FLIGHT WAYS

LIFE AND LOSS AT THE EDGE OF EXTINCTION

THOM VAN DOOREN

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Critical Perspectives on Animals: Theory, Culture, Science, and Law

Critical Perspectives on Animals: Theory, Culture, Science, and Law
Series Editors: Gary L. Francione and Gary Steiner

The emerging interdisciplinary field of animal studies seeks to shed light on the nature of animal experience and the moral status of animals in ways that overcome the limitations of traditional approaches to animals. Recent work on animals has been characterized by an increasing recognition of the importance of crossing disciplinary boundaries and exploring the affinities as well as the differences among the approaches of fields such as philosophy, law, sociology, political theory, ethology, and literary studies to questions pertaining to animals. This recognition has brought with it an openness to a rethinking of the very terms of critical inquiry and of traditional assumptions about human being and its relationship to the animal world. The books published in this series seek to contribute to contemporary reflections on the basic terms and methods of critical inquiry, to do so by focusing on fundamental questions arising out of the relationships and confrontations between humans and nonhuman animals, and ultimately to enrich our appreciation of the nature and ethical significance of nonhuman animals by providing a forum for the interdisciplinary exploration of questions and problems that have traditionally been confined within narrowly circumscribed disciplinary boundaries.

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Thom van Dooren

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For my parents

who taught me a profound sense of wonder and

an abiding respect for our living world

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FLIGHT WAYS

INTRODUCTION

Telling Lively Stories at the Edge of Extinction

How else could a book about birds and extinction begin, but with the tragic story of the Dodo? In death, this bird from a small island in the western Indian Ocean has taken on a strange celebrity, becoming something of a "poster child" for extinction. And yet, many of the specific images and ideas about the Dodo that circulate in people's imaginations are highly speculative. Ultimately, a great deal remains unclear about what kind of a bird the Dodo was, how it lived, and when it passed from the world. While reports, sketches, and paintings of the Dodo survive from the seventeenth century, it is difficult to determine which of them is accurate and based on firsthand experience. Like a game of telephone, or Chinese whispers, it seems that many of these accounts and images were themselves based on other accounts and images, alongside varying degrees of poetic license (Hume 2006).

What we do know, however, is that Dodos (*Raphus cucullatus*) were large, flightless birds who made their homes exclusively on the island of Mauritius.[1] They probably ate mostly the fallen fruit available to a ground-dwelling bird, along with some seeds, bulbs, crustaceans, and insects. Fruit would have been abundant on the island prior to human arrival, when there were also no other terrestrial mammals present (Livezey 1993:271). In the absence of these mammals, Dodos likely had fewer competitors for

these foods than did birds in many other places, but importantly, they also had no significant predators themselves—a situation that did not prepare them well at all for what was to come with the arrival of humans.

It is unclear who the first people to set eyes on the peculiar form of the Dodo were. Perhaps they were among the Arab traders who likely discovered the island in the thirteenth century. Or perhaps they were Portuguese sailors, among those who started visiting the island a few hundred years later (from 1507). As far as is known, however, neither of these groups settled on Mauritius, and no documentary evidence of an encounter with a Dodo remains.

The first reliable accounts of the Dodo were written by the Dutch after they arrived on the island in 1598 (Hume 2006:67). For roughly the next century, the Dutch East India Company used Mauritius as a "pasturing and breeding ground for livestock and a source of wild native meat" (Quammen 1996:265). This was the beginning of the end for the Dodo. Not only were they themselves on the menu—along with tortoises and a number of other local birds—but the various mammals that were intentionally and accidentally introduced to the island by the Dutch took their own huge toll.

Part of the problem for Dodos was undoubtedly their susceptibility to capture by hungry sailors and settlers. As flightless birds who had no previous experience of predators, they were easily captured by hand or beaten with a stick (Quammen 1996:266–68). While there have been frequent suggestions over the past few hundred years that Dodo meat was very unpalatable and infrequently consumed, that does not seem to have been the case. Paleontologist and Dodo expert Julian Hume (2006:80) has provided details of numerous firsthand accounts of the Dutch "relishing" the meat—in particular, the breast and stomach—and daily catching and eating many of these birds.[2]

It is likely, however, that the biggest problems that the Dodo faced after the arrival of humans on Mauritius were the other species of animals that came along on the journey. Foremost among them, chronologically at least, was probably the black rat (*Rattus rattus*). As in so many other places that European ships docked in the period, rats arrived early and with devastating force. Dodo eggs and young chicks, which up until this time would have required little protection, were an easy source of food. A little later, in the first decades of the seventeenth century, other new spe-

cies joined them—notably, crab-eating macaques, goats, cattle, pigs, and deer. All these animals likely played a role in the decline of the Dodo: as predators, competitors for food, or both (Hume 2006:83).

No visitors to the island recount seeing a Dodo after the 1680s, perhaps a little earlier, and all evidence suggests that the species was extinct by the end of the seventeenth century (Hume, Martill, and Dewdney 2004). After thousands of years of peacefully gorging on fruits, the Dodo was suddenly thrust into an encounter with European culture, and just as quickly slipped out of the world.

While this was by no means the first species in whose loss humans were centrally involved, the Dodo inhabits a peculiar and iconic place in many contemporary accounts of extinction. This bird, and this biological process, have become strangely synonymous. If you ask the next person you see what they know about the Dodo, you might be told that it lived in Mauritius; you might even be told that it was a flightless bird; you will definitely be told that it is extinct.

"Dead as a Dodo"; little else about these birds seems to linger in our imaginations.

Perhaps this is because so little else is known with certainty about the species. But perhaps another reason for this close association between the Dodo and extinction is the particular way that this bird entered into written history. According to Beverly Stearns and Stephen Stearns (1999), the Dodo has the dubious honor of being "the first species whose extinction was conceded—in writing—to have been caused by humans" (17; see also Quammen 1996:277).[3]

I can offer no guarantee that the Dodo was actually *the* first species to be written about in this way, but it was certainly among the first. This was an extinction that occurred in the midst of the emergence of a slow realization by some European explorers and colonists that they might have huge impacts on the environments they were visiting, especially those of small islands. As environmental historian Richard Grove has noted, Mauritius was cited at the time as a key example of this potential. As forests were cleared and animal and mineral resources depleted, a "coherent awareness of the ecological impact of capitalism and colonial rule began to emerge" (Grove 1992:42). On Mauritius, however, it was too little, too late—both for the Dodo and for the numerous other species lost during this same period.

And so the Dodo entered into written accounts as a species driven to extinction by human activity, its fate strangely bound up with a dawning historical awareness that human activity might not just kill individual plants and animals, sometimes in their thousands, but also bring to an end whole ways of life. As a result of this awareness, the loss of species might be understood and narrated in a way that significantly *implicates* us—causally, perhaps emotionally, and certainly ethically. This is our sad inheritance from the Dodo.

