspiring rewilding landscapes across the continent, set up with local teams on the ground. If you're enjoying the series, please do consider giving us a rating or review on whichever platform you're listening to us from. It's great to hear your thoughts and helps us massively in spreading the good word of rewilding.

*00:48:44:04 - 00:48:49:02*

*James Shooter*

Join us next month, as we'll be in the Southern Carpathians of Romania. Catch you next time.