

# RECALL OF THE WILD

*The quest to engineer a world before humans.*

BY ELIZABETH KOLBERT

Flevoland, which sits more or less in the center of the Netherlands, half an hour from Amsterdam, is the country's newest province, a status that is partly administrative and partly existential. For most of the past several millennia, Flevoland lay at the bottom of an inlet of the North Sea. In the nineteen-thir-

ties, it has the head of a lion and the tail of a mermaid.

Flevoland has some of Europe's richest farmland; its long, narrow fields are planted with potatoes and sugar beets and barley. On each side of the province is a city that has been built from scratch: Almere in the west and Lelystad in the

east. In the nineteen-thirties, while it was still in the process of drying out, a handful of biologists convinced the Dutch government that they had a better idea. The newest land in Europe could be used to create a Paleolithic landscape. The biologists set about stocking the Oostvaardersplassen with the sorts of animals that



*The Dutch government used land reclaimed from the sea to create a fifteen-thousand-acre park that mimics a Paleolithic ecosystem.*

ties, a massive network of dams transformed the inlet into a freshwater lake, and in the nineteen-fifties a drainage project, which was very nearly as massive, allowed Flevoland to emerge out of the muck of the former seafloor. The province's coat of arms, drawn up when it was incorporated, in the nineteen-eighties, features a beast that

east. In between lies a wilderness that was also constructed, Genesis-like, from the mud.

Known as the Oostvaardersplassen, a name that is pretty much unpronounceable for English-speakers, the reserve occupies fifteen thousand almost perfectly flat acres on the shore of the inlet-turned-lake. This area was originally designated

would have inhabited the region in pre-historic times—had it not at that point been underwater. In many cases, the animals had been exterminated, so they had to settle for the next best thing. For example, in place of the aurochs, a large and now extinct bovine, they brought in Heck cattle, a variety specially bred by Nazi scientists. (More on the Nazis

later.) The cattle grazed and multiplied. So did the red deer, which were trucked in from Scotland, and the horses, which were imported from Poland, and the foxes and the geese and the egrets. In fact, the large mammals reproduced so prolifically that they formed what could, with a certain amount of squinting, be said to resemble the great migratory herds of Africa; the German magazine *Der Spiegel* has called the Oostvaardersplassen “the Serengeti behind the dikes.” Visitors now pay up to forty-five dollars each to take safari-like tours of the park. These are especially popular in the fall, during rutting season.

Such is the success of the Dutch experiment—whatever, exactly, it is—that it has inspired a new movement. Dubbed Rewilding Europe, the movement takes the old notion of wilderness and turns it inside out. Perhaps it’s true that genuine wildernesses can only be destroyed, but new “wilderness,” what the Dutch call “new nature,” can be created. Every year, tens of thousands of acres of economically marginal farmland in Europe are taken out of production. Why not use this land to produce “new nature” to replace what’s been lost? The same basic idea could, of course, be applied outside of Europe—it’s been proposed, for example, that depopulated expanses of the American Midwest are also candidates for rewilding.

I visited the Oostvaardersplassen during a stretch of very blue days in early fall. As it happened, two film crews, one Dutch and the other French, were also there. The French crew, whose credits include the international hit “Winged Migration,” was scouting the reserve for possible use in an upcoming feature about the history of Europe as seen through the eyes of other species. The Dutch crew was finishing up a full-length nature documentary. One afternoon, we all got into vans and drove to the middle of the park. A stiff breeze was blowing, as it almost always does near the North Sea. We passed a marshy area covered in reeds, which nodded in the wind. Ducks bobbed in a pond. Farther on, where the land grew drier, the reeds gave way to grass. We passed a herd of red deer and some aurochs wannabes, and the carcass of a deer, which had been picked almost clean by foxes and ravens. (The Dutch crew had filmed the scav-

enging with a time-lapse camera.) Eventually, we came to a herd of about a thousand wild—or, at least, feral—horses. They whinnied and cantered and shook their heads. The horses were an almost uniform buff color, and the breeze lifted their manes, which were dark brown. We all piled out of the vans. The horses seemed not to notice us, though we were just a few yards away.