In an important sense *Flight Ways: Life and Loss at the Edge of Extinction* is a continuation of the now well-established tradition of telling "extinction stories" that implicate people. But it is also an effort to tell these all-too-familiar stories in a new way. Specifically, the approach to thinking through extinction taken up in this book centers on "avian entanglements." Which is to say that this is a book about birds and their relationships, about the webs of interaction in which living beings emerge, are held in the world, and eventually die. Life and death do not take place in isolation from others; they are thoroughly relational affairs for fleshy, mortal creatures. And so it is, in the worlds of birds—woven into relationships with a diverse array of other species, including humans. These are relationships of coevolution and ecological dependency. But they are also about more than "biology" in any narrow sense. It is inside these multispecies entanglements that learning and development take place, that social practices and cultures are formed. In short, these relationships produce the possibility of both life and any given way of life. And so these relationships matter. This is true at the best of times, but in times like these when so many species are slipping out of the world, these entanglements take on a new significance.

Flight Ways is composed of five extinction stories, each focused on a group of threatened birds. In emphasizing these birds' entanglements, the book draws us into a deeper understanding of who they are, who we are, and ultimately how it is that we all "become together" (Haraway 2008), for better or worse, in a shared world. Through this lens, it is clear that much more than is often appreciated is at stake in the disappearance of birds. And so we are able to understand in new ways the diverse significances of extinction: What is lost when a species, an evolutionary lineage, a way of life, passes from the world? What does this loss mean within the particular

multispecies community in which it occurs: a community of humans and nonhumans, of the living and the dead? How might we think through the complex place of human life at this time: simultaneously, a/the central cause of these extinctions; an agent of conservation; and organisms, like any other, exposed to the precariousness of changing environments?

In focusing on entanglements, this book aims to present alternative understandings of extinction to those grounded in entrenched patterns of "human exceptionalism." This exceptionalism presents humans as fundamentally set apart from all other animals and the rest of the "natural" world (chaps. 2 and 5). In this context, extinction cannot help but be regarded as something that happens "over there" or out in "nature." In contrast, the approach taken in this book is grounded in an attentiveness to the diverse ways in which humans—as individuals, as communities, and as a species—are implicated in the lives of disappearing others. Paying attention to avian entanglements unsettles human exceptionalist frameworks, prompting new kinds of questions about what extinction teaches us, how it remakes us, and what it requires of us. This last question is of particular importance. Ultimately, this book is concerned with broad questions of ethics: What kinds of human–bird relationships are possible at the edge of extinction? What does it mean to care for a disappearing species? What obligations do we have to hold open space in the world for other living beings?

FROM DEEP WITHIN A TIME OF EXTINCTIONS

Sadly, extinction is not a topic that generates a great deal of popular interest at the present moment. I suspect, however, that in the future to come—if humanity is here at all—extinction will be among the handful of themes that is understood to be central, perhaps even definitional, of our time. We are the generations that are overseeing the loss of so much of the diversity of living forms on this planet, the generations that are perhaps yet to fully understand and respect the significance of the intimately entangled, co-evolved, forms of life with which we share this planet.

According to some biologist and paleontologists, this period may well be Earth's sixth mass extinction event (Kingsford et al. 2009); according to others, we are not quite there yet, but certainly on the way (Barnosky

et al. 2011). Past mass extinction events, like the one that took the dinosaurs roughly 65 million years ago at the end of the Cretaceous and the even larger end-Permian event around 250 million years ago, saw losses of more than 75 percent of Earth's species (Jablonski and Chaloner 1994; Raup and Sepkoski 1982). In place of meteor impacts, volcanic eruptions, and the various other forms of massive upheaval proposed as possible causes for the previous "big five" events, it is tragically clear that ours is an *anthropogenic* extinction event. Current deaths of species are being brought about, directly and indirectly, by a range of interwoven human activities—including the destruction of habitat, the promulgation of introduced species, direct exploitation and hunting, the indiscriminate introduction of a range of new chemicals and toxins, and now increasingly the various impacts of climate change.[4]

The scale of this loss is unknown and unknowable with any real certainty. Biologist Richard Primack (1993) estimates that the current rate of extinction is likely 100 to 1,000 times greater than would be expected as a result of normal "background extinction."[5] According to some scientists, we are now on a trajectory to lose between one-third and two-thirds of all currently living species (Myers and Knoll 2001:5389). Within this broader space of loss, some taxonomic families will be hardest hit. Frogs, salamanders, and other amphibians, for example, are considered to be at particular risk, with approximately one-third of all species now thought to be endangered or recently extinct (Stuart et al. 2008).

Birds, too, have also been hard hit by extinction. In the past 500 years, 153 documented avian extinctions have occurred (Birdlife International 2008:4). It is likely, however, that the actual number is much higher, as some species that are listed as "critically endangered" are in actuality already extinct, and others will disappear without having been documented at all. Today, one in eight known bird species is thought to be threatened with global extinction, while among some taxonomic families, the number is much higher (Birdlife International 2008:5)—for example, 82 percent of all albatross species are threatened (chap. 1).

Those birds that make their homes on islands have also tended to fair particularly badly. While "only" 20 percent of the world's bird species are confined to islands, approximately 90 percent of the avian extinctions that have occurred in recorded history have been those of island inhabitants (Quammen 1996:264). For example, in and around the Pacific Ocean

where much of this book is set, successive waves of human settlement (and colonization and occupation) have taken their toll (Steadman 2006). As biologist John Marzluff (2005) has simply put it: "In little over a thousand years we have extinguished more than half of all the bird species that occupied the lush islands of the tropical Pacific" (256). As we enter more deeply into this current period of loss, however, mainland birds—including some of those once thought exceedingly common—are also increasingly being placed at risk of extinction (for example, the Indian vultures discussed in chap. 2).

But despite all these known losses—from the Dodo to the Passenger Pigeon (*Ectopistes migratorius*) and the King Island Emu (*Dromaius ater*)—our knowledge of this situation remains thoroughly partial. The total number of species being driven over the edge in this "time of extinctions" (Rose and van Dooren 2011) simply overwhelms our capacity for understanding. We just do not know how many are being lost: How could we, when we do not even know how many species there are on this planet with any reasonable degree of certainty? While we sometimes hear about a handful of charismatic endangered species, countless others go completely unremarked on and even unnoticed (at least by modern science, and perhaps humans more generally).[6] As biologist Bruce Wilcox (1988) notes, "[F]or every species listed as endangered or extinct at least a hundred more will probably disappear unrecorded" (ix).

TELLING LIVELY STORIES ABOUT EXTINCTION

Flight Ways is set within the shadow of this incredible loss. It is in this context that it asks about the nature of extinction and why and how it matters. As a whole, this book is grounded in the conviction that there is no single "extinction" phenomenon. Rather, in each case there is a *distinct* unraveling of ways of life, a distinctive loss and set of changes and challenges that require situated and case-specific attention. In delving into the lives and deaths of particular bird species, this book attempts to draw out their "entangled significance." Across simultaneously "biological" and "cultural" domains, the book explores some of the ways in which diverse living beings—humans and not—are drawn into the extinctions of others. Far more than "biodiversity"—at least in the narrow sense that the term is

often used—is at stake in extinction: human and more-than-human ways of life, languages, ways of mourning and being with others, even livelihoods and diverse cultural and religious worlds are often drawn into the fray as species move toward, and then beyond, the edge of extinction.

