

TERRY GLAVIN

THE SIXTH EXTINCTION:

JOURNEYS AMONG THE LOST
AND LEFT BEHIND.

THOMAS DUNNE BOOKS

A village

Prologue The Valley of the Black Pig



This is a book about extinctions. It was written at the harsh dawn of an epoch that is coming to be called the Sixth Great Extinction. It is a time without parallel in the sixty-five million years that have passed since the end of the Cretaceous period.

Roughly thirty-four thousand plants, or 12.5 percent of all the plants known to science, are threatened with extinction. One in eight bird species is similarly threatened, along with one in four mammals, one in three of all known amphibians, four of every ten turtles and tortoises, and half of all the surveyed fish species in the world's oceans, lakes, and rivers. Perhaps a million of our fellow species are trailing wearily toward that final cliff edge. We lose a distinct species, of one sort or another, every ten minutes.

These tabulations constitute only the most crude sort of barometer of the great unraveling of the living world; the ecologists who calibrate extinction rates readily admit this. The greatest bleeding away of diversity is in fact occurring well below the level of what geneticists and taxonomists consider a "species." It is also happening outside that category

entirely. It is happening down where the true measure of life's diversity is found. Extinction is taking away the subspecies, the local population, the particular, the neighborhood, the singular, and the specific.

And it is not confining itself to the "wild" things of the world. It is also carrying away the tamed—the functions of artificial selection. Estimates of the number of the world's vegetable varieties lost during the twentieth century run as high as thirty thousand, with one vanishing every six hours. Of the thousands of apple varieties in North American orchards at the beginning of the twentieth century, for instance, all but one-seventh are gone. Of 2,683 pear varieties, only slightly more than one tenth remain. By the 1970s, most of what remained of Europe's old vegetable varieties were threatened with extinction. Even livestock breeds are disappearing—Europe lost half its distinct breeds during the twentieth century. Of those that are left, 43 percent are close to oblivion.

Humanity's diversity is similarly withering. Though the world population has surpassed six billion, it is as though some savage ethnic cleansing is underway. The world is losing an entire language every two weeks. Fully half of the world's five thousand languages are expected to be gone, with all their songs and sagas, by the middle of this century. We are losing religious and intellectual traditions, entire bodies of literature, taxonomies, pharmacopias, and all those ways of seeing, knowing, and being that have made humanity so resilient and successful a species for so long. This is not what we had come to expect from the promise of the Enlightenment. We are not gaining knowledge with every human generation. We are losing it.

A dark and gathering sameness is upon the world, and the language of environmentalism is wholly inadequate to the task of describing it. It can't even come close. It isn't that environmentalism exaggerates the phenomenon. It's just that it doesn't have the words for it. By "environmentalism," I mean that great movement of people and ideas that emerged in the early 1970s, largely as a function of Euro-American

liberalism. By "the language of environmentalism," I mean not just a narrative template that is overly burdened with outmoded ideas and cultural biases, but language that draws arbitrary distinctions between "wilderness" and everything else, and that places "nature" outside of culture.

The simple premise of this book is that all these extinctions are related. The intent of this book is to explore the relationships among and between these extinctions, and one cannot even begin to do that by relying on the prism of environmentalism. As a separate category of thought, environmentalism is of little use in comprehending what is happening. Whatever name we might give the thing, the extinctions it causes are all at least properly part of the same conversation. The forces at work in the world are "not well understood," to borrow the vernacular of scientific journals. But quite clearly, they are *cultural forces*.

It's true that the current extinction crisis is distinguished from the spasms that ended the Ordovician, Devonian, Permian, Triassic, and Cretaceous periods in that it can be reliably attributed, in one way or another, to a single species: *Homo sapiens*. But it is not a simple story, with human beings as the cruel villain of the piece. The many creatures that have vanished during the course of the human experience make up a staggering and fantastic bestiary. There was an elephant-sized ground sloth in Texas, a Sicilian elephant no bigger than a pony, a bear-sized Australian wombat, and a Floridian bird with the wingspan of a Cessna. It is a long, sad, and continuing story, but it is certainly not solely a "modern" phenomenon. Most of the extinctions caused by human beings in the modern period, which we know something about, have happened by accident, on account of culprits such as rats, pigs, goats, and other "introduced" species. For every sad and well-documented story of a species dying out because of humans, there is almost always an overlooked story of ordinary people struggling against the forces of extinction. For this reason, in the case against humanity, this book is offered as evidence for the defence.