“*Ah, c’est joli ça!*” the French exclaimed. A flock of black-and-white barnacle geese rose into the air and then, a moment later, a yellow train clicked by, carrying passengers from Almere to Lelystad or, perhaps, vice versa. A few members of the French crew had brought along video cameras. As they panned across the horses—at the edge of the herd, a mare nuzzled a foal that couldn’t have been more than two or three days old—I wondered what they would do with the high-voltage power lines in the background. It occurred to me that, like so many post-modern projects, the Oostvaardersplassen was faintly ridiculous. It was also, I had to admit, inspiring.

If one person could be said to be responsible for the Oostvaardersplassen, it is an ecologist named Frans Vera. Vera, who is sixty-three, has gray hair, a gray beard, and a cheerfully combative manner. He spent most of his adult life working for one or another branch of the Dutch government and now works for a private foundation, of which, as far as I could tell, he is the sole employee. Vera picked me up one day at my hotel in Lelystad, and we drove over to the reserve’s administrative offices, where we had a cup of coffee in a room decorated with the mounted head of a very large black Heck bull.

Vera explained that he first became interested in the Oostvaardersplassen in the late nineteen-seventies. At that point, he had just graduated from university, in Amsterdam, and was unemployed. He read an article about some Greylag geese that had appeared in the reclaimed area, which was then a boggy no man’s land. The geese kept the vegetation low by chomping on it, and in this way maintained their marshy habitat. Vera was an avid bird-watcher, and the story intrigued him. He wrote his own article, arguing that the place ought to be turned into a nature preserve. Soon afterward, he got

a job with the Dutch forestry agency.

In the late seventies, the prevailing view in the Netherlands was—and, to a certain extent, it still is—that nature was something to be managed, like a farm. According to this view, a preserve needed to be planted, pruned, and mowed, and the bigger the preserve, the more intervention was required. Vera chafed at this notion. The problem, he decided, was that Europe’s large grazers had been hunted to oblivion. If they could be restored, then nature could take care of itself. This theory, coming from a very junior civil servant, was not particularly popular.

“Mostly there’s no trouble as long as you are within the borders of an accepted paradigm,” Vera told me. “But be aware when you start to discuss the paradigm. Then it starts to be only twenty-five per cent discussion of facts and seventy-five per cent psychology. The thing I most often heard was, ‘Who do you think you are?’” Undaunted, Vera kept pushing. He had a few allies at various government ministries, and one of them arranged for him to get the money to buy some Heck cattle. In 1983, while the future of the Oostvaardersplassen was still being debated, Vera acquired the cows from Germany, although he had not yet secured permission from the governing authorities to release them.

“I bought them and I was standing here with the trucks,” he recalled happily. “And they were so angry!” This first group of Heck cattle was not allowed onto the site, but a second group, acquired some months later, was let in. The following year, Vera bought forty Konik horses from Poland. Koniks are believed to be descended from tarpans, one of the world’s last subspecies of truly wild horse, which survived in Eastern Europe into the nineteenth century. (Practically all the horses that are called “wild” today are, in fact, the offspring of domesticated horses that were, at some point or another, let loose.) Red deer, which are closely related to what Americans call elk, were brought in during the nineteen-nineties.

Meanwhile, other animals were finding their way to the Oostvaardersplassen on their own. Foxes arrived, as did muskrats, which in Europe count as an invasive species. Buzzards and goshawks and gray herons and kingfishers and kestrels turned up. A pair of very large white-tailed eagles swooped in and built their

nest in an improbably small tree. In 2005, a rare black vulture appeared, but after a few months in residence it wandered onto the railroad tracks, where it was hit by a train. (The rail line runs along the southern edge of the preserve.) Vera's dream is that one day the Oostvaardersplassen will be connected to other nature reserves in the Netherlands—a plan that has been partly but never fully funded—and that this will, in turn, allow it to attract wolves. Wolves were extirpated from most of Western Europe more than a century ago, but, owing to stringent protections put in place over the past few decades, they have recently been making a comeback in countries like Germany and France. (Two packs, with about ten wolves each, now live within forty miles of Berlin.) Last year, a wolf believed to be the first seen in Holland since the eighteenth-sixties was spotted about seventy miles southeast of the Oostvaardersplassen, in the town of Duiven.

"That is probably unimaginable for people in the United States—having wolves in the Netherlands," Vera said. "But it is the future."