Narrative is my way into this complexity; stories allow us to hold open simultaneously a range of points of view, interpretations, temporalities, and possibilities (Griffiths 2007). But this book takes a particularly "lively" approach to telling stories about life and death in the shadow of extinction.[7] It is an effort to weave tales that add flesh to the bones of the dead and dying, that give them some vitality, presence, perhaps "thickness" on the page and in the minds and lives of readers. This is an inherently multidisciplinary task, and so the stories that I tell in this book engage with the literatures of biology, ecology, and ethology (the study of animal behavior and cognition), as well as with interviews and conversations with scientists of various kinds. In drawing on the natural sciences, I hope to invite readers into a sense of curiosity about the intimate particularities of these disappearing others: how they hunt or reproduce, how they take care of their young or grieve for their dead, how they make themselves at home in the vast Pacific Ocean or along an urban coastline. Paying attention to the details of how these lives are, or once were, lived invites us into a sense of wonder.

Rendered in this way, these creatures become more than a name—no longer an abstract Latin binomial on a long list of threatened species, but a complex and precious *way of life*. And so this approach to storytelling is a core part of my effort to capture a fuller sense of what extinction *is* and to insist that nonhuman others are not simply "life forms," but "forms of life" (Helmreich 2009:6–9). I draw this distinction from the anthropologist Stefan Helmreich (2009), who puts it to productive use to explore the entanglement of various "life forms"—understood as organisms in ecological relationship—with diverse "forms of life," which, adapting Ludwig Wittgenstein, he understands as "those cultural, social, symbolic, and pragmatic ways of thinking and acting that organize human communities" (6). There is, however, no reason why a line must be drawn at the human, and so the stories in this book are particularly interested in the "forms of life" that have emerged, and are possible, for some of the many disappearing other-than-human "life forms" that populate this planet. As will be discussed in detail in chapter 1, this understanding of birds (and other

organisms) as life forms *with* a form or way of life is central to my notion of species as "flight ways."

In drawing on the perspectives of the natural sciences in taking up this topic, my intention is not to imply that they offer us the only—or even necessarily the best—means of understanding the lives and deaths of birds. And yet, some of the work within these disciplines has provided ways of knowing that deeply influence my own appreciation of the world and my sense of the significance of extinction. As such, I draw on work in the natural sciences that I think helps to animate a fuller and richer sense of the lives of particular beings. This approach takes seriously Donna Haraway's (2008) injunction to practice a genuine curiosity in our philosophical engagements with a more-than-human world; it is a practice grounded in "knowing more at the end of the day than at the beginning" (36).

As I researched each chapter—reading, thinking, and conducting interviews and fieldwork—I got to know these species in new ways. In each case, I was surprised by the way in which "knowing more" draws us into new kinds of relationships and, as a result, new accountabilities to others. As I came to understand a little better the particular dynamics of the relationship between Little Penguins and the coastlines that they nest on, I began to appreciate in new ways the ethical weight of our destructive actions in these places (chap. 3). As I reflected on the complex ecological and social relationships that Hawaiian Crows live within, I also developed a new awareness of the significance of their disappearance from island forests (chap. 5). And so I came to appreciate the ethical work that these stories may do in the simple act of making disappearing others thick on the page, exposing readers to their lives and deaths in a way that might give rise to genuine care and concern.

My guide in thinking through the ethics of storytelling in this way is James Hatley's work on narrative and testimony in the face of the Shoah. Hatley forcefully reminds us of the ethical demands of the act of writing: of giving an account or telling stories. In place of an approach that would reduce others to mere names or numbers, in place of an approach that aims for an impartial or "objective" recitation of the "facts," Hatley argues for a form of witnessing that is from the outset already seized, already claimed, by an obligation to those whose stories we are attempting to tell. This is particularly the case when our stories play the role of witness or testimony to the suffering and deaths of others (Hatley 2000:114). In the

context of extinction, these kinds of stories are not an attempt to obscure the truth of the situation, but to insist on a truth that is not reducible to populations and data: a fleshier, more lively, truth that in its telling might draw us all into a greater sense of accountability (van Dooren 2010; but see Smith 2001:368). As William Cronon (1992) simply puts it: "Good stories make us care" (1374).

Consequently, at the same time as they may offer an account of existing relationships, stories can also connect us to others in new ways. Stories are always more than simply descriptive: we live by stories, and so they are inevitably powerful contributors to the shaping of our shared world. This is an understanding that works against any neat or straightforward division between the "real" and the "narrated" world (Kearney 2002:133–34). Instead, I see storytelling as a dynamic act of "storying" the world, utterly inseparable from lived experience and a vital contributor to the emergence of "what is." Stories arise from the world, and they are at home in the world. As Haraway (forthcoming) notes, "'World' is a verb," and so stories are "*of* the world, not *in* the world. Worlds are not containers, they're patternings, risky co-makings, speculative fabulations." Even a story that aims to be purely mimetic can never simply be a passive mirror held up to "reality." Stories are a part of the world, and so they participate in its becoming. As a result, telling stories has consequences: one of which is that we will inevitably be drawn into new connections, and with them new accountabilities and obligations.

And so the bird stories that this book tells/does are "lively" in both their message and their form—that is, in their commitment to the continuity of diverse ways of life, and in their attempt to enact stories as interventions into existing patterns of living and dying in an effort to work toward better worlds.

THE EDGES OF EXTINCTION

As previously noted, this book is animated and guided by a desire to weave stories that explore and convey the entangled significance of extinction. In so doing, a key part of my interest is in broadening our notion of what extinction actually *is*, beyond the simple black-and-white versions of it that often dominate. These conventional understandings center on the death

of the last individual of a kind. We may not very often be sure if any given individual really is the last, but we are usually confident that if we did (or could) know for certain, then we would be able to pinpoint the precise moment of an extinction. The death of Martha the Passenger Pigeon at the Cincinnati Zoo in 1914, or that of an unnamed Po'ouli (*Melamprosops phaeosoma* [a Hawaiian honeycreeper]) in conservationists' hands in 2003, were in all likelihood simultaneously deaths of individuals and "extinctions" in this sense.

There is, of course, something entirely accurate about this understanding. Something important and profound took place with the deaths of these last individuals. And yet, the immensity and significance of extinction cannot be captured within these singular events, as though a species might be deemed to be extinct or not solely on the basis of the presence in the world of at least one individual of that kind/lineage. This understanding reduces species to specimens—reified representatives of a "type" in a museum of life—in a way that fails to acknowledge their entangled complexity (chaps. 1 and 2, in particular). The nomadic form of life of Passenger Pigeons, moving through the sky in flocks of hundreds of millions of birds that blocked out the sun, had long since come to an end when Martha passed away in 1914. As Passenger Pigeon numbers dwindled, the social and behavioral diversity of this unique way of life—of what it was to *be* a Passenger Pigeon in some fundamental sense—would also have broken down. Similarly, over the decades before Martha's death, the interspecies relationships that the Passenger Pigeon evolved and lived within would also have become increasingly fractured as these birds stopped playing any significant role in the lives and nourishment of diverse humans and nonhumans.[8]

A singular focus on Martha's death covers over all of this; it presents a species as somehow "ongoing" because one individual continues to draw breath in a zoo, while the entangled relations that in a nontrivial sense *are* this particular life form and its form of life, have long ago become frayed and disconnected.