The immediate causes of extinction are often quite straightforward. The epicenter of the extinction of the world's "wild" things is the humid tropics. Tropical extinctions are most often the result of a simple equation: Chop down all the trees and the animals will die. The temperate world is not at all like the tropics, but there are certain global patterns at work, patterns that involve upheaval and dispossession. Extinctions tend to follow the collapse of order in human societies. Human-caused extinctions are often the result of old "feedback loops" breaking down, and old restraints giving way. Where you have rapid advances in technology, dramatic shifts in political power, and profound economic disruption, extinction tends to follow. There is also a surprisingly direct correlation between the removal of vegetative cover—even "domesticated" plant life—and the dying out of languages, cultures, and ways of life.

It is not true that people started taking these things seriously only in the late 1960s, when astronauts beamed back pictures of this lovely blue planet, or when the United States senator Gaylord Nelson conceived the idea of Earth Day. People have been taking these things seriously for a long, long time. Deep within the human consciousness is an ancient and abiding desire to be in the presence of flourishing, abundant, and diverse forms of life.

To make sense of the world, people tell stories. The way novelist Doris Lessing puts it, "our brains are patterned for storytelling." Just as an enchantment with the beauty, utility, and diversity of living things is an inescapable aspect of human nature, so is the desire for narrative to make sense of it all. And because this is a moment in time when the world is filled with dread and foreboding, when the great master narratives we've relied on to understand things are collapsing all around us, I reckoned there should be some virtue in going for a walk through the hills and coming back at the end of the day with an account—a story—of what's out there.

So that's what I attempted.



I set out from the townland of Coolreagh, a place of rolling hills, bogs, and woods within the parish of Bodyke, in the northeastern corner of County Clare, in the Republic of Ireland. Its name comes from Cúl Riabhach, which can be rendered in English along the lines of The Grey Corner. Thickly hedged, stone-lined boreens connect the old farmhouses to one another and to the nearby villages and the outside world. Down one of these little roads is my mother's family's farm. The farmhouse stands on the banks of a stream called the Annamullaghau, which means Mill River. The name acknowledges the farmhouse, which was once a small mill. The house has stood there in one form or another for four hundred years.

I had come for a visit with my Uncle Tony and my Aunt Angela, and my cousins Christine, Philip, Douglas, and the rest. It was my intention to make sense of some of my notes and then start out on a long walk. In one of my notebooks I'd jotted down a passage from the Old Testament's Book of Hosea: *Therefore shall the land mourn, and everyone that dwelleth therein shall languish with the beasts of the field and with the fowls of heaven; yea, the fishes of the sea also shall be taken away.* There was also an article out of *The Guardian* that I'd scribbled on. It was from the May 23, 2002, edition, under the headline "The Way We'll Live in 2032": "The destruction of 70 per cent of the natural world in 30 years, mass extinction of species, and the collapse of human society in many countries is forecast in a bleak report by 1,100 scientists published yesterday."

But a single narrative is not so easily imposed on the land. Each townland is its own piece of a quilt. Within each townland there are fields. Each field accounts for itself in its own way, with its own stories. From the farmhouse at Coolreagh, you can walk over a small stone bridge that crosses the Annamullaghau beside the farm, and you will find yourself standing in the townland of Caherhurley beside a field

called the Castle Field, which takes its name from a craggy and vine-covered rock in the middle of it, the remnant of a stone fort built by local tribesmen loyal to Brian Boru, the great warrior-chief who defeated the Vikings at Clontarf in 1014. In the Castle Field you will notice the ground beginning to rise gently, and if you walk that way, up Blackguard's Hill, you'll find yourself heading through Ballyvaughan, into the Slieve Bernagh mountains.

If you walk in the other direction, northward, you will eventually find yourself in the townland of Fossamore, and the ground begins to rise there, too, into the Slieve Aughy mountains. It's wilder up that way. Above Fossamore is Powlagower, the Goat's Hole, and Tabernagat, the Well of the Cats. There is the Sruthánalunacht, the Stream of New Milk, which once ran white with milk but long ago it turned to water, they say, when a woman washed her feet in it. There are people who live at Cloonusker who say that at the end of the world, the final battle of the last war will be fought up there, above Gortaderra, in a place called the Valley of the Black Pig, and on that last day of battle the Stream of New Milk will turn to blood.