After we had finished our coffee, we got into a truck and drove through the gates of the preserve. So effectively have the cows and the horses and the deer kept the place grazed that there was barely a bush to be seen—just acre after very flat acre of clipped grass, like a bowling green. We passed a few groups of deer and a fox that looked back at us with pale, glittering eyes. Vera stopped the truck at a lookout built on stilts. We climbed up a narrow ladder. "This is a window that shows us how the Netherlands looked thousands of years ago," he said, gesturing at the grassland below.

A corollary of Vera's theory about large grazers is a second hypothesis, which he has pushed even more vigorously than the first, if that's possible. Among ecologists, the prevailing view of Europe in its natural, which is to say pre-agrarian, state is that it was heavily forested. (The continent's last stands of old-growth forest are found on the border of Poland and Belarus, in the Białowieża Forest, which the author Alan Weisman has described as a "relic of what once stretched east to Siberia and west to Ireland.") Vera argues that, even before Europeans figured out how to

farm, the continent was more of a parklike landscape, with large expanses of open meadow. It was kept this way, he maintains, by large herds of herbivores—aurochs, red deer, tarpans, and European bison. (The bison, also known as wisents, were hunted nearly to extinction by the late eighteen-hundreds.)

Vera has written up his argument in a dense, five-hundred-page treatise that has received a good deal of attention from European naturalists, not all of it favorable. A botany professor at Dublin's Trinity College, Fraser Mitchell, has written that an analysis of ancient pollen "forces the rejection of Vera's hypothesis." Vera, for his part, rejects the rejection, arguing that, precisely because they ate so much grass, the aurochs and the wisents skewed the pollen record. "That is a scientific debate that is still going on," he told me.

Like the rest of Flevoland, the Oostvaardersplassen lies about fifteen feet below sea level and is protected from flooding by a series of thick earthen dikes. As a result, when you are standing in the park, the lake, known as the Markermeer, is above you, which produces the vertiginous sense of a world upside down. In the lovely weather, the Markermeer was filled with sailboats; these seemed to be hovering above the horizon, like zeppelins.

"What we see here is that, instead of what many nature conservationists think—that something that is lost is lost forever—you can have the conditions to have it redeveloped," Vera told me. "So this is the ultimate proof. There's no bird here who says, 'I won't breed here, because it's unnatural—it's four and a half metres below sea level, and I never did that.'" We drove on, and stopped to take a look at the nest built by the white-tailed eagles, another animal that only very narrowly avoided extinction. The eagles showed up in the Oostvaardersplassen in 2006, and became the first pair to breed in the Netherlands since the Middle Ages. Their nest—empty at the time of my visit—was an extraordinary structure, made out of sticks and nearly the size of an armchair. It seemed ready to topple the scrawny tree it was perched in.

Vera was particularly pleased with the eagles, because several ornithologists had told him the birds would nest only in very tall, mature trees, of which the Oostvaardersplassen has none.

"Many so-called specialists thought this would be impossible," he said. "The eagles had a different opinion."

Access to the Oostvaardersplassen by humans is strictly controlled, and that morning neither of the film crews was there and no tours were out, so Vera and the animals and I pretty much had the place to ourselves. The quiet was interrupted only by the squawking of the geese and the clatter of an occasional train. We continued west, skirting a herd of red deer. A dead horse was lying in the middle of the herd. Its chest was bloated, and there was a large dark hole where its anus once had been. Vera speculated that it had been made by foxes trying to get at the horse's entrails.

Like genuinely wild animals, those in the Oostvaardersplassen are expected to fend for themselves. They are not fed or bred or vaccinated. Also like wild animals, they often die for lack of resources; for the large herbivores in the reserve, the mortality rate can approach forty per cent a year. From a public-relations point of view, this is far and away the most controversial aspect of Vera's scheme. When the weather is harsh, there's widespread starvation in the preserve, which provides gruesome images for Dutch TV. Often the dying animals are shown huddled up against the fences of the Oostvaardersplassen, a scene that invariably leads to comparisons with the Holocaust.

"You can't have a discussion without the Second World War coming up," Vera told me. "It's really sick-making." In the fall of 2005, the controversy became so heated that the Dutch government appointed a committee—the International Committee on the Management of Large Herbivores in the Oostvaardersplassen, or ICMO—to look into the matter. ICMO recommended a policy of "reactive culling," under which the animals would be monitored over the winter, and those which



seemed too weak to survive until spring would be shot.