The point here is not that a bird in a zoo is not a bird at all. Clearly, many birds are capable of living in a range of environments, of adapting to changed conditions: a species is not a single, narrow, and unchanging way of life—as is indicated so well by the numerous birds and other animals who have taken up residence within, sometimes as an integral part

of the emergence of, "human" cities (Hinchliffe and Whatmore 2006; van Dooren and Rose 2012; Wolch 2002). Rather, the point is that the loss, the change and disruption—often accompanied by violence and suffering—that occurs in extinction must not be reduced to this one event. Instead, the deaths of these last individuals must be understood as singular losses in the midst of the tangled and ongoing patterns of loss that an extinction *is*.

This understanding of extinction is, of course, grounded in an attentiveness to entanglements. When species are understood as vast intergenerational lineages, interwoven in rich patterns of co-becoming with others (chap. 1), then their departure from the world cannot help but be felt in a range of complex and drawn-out ways. In an effort to take these entanglements seriously, this book focuses on some of the various "edges of extinction." In spending time in this terrain of living and dying, I have become acutely aware that extinction is never a sharp, singular event—something that begins, rapidly takes place, and then is over and done with. Rather, the edge of extinction is more often a "dull" one: a slow unraveling of intimately entangled ways of life that begins long before the death of the last individual and continues to ripple forward long afterward, drawing in living beings in a range of different ways (chap. 2, in particular).

As becomes clear in this book, these spaces at the edge of extinction are far from uniform. Each of the birds discussed draws us into a different set of relationships. In one case, it is a space in which countless albatross chicks die each year through the consumption of plastics and other toxins. In another, it is a space of contestation between penguins returning faithfully to a disappearing coastline that was once their nesting site and the people, dogs, and others that now also call this place home. In the context of Hawaii's crows, it is a space of both potential and actual grief and mourning, in which the deaths of others might provide powerful opportunities to relearn our place in a shared world.

In many of these cases, the edge of extinction is now also deliberately flattened and drawn out by active human intervention to conserve disappearing species. Through these efforts, species are held in the world for decades more than they might otherwise have survived. In addition, therefore, to being spaces of suffering, death, and loss, these edges of extinction are now often also places of intense hope and dedicated care. Chapter 4, in particular, explores the way in which the edge of extinction might be

flattened through conservation efforts—in this case, with a focus on the iconic Whooping Crane. Here, my particular interest is in the strange juxtaposition of violence and care, of coercion and hope, that characterizes the lives and deaths of captive cranes (and many other species) at the "dull edge of extinction."

In short, these edges of extinction are varied, complex, and conflicted spaces in which diverse relationships, diverse multispecies communities, emerge as possibilities of life and death for everyone—not just the "endangered"—are remade.

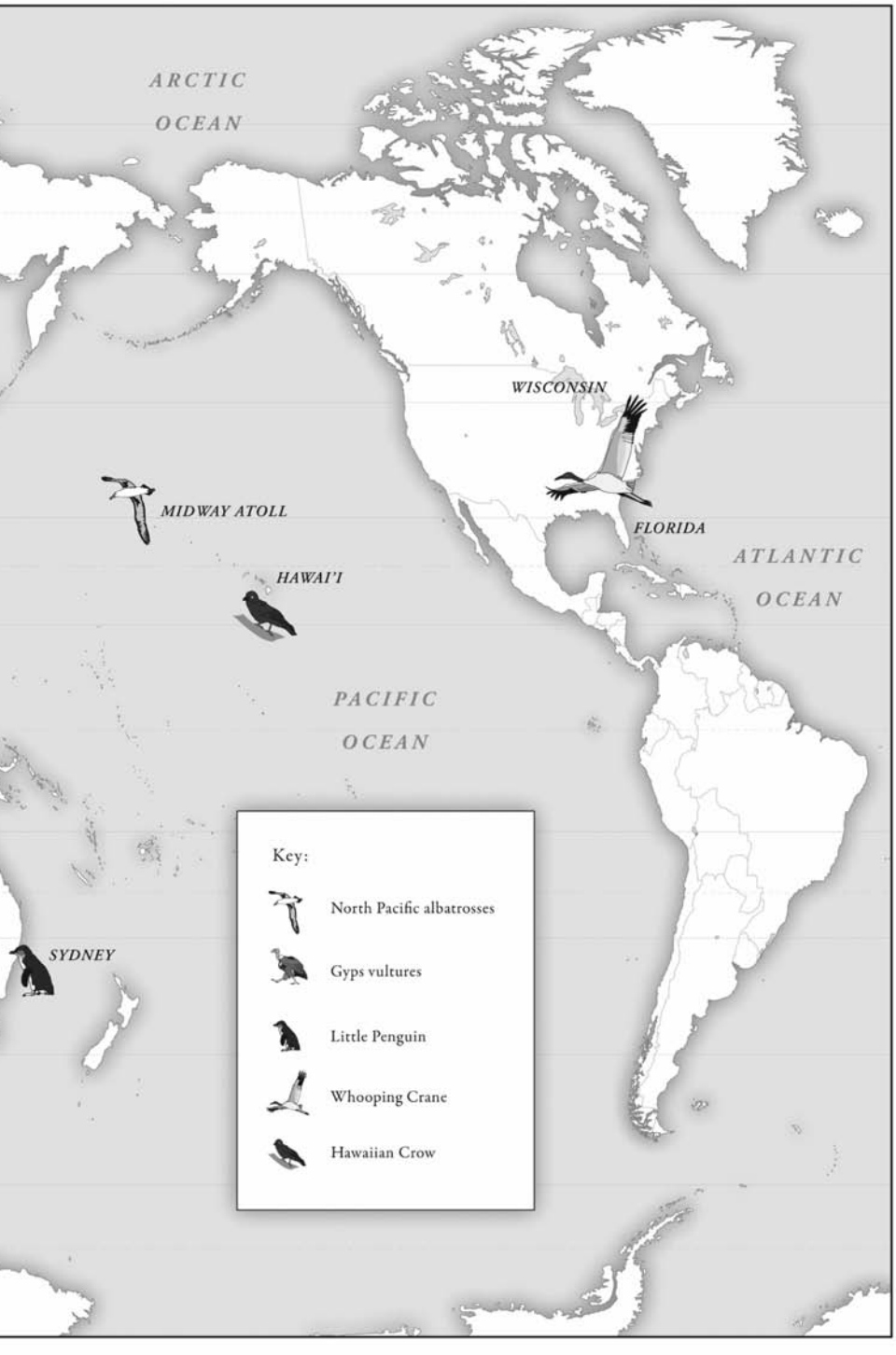
THE STRUCTURE OF THIS BOOK

The approach taken in *Flight Ways* is situated within ongoing discussions in two emerging fields of scholarship: animal studies and the environmental humanities. Both are thoroughly interdisciplinary fields where the humanities and social sciences are drawn into conversation with the natural sciences. This book aims to contribute to both areas of scholarship, but also to encourage the deepening of dialogue between them.

Each of the chapters might be read in isolation. On the surface, each of them tells a unique and largely self-contained story, with occasional references to related discussions in other chapters. However, my intention is for the book to be read in order and as a whole. In gentle but important ways—ways that will hopefully become clear as the reader moves through the book—each chapter builds on those that precede it, taking for granted both concepts and commitments that are fleshed out more fully in earlier chapters.