The story the old people at Cloonusker tell is the same event foretold by Hosea, in his way, and it is also the future imagined by those eleven hundred scientists, in their way, in that article in *The Guardian*. William Butler Yeats was haunted by these things, and just as the world was carrying the great weight of dread and foreboding in his apocalyptic poem, "The Valley of the Black Pig," so it was when I began writing this book. But what I should also report here, straight away, is that by the end of my travels, after a fairly thorough reconnaissance of the extinction at work in the world, I returned with absolutely no evidence that any of this is what humanity really wants. This is rather good news, I think. I can also confidently report that the roads and boreens that wind their way through the East Clare hills do not lead inevitably northward beyond Fossamore into the Valley of the Black Pig.

Hosea's prophecy did not come to pass, the Israelites did not perish,

and that *Guardian* article about the destruction of 70 percent of the natural world and the collapse of human societies within thirty years did not describe one inescapable fate. It was about a United Nations Environment Programme (UNEP) *Global Outlook* report that actually found four roads through the hills.

Only two of those roads lead into the Valley of the Black Pig. One of them, which the report calls a "security first" approach, traverses a desperate countryside of inequality and conflict, protest and reaction. The powerful and the wealthy end up gating themselves into enclaves, leaving the masses of poor to survive as best they can in the collapsing environment outside the walls. The other road takes a more circuitous route, but it ends up in the same place. The UNEP scientists call this road a "markets first" approach, because it requires us to put our faith solely in market forces, further globalization, and greater trade liberalization. We count on corporate ingenuity to resolve social and "environmental" problems, and leave it to ethical investors and consumer groups to keep global capitalism honest. The state ends up with no capacity to regulate human affairs or protect those values that humanity cherishes.

The other two roads lead to a different sort of countryside altogether. A "policy first" approach leaves public governments in charge of identifying social and environmental goals. We put our trust in coordinated responses to environmental disruption and poverty, factor environmental and social costs in our public policy, and allow for local and regional innovation. On the "sustainability first" road, a wholly new paradigm emerges. New institutions make room for radical changes in the way people interact with one another and with the living, breathing world. Corporations are held to account. Citizens and stakeholder groups participate directly in decision making. We all muddle through. And we live in hope.

The closer you look behind all those cringe-making global headlines, what you see is that practical solutions have already been found

for almost all those dreadful problems the headlines describe. In many ways, the world is becoming a better place. The world is taking on another two hundred thousand people every day, but humanity's total numbers are projected to level off at around 10 billion before the year 2100. The last, critical redoubts of 43.8 percent of the world's vascular plants and more than one third of the world's animals, birds, reptiles, and amphibians take up only about 1.5 percent of the earth's surface. If we take "wilderness" to mean tracts of land of at least ten thousand square kilometers with, say, at least 70 percent of the native ecosystems intact, then almost half the planet is still like that.

This book does not forecast what the future has in store for us. Fortune-telling has always been a dodgy enterprise. I grew up in a world crippled with the fear of nuclear apocalypse. Then the Berlin Wall fell. Then, just as the great gulf between capitalism and communism was finally breached, two passenger planes were plunged into those two great towers in New York, and the world was divided against itself again. No one foresaw the epochal changes to practically every aspect of our lives that occurred, almost overnight, as a consequence of computers and the Internet. The exponential growth in information-technology capacity is moving from a curving line on a graph to a line that goes straight up, and no one knows where it's going. By the beginning of this century, the People's Republic of China had emerged as a great state-capitalist powerhouse with an economy so dynamic that it threatened to eclipse the United States, and the Muslim population of Western Europe was roughly the same as the population of Syria. No one foretold these things.

Even the meaning of the word *extinctis* blurring. Nature has always existed as much within the human imagination as anywhere else, but rapid advances in the genetic sciences, transgenic manipulation, and biotechnology are changing everything. They are throwing open the final borders between wild and domesticated animals and plants, humans and animals, "wilderness" and zoos, and humans and

machines. The emerging fields of robotics and nanotechnology will lead us all to hell or to heaven—nobody seems to know which.