Michael Coughenour, a research scientist at the Natural Resource Ecology Laboratory at Colorado State University, was a member of ICMO. He told me that while it was difficult to compare mortality rates at the Oostvaardersplassen to those in a place like the Serengeti, “severe-winter die-offs are a natural thing.”

“I didn’t see anything that looked bad to me,” he went on, referring to a visit the committee members made to the Oostvaardersplassen. “I think it’s a great experiment to let it run and see what happens.”

Even though ICMO’s recommendations were adopted, many critics were not satisfied, and in 2006 a Dutch animal-welfare association sued the managers of the Oostvaardersplassen for what it alleged was continuing mistreatment. The group lost the case, appealed, and lost again. Then, in the winter of 2010, an unusually cold one in northern Europe, a Dutch news program aired a segment on the Oostvaardersplassen that showed an emaciated deer stumbling into a half-frozen pond and drowning. A public outcry ensued, prompting an “emergency” debate in parliament.

“It’s an illusion to think we can go back to primordial times, dressed in bear furs and floating around in hollowed-out trees,” the M.P. who led the debate, Henk Jan Ormel, said. “The world of today looks very different, and we shouldn’t make the animals of the Oostvaardersplassen bear the burden of this.”

“It became political,” Sip van Wieren, a professor of ecology at Wageningen University, told me. “Very political.” A second ICMO was convened. This one recommended a policy of “early reactive culling,” under which the animals that were deemed unlikely to survive the winter would be shot in the fall. How exactly the rangers at the Oostvaardersplassen were supposed to figure out in November which animals would be starving by February was left rather vague.

When I visited, in September, the number of grazers in the park was at its annual peak, with more than three thousand deer, a thousand horses, and three hundred Heck cattle. Eventually, it is hoped, birth rates in the Oostvaardersplassen will decline, and the population will reach some kind of equilibrium, but in

the meantime the shooting continues. Vera and I came upon a group of cows sunning themselves near a dead tree. They regarded us warily, through glassy black eyes. The adults looked fearfully robust, but some of the calves seemed a bit shaky; within a few months, I figured, they’d probably be carcasses. Vera told me that he viewed “early reactive culling” as an arrangement whose only real beneficiaries were humans; as far as the ungulates were concerned, he thought, starving to death was a very peaceful way to go.

“It only has to do with the acceptance of people,” he said, “and nothing, in my mind, to do with the suffering of animals.”

There are more than 1.5 billion cows in the world today, and all of them are believed to be descended from the aurochs—*Bos primigenius*—which once ranged across Europe, much of Asia, and parts of the Middle East. Aurochs were considerably more impressive beasts than domesticated cattle. Julius Caesar described them as being just “a little below the elephant in size,” with “strength and speed” that was “extraordinary.” (It is unlikely that he ever actually saw one.) More recent estimates suggest that males were nearly six feet high at the withers and females five feet. By Roman times, humans had so diminished the aurochs’ numbers that the animals were missing from most of their former habitat.

By the fifteen-hundreds, the only place they could still be found in the wild was in the Polish Royal Forests, west of Warsaw. The animals there were understood to be extremely rare, and special gamekeepers were hired to protect them. But their numbers continued to dwindle. In 1557, some fifty aurochs were counted. Forty years later, only half that many remained, and by 1620 only one aurochs—a female—was left. She died in 1627. The aurochs thus earned, as the Dutch writer Cis Van Vuure has put it, “the dubious honor of being the first documented case of extinction.” (The next case was the dodo, four decades later.)

The aurochs was essentially forgotten until the early twentieth century, when a spate of scientific papers on the animal appeared. In the nineteen-twenties, two German brothers, Heinz and Lutz Heck, both zoo directors, decided to try to breed

back the aurochs, using the genetic material that had been preserved in domesticated cattle. This was, of course, long before DNA testing—or even the discovery of DNA. To guide their efforts, the brothers mainly relied on old pictures of aurochs, many of them drawn by people with no firsthand knowledge of the animal. The brothers chose different kinds of cows for their breeding efforts: Heinz, who directed the zoo in Munich, crossed, among other breeds, Scottish Highland cattle and German Anglers, while Lutz, the director of the Berlin Zoo, mixed Spanish fighting cattle with Corsican and Camargue cattle. Nevertheless, the two claimed that their efforts had produced similar results, which, they argued, proved that “the fundamental principle of breeding back was correct.” Even though he continued to crossbreed his crossbreeds, Heinz decided that the project had been successfully completed. “The wild bull, the aurochs, lives again,” he wrote.