Chapter 1 explores the plight of the Black-footed Albatrosses (*Phoebastria nigripes*) and Laysan Albatrosses (*P. immutabilis*) of Midway Atoll in the remote North Pacific Ocean. The chapter takes up this topic through a focus on the difficult work of fledging young albatrosses (that is, raising them until they are ready for flight): the creation of a solid pair-bond between breeding birds, the laying and incubating of eggs, the months of movement back and forth between land and sea in search of food to satisfy hungry young chicks. Through this account, the chapter proposes a particular understanding of what a species is, an understanding that focuses on the time, energy, and labor that are required to keep successive


Arctic Circle
60°
45°
30°
Tropic of Cancer
15°
INDIA
Equator
ATLANTIC
OCEAN
INDIAN
OCEAN
Tropic of Capricorn
30°
45°
60°
SOUTHERN
OCEAN
Antarctic Circle


ARCTIC
OCEAN
WISCONSIN
MIDWAY ATOLL
FLORIDA
ATLANTIC
OCEAN
HAWAI'I
PACIFIC
OCEAN
SYDNEY
Key:
North Pacific albatrosses
Gyps vultures
Little Penguin
Whooping Crane
Hawaiian Crow

generations in the world. In this context, species are incredible *achievements*: intergenerational lineages stretched across millions of years of evolutionary history. In our time, however, the circulating waste of human societies threatens the continuity of albatross species, harming and killing breeding birds and their young. In this context, the chapter focuses on the diverse temporalities enfolded at this site of encounter. Here, the daily lives of birds—and, ultimately, the futures of their species—come into contact with persistent pollutants and seemingly immortal plastics. Ultimately, the chapter explores some of the ways in which the difficult task of taking seriously these vastly different temporal horizons and their overlaps and intersections provides us with a fuller sense of the immensity of what is lost in extinction, while drawing us into new and deeper responsibilities for our living world.

Chapter 2 considers some of the contemporary entanglements of vultures (genus *Gyps*), people, cattle, and others in India, with a particular focus on the way in which lives and livelihoods are made possible inside interactions in a more-than-human world. In the context of Indian vultures, this situation is made more complex because these species are rapidly approaching extinction. When vultures are no longer around to take up the relationships that they once did, many other lives are made difficult or impossible—with poor and rural communities very often bearing the majority of the human burden. In this context, the chapter takes up the notion of the "dull edge of extinction" to explore some of the inequities of exposure to suffering that emerge inside relationships of multispecies dependency. This is a topic that can only take on increasing importance as we move ever more deeply into the current period of extinctions and a time of greater climatic and environmental change.

Chapter 3 takes up the story of a tiny colony of penguins that make their home just inside the mouth of one of Australia's busiest ports, Sydney Harbour. Members of the world's smallest penguin species, these Little Penguins (*Eudyptula minor*) stand roughly 1 foot (30 cm) tall and weigh around 2 pounds (1 kg). They also make up one of the last penguin colonies left on the Australian mainland and the last in the state of New South Wales. For roughly eight months of each year, these penguins return to this harbor, coming ashore at various places to lay eggs and fledge young. Increasingly, however, their burrows are being lost to them through urban development and its accompanying patterns of light, noise,

and disturbance (in particular, predation by domestic dogs). This chapter explores the nature of these penguins' attachment to their specific breeding places, called "philopatry" or "site fidelity." Despite ongoing changes and increased danger, year after year they return. The chapter argues for an understanding of these breeding sites as "storied-places," invested with history and meaning for penguins. Consequently, it explores the ethical significance of destroying places that penguins (and others) are in an important sense tied to. The chapter asks: What kinds of ethical obligations might be opened up by a new sensitivity to the storying and place-making practices of penguins and other nonhumans?

Chapter 4 is focused on one of North America's longest-running conservation programs, that of the iconic Whooping Crane (*Grus americana*). For more than forty years, conservationists in the United States and Canada have worked to protect these birds and their wintering and summering grounds. On many levels, this is a story of care and success in which conservationist have managed to pull the species back from the edge of extinction—from fewer than 20 birds in the early twentieth century to roughly 600 today. This chapter takes up this conservation story through a close focus on the elaborate captive breeding and release program that for some young birds culminates in the use of ultralight aircraft to teach them a new migratory route. My particular interest is in the strange juxtaposition of care and violence that lies at the heart of this effort and the ethical dimensions of the human–crane relationships that are being established. Who suffers and who dies so that new populations of this species might make their way back into the world? On what grounds are the lives of some beings sacrificed for the sake of others, and might a concerted effort to inhabit and examine these complex and difficult situations—"staying with the trouble" (Haraway, forthcoming)—provide an opening into a more ethical mode of conservation?

Chapter 5 returns us to the heart of the Pacific Ocean, this time with a focus on the only endemic corvid species, the Hawaiian Crow (*Corvus hawaiiensis*). In 2002, the last free-living crow died. As forest-dwelling fruit specialists, these crows have been significantly affected by the degradation of local forests, as well as by increased predation and introduced diseases. This chapter considers the limited ethological literature on the ways in which crows (and corvids more generally) respond to the deaths of others of their kind. Much of the history of Western thought has utilized animals'

understandings of and responses to death to construct a dualism between "the human" and "the animal." This dualistic thinking is at the core of a human exceptionalism that holds us apart from the rest of the world and, as such, contributes to our inability to be *affected* by the incredible loss of this period of extinctions, and so to mourn the ongoing deaths of species. In contrast to this tradition, this chapter explores some of the ways in which taking crows' grief seriously may, in fact, work to undermine our sense of human exceptionalism—in particular, by highlighting both a deep evolutionary continuity between humans and other social animals, and our ecological entanglement in a more-than-human world. In this way, telling stories about grieving crows may itself become an act of mourning extinctions. This would be a mode of mourning that does *not* announce the uniqueness of the human, but works to undo exceptionalism, drawing us into company with crows and others to grieve for the loss of a world that *includes us*, to grieve the countless deaths that constitute this time of extinctions.

Through each of these avian case studies, *Flight Ways* explores new modes of storytelling. Ultimately, it offers a call for stories, a call for new ways for figuring our place in and obligations to a rapidly changing world.

Five

MOURNING CROWS

Grief in a Shared World

I remember most of all the Hoʻokena bird, how after it lost its mate it cried out for
weeks . . . a terribly high-pitched sound, like an inconsolable moaning. . . .
The Hoʻokena bird is so obviously looking for company,
but there is none to be found—nowhere.

GLENN KLINGER, QUOTED IN MARK JEROME WALTERS,
SEEKING THE SACRED RAVEN

Death, mourning, and that collective mode of dying called "extinction" are painfully drawn together in this short quote. The bird in question, now long dead itself, was a member of that rarest of corvid species, the Hawaiian Crow (*Corvus hawaiiensis*). At the time that biologist Glenn Klinger spoke these words, only three of these birds were left in the wild. A couple of years later, in 2002, the last sighting of a free-living Hawaiian Crow was made. Since then, the only surviving crows have lived in captivity, subjects of a long-running breeding and conservation program (USFWS 2009).

This chapter explores the plight of the Hawaiian Crow, but it does so through a very particular lens: mourning. Drawing on a broad range of material concerned with crow behavior and ecology, my interest is in learning more about how these birds mourn for the deaths of others of their kind. Alongside this discussion, this chapter also draws on a philosophical literature in an effort to explore what it might mean for us to mourn for crows in a time of extinctions. Taken together, these two acts of mourning point to the possibility of our learning to mourn *with* crows for some of the many losses of life and diversity that take place within our shared world.