There are even people up in County Leitrim who make a convincing case that the people at Cloonsker haven't read St. Columba's prophecies correctly at all, and the real Valley of the Black Pig isn't that place above Gorraderra. It's actually up their way, they say, by Ballinamore.

For all these reasons, when I started out on that long walk from the farm at Coolreagh, I was not drawn helplessly along the roads that lead up beyond Fossamore. I walked in a different direction, and I ended up at the Temple of Kali, in Calcutra. But I'm getting ahead of myself.

I set out with my cousin Christine, turning east at the top of the road from the farm. We walked in the direction of Lough Derg, the great broadening of the Shannon River that so deeply cleaves the country, and we headed toward the village of Tuamgraney, the Tomb of Gráinne. Some people associate Tuamgraney with Grian, an old sun goddess. Another way of translating the name of the village is Altar of the Sun. The fields and the stones argue among themselves about which of their stories is right and best, but all the old stories appear to agree on one thing: Gráinne was a high-born woman who became inconsolable and drowned herself in a little lake up above Feakle after learning she had been conceived of a sunbeam and would never know the world of mortal men.

Being mere mortals, when we pull away at the vines of our limited understanding of the sum of all living things, we still find the moss-covered foundation of Aristotle's *scala naturae*, and the fading inscriptions chiselled by the seventeenth-century Lutheran medical student Carl von Linné (also known as Carolus Linnaeus), who gave us our system of taxonomic nomenclature, which he called the *systema naturae*. Nowadays, the whole edifice is crumbling. Entire families of species emerge from the mud, as though summoned by Zeus, or disappear forever, as though extinguished by the impact of a Cretaceous asteroid. Sometimes they vanish out of the known world, and some-

times they vanish owing to the mere publication of papers in such scholarly periodicals as the *Journal of Heredity*. But the world of mere mortals will never be made up of species that fit neatly into their own genus, family, order, class, phylum, kingdom, and domain. The mortal world is also made up of stories. That's the first thing you notice when you walk through the East Clare hills.

The little field beside the farmhouse at Coolreagh is Carrigra, the Red Crag. Across the boren from Carrigra is the Big Hollow. Above the Big Hollow is Hogan's. Then there's the tillage field, the old milking shed, and beyond the tillage field is Flanagan's. Jack Brian's field is all covered in whitethorns and holly and blackthorns. It's also called the Fairy Field, because within it is a rath, which is a ring fort, one of those circles of stones where people used to see faint lights dancing on certain nights of the year. The holy well at Tobar Coolan is for sore eyes, the one at Ballyquinbeg is for sore bones, and the well at Saint Senan's is for headaches, and there is blackberry and hazelnut and plum and wild apple among and between everything.

For all its splendid, flourishing, and elaborately interconnected profusions of life, the earth is also a tomb, and the dead breathe their stories out of the ground. But those very stories, all over the world, are vanishing just as certainly as all those birds, languages, turtles, songs, and apples. They are also vanishing just as quickly. This presents a problem in relying on such an old and "slow" technology as a book to write about all this. It's not the scale of the phenomenon. It's the pace.

When the Dalcaasian tribesmen built that watchtower in the Castle Field by the farm at Coolreagh, there were about 350 million people on earth. Ten centuries later, the human population had grown four-fold, to about 1.4 billion. A mere century after that, it had quadrupled again. The amount of methane in the atmosphere has more than doubled from the time of the Dalcaasians. The amount of carbon dioxide in the atmosphere has grown by one third from the time when the farmhouse was built. Global climate patterns are changing faster

than in any period since the Ice Age began to wane eighteen thousand years ago. All of the warmest years since the time of Christ occurred after 1990, and suddenly we are taking all to ourselves almost 40 percent of the earth's primary productivity in the plants that we eat, the plants we feed to the animals we eat, and the forests we raze to build our cities and our homes.

The rate of extinctions in the realm of animals and plants is believed to have accelerated to perhaps one thousand times the "normal" background rate. Things vanish from the world in an instant, and they fall among the nettles and the sorrel of the older taxonomies. It's hard to keep up with everything we're losing. One creature I was going to write about in this book, for instance, was a bird known as the *po'ouli*—a gorgeous little Hawaiian honeycreeper, confined to the upper slopes of the Haleakala volcano. But I was too late. The last one known to exist died in a cage on November 26, 2004.