Not long afterward, the project became tangled up in German politics. In 1938, Lutz, a committed Nazi, was appointed to the Third Reich’s Forest Authority. His idea of breeding back the aurochs dovetailed neatly with the Nazis’ scheme of restoring Europe, through selective human breeding, to its mythic, Aryan past. Lutz sent some of his “aurochs” to the Rominten Heath, in East Prussia—now Poland—where Hermann Göring had his favorite hunting lodge. Other Heck-bred cows were installed on the grounds of Göring’s estate north of Berlin. Most—perhaps all—of these animals were killed toward the end of the Second World War. (According to Clemens Driessen, a Dutch academic who has studied the Heck brothers, Göring personally shot some of the cattle on his estate as the Soviets bore down on Berlin.) But some Heck cattle at the Munich zoo and in parks in Augsburg, Münster, and Duisburg survived.

Over the years, even as Heck cattle have been raised, uneventfully, in once Nazi-occupied nations like the Netherlands—it’s the descendants of the Munich-bred cows that now graze the Oostvaardersplassen—they’ve never managed to shake their Fascist associations. Many regard them as a sort of veterinary version of the “Hitler Diaries”—half horror, half joke. Not long ago, when a British farmer imported some

Heck cattle from Belgium, the story made national news.

“NAZI ‘SUPER-COWS’ SHIPPED TO DEVON FARM,” the *Guardian* reported.

“THE HERD REICH,” ran the headline in the *Sun*.

As more aurochs remains have been unearthed and more sophisticated research has been done on them, it’s become clear that the Heck brothers’ creation is a far cry from the original—Heck cattle are too small, their horns have the wrong shape, and the proportions of their bodies are off. All of which has led to a new, de-Nazified effort to back-breed the aurochs. This project is based in the Dutch city of Nijmegen, about fifty miles southeast of Amsterdam, and is entirely independent of the Oostvaardersplassen. Still, it reflects much the same can-do, “what is lost is not lost forever” approach to conservation. So while I was in the Netherlands I decided to go for a visit.

“Watch out,” Henri Kerkdijk warned. It was another surprisingly blue day, and we were tromping through a weedy field toward a line of trees. I looked back at him, which turned out to be a mistake, because at that moment I stepped into a large pile of cow shit. As I scraped it from my shoes, I wondered how much bigger the pile would have been had it been produced by an actual aurochs.

Standing in the shade of the trees were about a dozen cows of varying color and size. Kerkdijk pointed to two black bulls bent over a patch of grass. The first was called Manolo Uno. He was two years old and not yet fully grown, but already he measured almost five feet at the withers. He had a grayish muzzle, a light stripe down his back, and forward-tilting horns that reminded me of Ferdinand’s. I have no idea how closely he resembled an actual aurochs; certainly, though, he seemed a very imposing beast, larger and more menacing-looking than the Heck cattle at the Oostvaardersplassen. The second bull, Rocky, was a year younger than Manolo but almost as big. This Kerkdijk took as a particularly promising sign. “That one’s going to be really tall,” he said.

Four years ago, Kerkdijk teamed up with an environmental consultant named Ronald Goderie to start the TaurOs program, the stated goal of which is to give

“the rebuilding of the aurochs a serious try.” (In a recent write-up of the effort, the two men dismiss Heck cattle as “considered by experts to be a failure.”) At the point that I met with them, the project had generated nearly a hundred calves, of which Manolo Uno and Rocky had been deemed the most aurochs-like. To create the calves, Kerkdijk and Goderie had crossed several so-called primitive cattle breeds—varieties developed hundreds, even thousands, of years ago, and therefore more likely to retain aurochs-like features. Manolo, for example, represents a cross between an Italian breed known as Maremmana primitivo and a Spanish breed known as Pajuna. At two, he was old enough to be crossbred himself. But he had refused to part with any of his semen for the purpose of artificial insemination, a demurrer that Kerkdijk took as evidence of his virility and a further positive sign.