A captive Hawaiian Crow at the Keauhou Bird Conservation Center on the island of Hawaiʻi. (Photograph by author)

But this chapter is not just *about* mourning. In addition, it aims itself to *be* an act of mourning: to tell stories about the dead and dying that draw them into relationship with the living. In doing so, this chapter attempts to work across and break down the human exceptionalism that, as we will see, has so often dominated our thinking about death and our relationships with other animals and the broader environment. It is in part this exceptionalism that holds us distant, intellectually and emotionally, from our more-than-human world. Mourning offers us a way into an alternative space, one of acknowledgment of and respect for the dead. In this context, mourning undoes any pretense toward exceptionalism, instead drawing us into an awareness of the multispecies continuities and connectivities that make life possible for everyone.

THE CROW THAT IS NOT A CROW

If you had traveled into the dense volcanic forests of Hawaii's Big Island a century ago, you may well have been lucky enough to catch sight of a Hawaiian Crow. In fact, you may not even have had to look very hard. Deeply inquisitive by nature, Hawaiian Crows seem to have frequently greeted early naturalists who made their way into the island's forests (Walters 2006). According to one of these naturalists, Henry W. Henshaw, in *Birds of the Hawaiian Islands* (1902):

> The bird, instead of being wary and shy, seems to have not the slightest fear of man, and when it espies an intruder in the woods is more likely than not to fly to meet him and greet his presence with a few loud caws. He will even follow the stranger's steps through the woods, taking short flights from tree to tree, the better to observe him and gain an idea of his character and purpose. (quoted in Walters 2006:63)

As is perhaps implied by the vivid image that Henshaw's words paint, the forest was central to the life of these crows. Although sometimes venturing beyond its borders, Hawaiian Crows lived primarily among the trees, relying on them for the invertebrates and forest fruits that made up the bulk of their diet (Banko, Ball, and Banko 2002). They even made use of the forest flowers, eating some whole while probing and piercing others in search

of nectar. As the island's largest forest bird, and a largely frugivorous one at that, the species is thought to have probably played an important role as a seed disperser, "potentially influencing the composition and function of dry- and wet-forest ecosystems" (Banko, Ball, and Banko 2002).

Perhaps, in most of these habitat and dietary preferences, these birds do not really sound like "crows" at all. The broad crow family (Corvidae, often referred to as "corvids") is composed of many kinds of birds, including jays, magpies, ravens, and crows. But it is these last two types of predominantly black birds—crows and ravens, along with the Jackdaw (*Corvus monedula*) and Rook (*C. frugilegus*), sometimes collectively called the "true crows" (genus *Corvus*)—that most people think of when they hear the word "crow." While there are many species of "true crow" around the world, the ones that many of us know best—those that make their homes among us, living in cities and rural areas—are in many ways very different kinds of birds from those found in Hawai'i; we might think here of species like the American Crow (*Corvus brachyrhynchos*), the Australian Raven (*C. coronoides*), and the House Crow (*C. splendens*) in India and other parts of South Asia, not to mention perhaps the most successful member of the genus *Corvus*, the Common Raven (*C. corax*), a species that can now be found over fully half of Earth's landed surface (Marzluff 2005:47). All these well-known species are omnivorous and opportunistic, generalists of the most blatant kind. They are willing and able to live in a wide range of habitats and situations, exploiting a similarly wide range of food sources. Much of this diet—at least the bit most visible to people—is now often composed of scavenged waste, whether carcasses collected along roadsides or rubbish pulled from bins or dumps. It was with these kinds of crow species in mind that biologist John Marzluff (2005) noted, "If crows can be thought of as specialists in any way, they are specialists on people" (32).

But this urban scavenging lifestyle has often earned crows little fondness in people's hearts. This situation was, in fact, part of the motivation behind conservationists' decision to refer to the crow by its Hawaiian name, 'Alalā, thus emphasizing its considerable differences from many more well-known corvids and undoubtedly helping in efforts to raise funds for and public concern about the future of the species (Lieberman, pers. comm.).[1] As a fruit and forest specialist, the Hawaiian Crow is already very different from a lot of other crows. But, importantly, it is also unlike many of these

other species in terms of its response to human habitation. Whereas many other corvids have thrived in company with humans, the Hawaiian Crow has instead been driven to the very edge of extinction.

The key problem for the Hawaiian Crow, as with so many other island birds, has been rapid and ongoing alteration of the environment. Hawaiian birds have had to survive through two waves of significantly different human settlement occupation: first the arrival of Polynesians, about 1,500 to 2,000 years ago, and then the arrival of Europeans beginning in the late eighteenth century. In each case, many species have been lost. Today, Hawai'i has the dubious honor of being home to more endangered species per square mile than any other place on Earth (Restani and Marzluff 2002; Steadman 1995). While Hawai'i is undoubtedly a particularly bad case, small islands all over the Pacific—and, indeed, around the world—are in a similar position. As Marzluff (2005) notes, "In little over a thousand years we have extinguished more than half of all the bird species that occupied the lush islands of the tropical Pacific" (256).

The environmental change that has all but wiped out the Hawaiian Crow has taken a variety of forms. At the most obvious level, the loss of large areas of forest has decreased the possible range of the species, while also reducing the availability of some food plants. These transformations have been incredibly widespread. As the U.S. Fish and Wildlife Service's (2009) recovery plan for the species notes: "There is no existing forest within the historical range of the 'Alalā that has not been substantially altered from its pre-European condition, much less from its condition prior to the [human] colonization of the islands" (I-10). In addition, the introduction of a range of animals to Hawai'i has produced new predators for crows, while increasing vulnerability to existing predators. Newly arrived species like rats, mongoose, and cats attack crows and their eggs, while pigs, cattle, and other grazing animals have thinned out the understory in surviving forested areas, making crows more vulnerable to predation by the 'Io (Hawaiian Hawk [*Buteo solitarius*])—a species that is itself listed as endangered. In addition, humans have played a role as direct predators of crows, with farmers in the past even taking advantage of these birds' curiosity by imitating their calls to attract and shoot them (Marzluff 2005:259; Walters 2006:62). Alongside all these threats, introduced diseases—in particular, toxoplasmosis, avian malaria, and avian pox—have

"developed" cognitive capacities and, as a result, have been taken to be the exclusive possessions of *Homo sapiens* (Bekoff 2006). In this context, paying attention to the *evolution* of grief goes some way toward unsettling this fallback exceptionalist position. While emotions like grief certainly take myriad forms among the many social mammals and birds, they are nonetheless shared in an important sense, too (as is increasingly being shown in work on the neuroevolution of empathy and other emotions [Decety 2011]). Darwin, of course, knew something like this when he located the roots of human grief, as with the rest of our emotional repertoire, in the animal world in *The Expression of the Emotions in Man and Animal* ([1872] 1965; Crist 1999:17–29).