So, slowing down and going for a long walk was the method I chose, and down one of the roads I walked in the East Clare hills is the Raheen Wood, where there is a tree called the Brian Boru Oak. The story told there is that the great warrior Brian Boru himself planted the oak one thousand years ago. It is a giant of a thing, living and breathing and rising into the sky out of a tangle of ferns and woodrush. They say it is the oldest tree in Ireland. It is certainly the oldest tree that remains of the Sudaine forest, which once lay thick and heavy on the Slieve Aughry mountains above Coolreagh. The forest has come to abide only in small places like the Raheen Wood because herdsmen had cut away at it for fuel and pasture, then the British cut away at it for barrel staves and ship's masts, and then came Oliver Cromwell's terror, in the seventeenth century. The forests were felled to flush the wolves and also the bands of rebels always hiding within, with their pikes and their glibberish. The last wolf in Ireland was hunted down and killed in 1786. The rebels were put to the sword. The trees kept falling.

But by then, the Irish were growing potatoes, and potato-farming

served the same function as the “green revolution” in the Third World during the mid-twentieth century. It increased crop yields without addressing the root causes of hunger, such as population growth, dispossession, and the various pathologies associated with vast inequities in wealth and power. The potato had come from the New World, and it was a miracle food, just as Monsanto corn was to American industrial farmers in the late twentieth century. Then, one evening in the autumn of 1845, a strange mist settled on an Irish potato field. By the morning, the field was as black and dead as though locusts had fallen upon it. Within the space of a week, all the potatoes in Ireland had gone rotten and putrid in the ground.

Along the way to Tuamgraney, my cousin Christine and I lingered awhile in a field called An Casaoireach. Down through the years, the local people had planted yew trees in the field to keep the cattle away from all the sorrow in it. Lately, they’ve been planting other kinds of things, more local, distinct, and endemic varieties. But you still make the sign of the cross when you walk past, because in the ground under the trees are the bones of at least twelve thousand people. There is a huge gruel tureen in the field. It’s a giant iron pot that came from the Scarriff workhouse, a place that contributed many corpses to the field. An Casaoireach can be roughly translated as “Throw Them Back.” Most people just call it the Famine Field. It comes from the time of An Gorta Mór, the Great Hunger.

Within three years of the potato blight that came in 1845, it was as though the heart of Ireland had been struck by an asteroid. Refugees were streaming away in every direction. When it was all over, more than a million people, perhaps as many as two million, had starved to death. By the end of the nineteenth century, Ireland had lost two thirds of its people, and only about 15 percent of those who remained were capable of speaking their own language.

The story of extinctions today is eerily similar to the story that was unfolding in the East Clare hills in the years before the Great Hunger.

It is a story of imperial capitalism, deforestation, rapid human population growth, the rise of crop monoculture, enormous disparities in the distribution of wealth, a blind faith in free trade, and the obliteration of localized culture. It’s a story that always seems to lead to a field where people make the sign of the cross when they pass.

But some things do not so easily pass away from the world. They move through the cartography of our deepest longings, beyond any explanation, and in all those things that we have ever killed or venerated or loved, there is something we cannot quite banish. Always, a voice. Hold fast, it says. Hold fast.

It’s only a short walk from the Famine Field to the Alzar of the Sun. Just outside the village of Tuamgraney, there are two standing stones in what once was a field, on what might be a mound, in front of Alan Sparling’s house. You’re welcome, then, Alan said, and he shooed away his little dog. It’s good for your health just to stand beside the stones, the people used to say. There are two others just like them over by Frank Hassert’s gate. Or rather one, split in two, owing to someone swearing an oath on the stone and breaking the oath, many years ago.

It was here that Gráinne of the Bright Cheeks, daughter of a chief from the Slieve Aughry mountains, lived, died, and was buried. She threw herself into Lough Na Bó Girre, the Lake of the Sun, and her body floated down a little stream to the place that ended up being called Derrygraney, the Oak of Gráinne. When the people found her, they wept, and they put her in the ground.

In these ways, the fields and the stones have their own stories, and all of us, the living and the dead, the wild and the tamed, the fowls of heaven and the fishes of the sea, are a part of it now.

This is a book of those stories.