Ninety years after the Heck brothers’ attempt, the basic idea behind back-breeding remains pretty much the same. If different breeds of primitive cattle preserve different stretches of the aurochs’s genetic material, then reassembling those stretches should produce something close to—though not exactly like—the original. (Kerkdijk and Goderie have decided that their new animal should be called not an aurochs but a “tauros.”) Scientists in England and Ireland have succeeded in sequencing a small subset of the aurochs’s DNA—its mitochondrial DNA—using a seven-thousand-year-old bone that was found in a cave in Derbyshire. Other scientists have been approached about sequencing the entire genome. When—or, really, if—this work is completed, it should be possible to gauge how close a calf comes to an authentic aurochs by analyzing a blood sample or a bit of saliva.

According to the timetable Kerkdijk and Goderie have drawn up, herds of “tauroses” should be ready by around 2025. By that point, the two expect that large tracts of Europe will have been rewilded, and the animals will be allowed to roam across them. How the intervening years’ worth of breeding and cross-breeding and genetic evaluation will be funded remains a bit murky. Currently, the project is supported in part by renting cows to nature parks and in part by butchering them. The meat is marketed as “wild beef,” and it commands a pre-

mium in Amsterdam, where it is available only to customers who sign up for delivery in advance. Kerkdijk said that “wild beef” sales had risen dramatically over the last year or so, owing to interest in the tauros. I asked if I could try some.

“Did you bring your bow and arrow?” Goderie asked.

Like so much in Europe today, the term “rewilding” is an American import. It was coined in the nineteen-nineties, and first proposed as a conservation strategy by two biologists, Michael Soulé, now a professor emeritus at the University of California at Santa Cruz, and Reed Noss, a research professor at the University of Central Florida. According to Soulé and Noss, the problem with most conservation plans was that they aimed to protect what exists. Yet what exists is often just a shadow of what once was. In most of the United States, large predators like wolves and cougars have been wiped out. Without top predators, the two argued, ecosystems no longer really function as systems.

“A cynic might describe rewilding as an atavistic obsession,” they wrote. “A more sympathetic critic might label it romantic. We contend, however, that rewilding is simply scientific realism.” According to Soulé and Noss, rewilding demanded, in addition to predators, the establishment of large, strictly protected “core” reserves, and migratory corridors linking one to the next. They summarized their formula as “the three C’s: cores, corridors, and carnivores.” These ideas are now considered mainstream by conservation biologists, even those who would not necessarily describe themselves as proponents of rewilding.

In 2005, a dozen biologists took the concept of rewilding one step further. In an article published in the journal *Nature*, the group presented a plan for what it called “Pleistocene rewilding.”

When humans arrived in North America, some thirteen thousand years ago, toward the end of the last ice age, they killed off most of the continent’s largest mammals, leaving key ecological roles unfilled. The Pleistocene rewilders proposed finding substitute animals that could serve in their place. For instance, African or Asian elephants could be let loose to make up for the long-lost woolly mammoth. Similarly, Bactrian camels,

which are native to the steppes of Central Asia, could take up the slack left by the vanished North American *Camelops*. The authors—almost all of them were academics—envisioned a series of small-scale experiments leading up to the creation of “one or more ‘ecological history parks,’” which would cover “vast areas of economically depressed parts of the Great Plains.” In these huge “history parks,” elephants, camels, and African cheetahs—to replace the missing American cheetah—would roam freely. The ecologists called their plan “an optimistic alternative” to what was otherwise likely to be a future filled with “ever more pest-and-weed dominated landscapes” and “the extinction of most, if not all, large vertebrates.”

The lead author of the *Nature* article, Josh Donlan, now runs a nonprofit group called Advanced Conservation Strategies and is a visiting fellow at Cornell. He characterized reactions to Pleistocene rewilding as “bimodal.”

“People either loved it or hated it, both in the scientific community and in the public,” he told me. In the United States, Pleistocene rewilding never got very far; the only practical step that’s been taken has been the reintroduction to private land in New Mexico of a giant tortoise known as the Bolton tortoise. (The Bolton tortoise, which disappeared from what’s now the U.S. about eight thousand years ago, survived south of the border in very small numbers.) As it happened, though, a Russian scientist named Sergey Zimov had a similar idea. Also in 2005, he published an article in *Science* describing an experimental preserve in Siberia that he had set up and named the Pleistocene Park. Zimov’s aim was to show that the area, which ten thousand years or so ago supported great herds of large mammals, was still capable of doing so.