In addition, paying attention to mourning crows enables us to understand a little better the experiential world that Hawaii's crows inhabit—at least for now. In doing so, we gain a "thicker" sense of who these creatures might be, but also of what is being lost in their disappearance. Far more than "biodiversity" in any narrow sense, mourning crows remind us that whole modes of life, whole ways of living and dying in company with others, are disappearing—nonhuman languages, socialities, perhaps even cultures.[13] Part of this loss will inevitably also be *ways of mourning*. Perhaps in the end, what must be mourned at this time, alongside so many other things, is the diminishment of mourning itself, the loss of the rich and varied expressions of grief that have evolved on this planet over millions of years. As species disappear, or as their socialities become dislocated and fractured by violence and disturbance, their ways of being meaningfully together in death, as in life, are undermined and lost (Rose 2008).

MOURNING AS RELEARNING A SHARED WORLD

But I suspect that corvids have still more to teach us about death and mourning. In exploring this possibility, we might start with a funeral. While traveling through the mountains in Colorado, ethologist Marc Bekoff (2007) witnessed a gathering of magpies in which four of these birds were standing around a fifth, likely killed by a car: "One approached the corpse, gently pecked at it . . . and stepped back. Another magpie did the same thing. Next, one of the magpies flew off, brought back some grass, and laid it by the corpse. Another magpie did the same. Then, all

four magpies stood vigil for a few seconds and one by one flew off" (1). It is far from certain what these interactions may have meant for those birds on that day, or how widely similar practices might exist among other species—although since the publication of this account, Bekoff (pers. comm.) has been sent numerous reports of similar behavior among other corvids. To my knowledge, no such funerals have been observed among Hawaiian Crows, and perhaps we will never know for certain in what ways they marked the deaths of so many of their kind in recent decades. Although perhaps the experience of the Hoʻokena bird referred to in the epigraph gives us an important indication.

John Marzluff (pers. comm.) has also frequently encountered large gatherings of crows and ravens at sites of death. On several occasions, he has even orchestrated these assemblies by placing a dead American Crow—one found that way—back in the environment:

> In all those cases—I've done it several times—their response was the same. The birds come in; they see the dead bird; they immediately fly down and start scolding. They will land around that bird and make a lot of noise and scold. And then, being gregarious animals, they'll probably start preening and doing lots of other things, and then eventually they fly off. Personally, I think that that's what everybody sees when they say they've seen a funeral. Basically, what's going on there is that the birds are learning about a very dangerous situation. . . . They're learning this is a dangerous place, or there is a dangerous predator, or some situation here that we need to know about and avoid in the future.

Death functions as a powerful stimulus to learning in this account. Marzluff's observations also indicate that the lessons to be learned from death are very quickly taken up by crows.[14] In fact, American Crows have been known to avoid places where one of their kind has been killed for over two years, sometimes changing whole flight paths to avoid flying over such a site (Marzluff, pers. comm.).

Clearly, crows learn about danger from death, but this fact in no way undermines the possibility that they may also experience grief at such times. In fact, if death does provide an important opportunity for learning, this outcome would only be enhanced by a strong emotional response, be

it fear or grief. And so this possible evolutionary *function* for crow gatherings at sites of death does not, of course, mean that this is also the *motivation* of individual birds in attending.[15]

In pointing to this potential learning opportunity, however, Marzluff and the crows that he knows remind us that there is more to mourning than the "simple" expression of grief. In addition, as many psychologists and philosophers have insisted in relation to human grief, processes of individual and collective mourning do important work in allowing us to learn from and "work through" experiences of loss (Freud 1917; Riegel 2003). This idea has been expressed in a range of ways, but I am particularly drawn to philosopher and counselor Thomas Attig's (1996) understanding of grieving as a process of "relearning the world":

> As we grieve, we appropriate new understandings of the world and ourselves within it. We also become different in the light of the loss as we assume a new orientation to the world. As we relearn, we adjust emotional and other psychological responses and postures. We transform habits, motivations, and behaviors. . . . Some of what we took for granted in ourselves or in our life patterns is no longer viable or sustainable. Relearning the world thus requires that we make changes. (107–8)

In short, one of the core components of the way in which Attig understands grieving is as a more or less conscious process of learning and transformation to accommodate a changed reality.

What grief points to here is a particular kind of *shared* world or *shared* life. This is a way of being with others that, as far as we know, is unique to some mammals and birds, a particular sociality rooted in our being *emotionally* at stake in one another's lives. This possibility, this way of being with others, is a complex biosocial achievement, requiring the coming together of evolutionary histories and emotional and cognitive competencies to produce embodied subjects who are unavoidably emotionally entangled with one another.[16] It is only inside these particular biosocial configurations that the passing of another out of the world can be experienced and felt as a genuine loss. But loss is not experienced in the face of all change or even death. It is not enough for two such beings to have lived alongside each other, in proximity to each other; rather, they must also in

some way have become *at stake in each other*, bound up with what *matters* to each other. In other words, they must in some sense, more or less consciously, have come to inhabit a meaningfully *shared world*.[17]

Grief, then, in Vinciane Despret's (2004a) terms, is a very particular process of "learn[ing] to be affected" (131), in which the borders between self, world, and other are profoundly problematized (209). This does not mean, however, that there is some sort of "default state" in which we are unaffected by the world, to which we must later add an emotional life. There is no default, originary position; there is only becoming-together inside rich histories of biosocial inheritance and relationship. In this context, learning *not* to be affected is equally a state that is produced: achieved through the cultivation of some relationships, some histories and understandings, and not others (Despret 2004a). As anthropologist Matei Candea (2010) makes clear in a somewhat different context, "ignoring" one another is neither a simple nor an originary mode of being with others for social animals attuned intellectually and emotionally to their complex surrounds. Rather, like engagement and attachment, it must be actively achieved (Candea 2010; Haraway 2008:24–25).[18]

It is with this understanding of grief in mind—as a complex biosocial achievement—that I would like to consider the general lack of popular interest in the deaths of species such as the Hawaiian Crow, which has become an all-too-common feature of our twenty-first-century world. What does it mean that, in this time of incredible loss, there is so little public (and perhaps also private) mourning for extinctions? Why do the last expressions of so many species leave this world unnoticed and unmourned—except perhaps by the few conservationists on whose watch and sometimes in whose hands, they pass away? (The others of their own kind being already gone, and so unable to mourn even if they once did.)

At the core of the answer that I would like to propose to these questions is our inability to really *get*—to comprehend at any meaningful level—the multiple connections and dependencies between ourselves and these disappearing others: a failure to appreciate all the ways in which we are at stake in one another, all the ways in which we share a world. This failure is, at least in part, rooted in the human exceptionalism that this chapter has explored. As Val Plumwood noted repeatedly throughout her long career, this kind of anthropocentric engagement with the world has important

negative consequences for both humans and the many other living things that we share this planet with. As she put it in an important posthumously published paper:

> When we hyperseparate ourselves from nature and reduce it conceptually, we not only lose the ability to empathise and to see the non-human sphere in ethical terms, but also get a false sense of our own character and location that includes an illusory sense of agency and autonomy. So human-centred conceptual frameworks are a direct hazard to non-humans, but are also an indirect prudential hazard to Self, to humans, especially in a situation where we press limits. (Plumwood 2009:117)

The current anthropogenic extinction event is clearly one of those situations in which we are ever more dangerously pressing up against the limits of resilience of various ecosystems.