“We are not trying exactly to reconstruct the mammoth steppe ecosystem, because we don’t have the mammoth,” Zimov told me recently by phone from St. Petersburg. “But we are trying to reconstruct the highly productive steppe ecosystem.” Zimov brought in reindeer and a breed of very cold-hardy horses known as Yakutians. A few years ago, he imported five European bison to the park, but only one—a male—survived the second winter. “Now we are looking



*“How can Greece be doing so badly? Everyone I know is eating Greek yogurt.”*

for girlfriends,” Zimov said. Several musk oxen were also brought in, but they, too, were all males. “We also search females for them,” Zimov told me. The Pleistocene Park, which is in northeastern Siberia, is so remote that almost no one who isn’t conducting research there has ever visited it.

As Europeans have taken up the term, “rewilding” has shifted its meaning yet again. The concept has become at once less threatening and more gastronomically appealing: it is expected that visitors to the continent’s rewilded regions will be able to enjoy not just the safari-like tours but also the local cuisine. (One park in Portugal in the process of “rewilding” offers its own brand of olive oil.)

Rewilding Europe, the group that is pushing the concept most vigorously, was founded three years ago by two Dutchmen, a Swede, and a Scot. One of the Dutchmen, Wouter Helmer, lives not far from the field where Manolo and Rocky are pastured, and the day after I visited the bulls I went to meet him at his house, which is at the edge of a park, in a small clearing that made me think of Goldilocks.

Helmer explained that the goal of Rewilding Europe was, in effect, to create giant versions of the Oostvaardersplassen, each at least fifteen times as large. “Frans Vera always says, ‘If the Dutch

can do it, everyone can do it,’” he told me. To get the project started, the group has raised more than six million euros—roughly seven and a half million dollars—much of it from the Dutch post-code lottery, which might be compared to the New York State lottery, except that the proceeds go to charity. Last year, after receiving twenty applications from organizations across the continent, the group chose five regions to serve as what it calls “model rewilding areas”—a part of the Danube Delta, spanning the border of Romania and Ukraine; an area in the southern Carpathian Mountains, also known as the Transylvanian Alps; and areas in the eastern Carpathians, the mountains of Croatia, and the western Iberian Peninsula. One quality these areas share is that fewer and fewer people want to live in them.

“There’s no economy in big parts of Europe,” Helmer told me. “We think it’s a window of opportunity.” The idea is to rewild the areas by connecting existing reserves with tracts of abandoned land and working farms whose owners can be persuaded to let a herd of aurochs (or tauros) wander across their property. (The lure for landowners is supposed to be an influx of tourists, who will come and open their wallets.)

Helmer stressed to me that Rewilding Europe was not particularly concerned

about whether the new landscape that would be created would resemble the ancient one that had been altered or destroyed. “We’re not looking backward but forward,” he said at one point.

“We try to avoid too much discussion of wilderness,” he observed at another. “For us, that is not the most important thing—at the end will this be a wilderness or not? It will be wilder than it was, and that’s what matters.”

One morning not long after this, I found myself sitting in a small hut, staring at a pile of dead chickens. The chickens had pure white feathers that were matted with blood, and they lay with their half-severed heads and rigid legs tilted at grotesque angles. After a while, a half-dozen Griffon vultures settled into a nearby tree. Griffon vultures are large birds with light-colored faces and dark bodies, and the group in the tree resembled a gathering of harpies. A little while later, a pair of black vultures showed up and began circling overhead. Black vultures are even larger than Griffons, with wingspans that can reach ten feet. They are majestic, funereal-looking birds, and watching them feels like a premonition of one’s own death. The chickens had been laid out as part of a supplementary feeding program for the birds, who, it seemed, were not hungry. The black vultures continued to circle, the Griffon vultures continued to sit in the tree, and the small hut grew stuffier. After a few hours, my companion, Diego Benito, decided that the spectacle we had come to see was not going to take place, and so, disappointed, we left.

Benito runs a thirteen-hundred-acre nature preserve in far western Spain called the Campanarios de Azaba. The preserve is part of the Rewilding Europe “model area” in western Iberia, and of the five areas it’s the easiest to get to. Nevertheless, the trip there involves a four-hour drive from Madrid, through the provinces of Ávila and Salamanca.

Since the vultures weren’t cooperating, Benito suggested we tour the rest of the reserve. Until fairly recently, the place had been a farm, and it was dotted with oak trees whose acorns had gone to fattening pigs. It was hot and dry as we crunched along through the underbrush. Even though I knew the nearest town

wasn’t more than a few miles away, the terrain seemed empty enough to get lost in, and I was reminded of a time in the New Mexico desert when I’d read a trail map wrong and found myself walking in circles. We encountered some very handsome horses, which, Benito told me, belonged to a rare and ancient Spanish breed known as Retuertás. Farther on, we came to a fenced-in area filled with a network of small but clearly man-made tunnels. These, Benito explained, had been dug for the benefit of rabbits, which in Spain—and, indeed, throughout Europe—have been decimated by a disease known as myxomatosis. The myoma virus was purposefully introduced on a private estate in France as a rabbit-control measure in the nineteenth-fifties and has since spread across the continent. (The loss of rabbits has led to a decline in animals that prey on rabbits, like the Iberian lynx, which is now considered to be critically endangered.) The fences were supposed to protect some reintroduced rabbits from foxes, but the rabbits had refused to stay put, so now the enclosures were empty. The same was true of a series of circular platforms that had been erected in some oak trees as nesting sites for black storks. The black storks hadn’t been interested in them.

“You can’t be a hundred per cent sure of success, because wild animals are wild animals,” Benito told me. We went looking for some Sayaguesa cows that had recently been purchased with Rewilding Europe money, but they seemed to be avoiding us. Sayaguesas are another primitive breed of interest to the TaurOs program, an enterprise that Benito told me he was eager to get involved in. “If you want to sell a product, you have to have a story,” he said.

That afternoon, after a lunch of local (and quite tasty) pork cutlets, we drove out of the reserve to the top of a nearby mountain. Along the way, we passed through a couple of villages that, Benito explained, were in the process of disappearing; the schools had closed for lack of children and only the old people remained. In one of the towns, La Encina, we stopped to meet the mayor, a slight, elderly man named José María. According to María, the number of residents in La Encina had dropped by more than fifty per cent in just the past fifteen

years. He was enthusiastic about the idea of rewilding, he said, because it had “a lot of potential to bring tourists.” From the top of the mountain, we could see across to Portugal, some fifteen miles away. The valley was a patchwork of brown fields, pine forests that had been planted during the Franco era, and evenly spaced oaks of the sort I’d seen at the preserve. According to a brochure that Wouter Helmer had given me, the entire region was ripe for rewilding, owing to “rural depopulation”; the aim was to transform at least a thousand square kilometres, or two hundred and fifty thousand acres. I tried to imagine the whole valley converted into an Iberian version of the Oostvaardersplassen. Certainly it was a lot less populated than the outskirts of Amsterdam. Still, I realized, I wasn’t sure what I was supposed to be envisioning. The pine plantations could never be considered wild: would they have to go? What about the pruned oaks, and the pigs that were still snuffling around them for acorns, and the brown fields, and all the tiny, dying towns waiting for an influx of tourists?

One of the appeals of rewilding is that it represents a proactive agenda—as Josh Donlan and his Pleistocene rewilding colleagues put it, a hopeful alternative to just sitting around, mourning what’s been lost. In a rewilded world, even extinction need not be considered irrevocable; the aurochs will lie down with the lynx, and the deer and the elephants will roam. On a planet increasingly dominated by people—even the deep oceans today are being altered by humans—it probably makes sense to think about wilderness, too, as a human creation. The more I saw, the more I understood why Europeans, in particular, were attracted to the idea, and the more I wanted to be convinced that it could work. But, as I looked back toward the Campanarios de Azaba, I thought of the vacant rabbit tunnels and the empty platforms built for the storks, and I wasn’t at all sure.

It was dusk by the time we headed down the mountain. Benito got a call on his cell phone from a local farmer who had a dead pig he thought the vultures might be interested in. On our way back, we stopped by to see what had happened to the chickens. Every one of them was gone, including the bones. ♦