In Plumwood's (2007, 2009) account, human exceptionalism is positioned as doubly problematic. In the first instance, it is implicated in the erasure of the significance of nonhuman others, in our inability to empathize with their suffering and mourn for their deaths and ultimate extinction at our hands. As a dominant cultural narrative in many parts of the world, this is particularly so. The stories that we live by (Griffiths 2007)—as individuals and as societies—powerfully shape our ability to be affected by others (Despret 2004a:140). As these stories are taken up and lived, they "rearticulate" us as beings at stake in one another's lives in various ways. The affective separation of human exceptionalism holds the more-than-human world at arm's length: human exceptionalism plays a central role in the active process of our learning *not* to be affected by nonhuman others.

At the same time, however, Plumwood is attentive to the way in which human exceptionalism grounds a dangerous illusion in which the loss of nonhuman others is understood to never quite touch human lives and possibilities. No meaningfully shared world can emerge inside this conceptual space, and so the potential impacts of the loss of Earth's diversity on our own prospects for sustainable and meaningful lives are never quite grasped. As a result, we seem to have missed the real need for change—the need to relearn the world and our place in it—that death and grieving so often announce. As Marzluff's (pers. comm.) crows remind us, it can be

very dangerous not to pay attention and make changes to behaviors in this context. But if the death of a single crow signals "here lies danger"—a danger significant enough to avoid a place for years, to alter flight ways and daily foraging routes—then what must the death of a whole species of crow, alongside a host of others at this time, communicate to any sentient and attentive observer? How could these extinctions not announce *our* need to find new flight ways, new modes of living in a fragile and changing world?

STORIED-MOURNING IN A TIME OF EXTINCTIONS

My hope is that this chapter about grieving crows may itself function as a narrative form of mourning. As Paul Ricoeur (2007) notes, "[T]he work of narrative constitutes an essential element of the work of mourning" (8). But this is so not just in the sense that stories help us to move on, to bear or even accept irreparable loss. In addition, stories play an important role in *communicating* this loss more widely, while helping to tease out the various ways in which loss matters, sometimes drawing distant listeners into a sense of felt connection and so affective involvement in a loss. A key part of this process is the "fleshing out" of the dead that stories enable, the chance to capture and communicate a fuller notion of who has died and why they mattered—in Judith Butler's (2009) terms, "to put together some remnants of a life, to publicly display and avow the loss" (39). In doing so, mourning may be an act of bearing witness to the deaths of so many individuals and species at this time in Earth's history. While some species may yet make it back from the edge of extinction, many others have not and will not in the years to come. In this context, mourning is a "simple" act of respect for and fidelity to those who have died.

But as they travel, stories also breathe new life into the dead, keeping them moving and enabling them to "haunt" our lives and future possibilities. In this sense, storied-mourning does not attempt to recover and move on from a loss—to put the dead to rest—but, as Jacques Derrida (1994) has suggested, offers us the possibility of mourning as a deliberate act of *sustained* remembrance that requires us to interrogate how it is that we might "live *with* ghosts" (xviii; Brault and Naas 2001; Ricciardi 2003). As Tammy Clewell (2009) has put it, what is at issue here is "a form of anti-

conciliatory and sustained grieving that seeks to promote new [bio]social constellations so that the replaying of traumatic effects and injurious histories [and presents] might be shorn of their deadly consequences" (18–19). This is the kind of mourning that asks us—that perhaps demands of us, individually and collectively—to face up to the dead and to our role in the coming into being of a world of escalating suffering, loss, and extinction.

While there is potentially a kind of respect and acknowledgment in this refusal to put the dead to rest, there is also an important sense in which the dead are "put to work," a kind of "use" of the dead that Derrida (2001) has frequently cautioned against as an unethical (but, to some extent, also unavoidable) facet of mourning. And yet, as Derrida (1994) also acknowledges, "we know better than ever today that the dead must be able to work. And to cause to work, perhaps more than ever" (120). The work to be done here is, first and foremost, the task of "getting it" that these deaths, of individuals and of species, *matter*; that the world as we know it is changing; and that new approaches are necessary if life in its diversity is to go on. In this context, learning to mourn extinctions may also be essential to our and many other species' long-term survival.

It is not yet clear whether crows will make their way back into Hawaii's forests. The conservationists with whom I have spoken are hopeful, but also realistic about the many challenges that the species still faces—in particular, the need to restore forests and find ways to better protect birds from disease and predation. While I sincerely hope that this story has as happy an ending as is possible, this will not change the fact that countless birds have died and grieved, and that many generations of their kind will now be required to live in captivity for the species to have any hope of a future at all. Meanwhile, I cannot help but think of the literally hundreds of other species of Pacific birds who have already disappeared, just one part of our global impact on the diversity of forms of life over the past few human generations.[19]

It is in this context, inside deep histories of co-evolved affective bodies, that we are invited to mourn not just *for* crows, but *with* them. Hawaii's crows remind us that *if* we manage to find our way into a space of grief at this time, we will be just one species mourning among many, just one of the many forms of life on this planet that are experiencing this time of incredible loss through a lens of sadness and grief. In this context, mourning

with crows is about more than any single species, or any number of individual species, but must instead be a process of relearning our place in a *shared world*: the evolutionary continuities and the ecological connectivities that make our lives possible at all. And so learning to mourn might offers us a way into a fuller understanding of our living planet, of what it means and why it matters. As Thomas Attig (1996) has simply put it, albeit in a different context, "In choosing to grieve actively, we choose life" (61). This has perhaps never been more true than it is now.

EPILOGUE

A Call for Stories

In January 2013, while finishing work on this book, I returned to Hawai'i to continue my research on the Hawaiian Crow. While all these crows currently live their lives in captivity, it is hoped that in 2014 some of them may be able to be released. If this were to happen, and if those birds could form sustainable free-living populations, then a great achievement would have been made: forests that for over a decade have not heard the raucous calls of crows, or felt the movement of their graceful half-jump–half-flight through their canopies, would again be enlivened by this most charming and charismatic of birds. Beyond the pleasure that this return to the forest would bring to the crows themselves and to their observers (like me), it is likely that others would benefit, too. As the islands' largest frugivorous bird, the crow's absence may be having an impact on a number of tree species that have relied on these birds to disseminate their seeds (Culliney 2011). This is not an uncommon situation. When animal species disappear, the plants that co-evolved with them often feel this loss—some of them perhaps becoming extinct themselves in the absence of pollinators or disseminators (Barlow 2000; Janzen and Martin 1982). Speculation continues about a similar dependency of the tambalacoque tree on the now long-absent Dodo (Livezey 1993:272; Temple 1977).

But alongside endangered plants and their advocates (who might have much to gain from a return of the crow), on the Big Island of Hawai'i I also found many vocal critics of this proposed release. Foremost among them were pig hunters, concerned that the management of release sites for crows (in state-managed forests) would require that pigs be excluded and killed, limiting the number of animals that might be available for hunting. The relationships between humans and pigs in Hawai'i are complex: stretching from the arrival of the first people who brought small Polynesian pigs with them, through long histories of cohabitation and environmental change in which pigs have been central characters in the transformation of forests and the loss of numerous species of birds (Leonard 2008), to ongoing and sometimes heated contemporary tensions between conservation, on the one hand, and practices of pig hunting, on the other (Culliney 2011; Juvik and Juvik 1984).

All these entanglements are at stake in the conservation and possible extinction of the Hawaiian Crow. Will those tree species needy for crows for seed dispersal survive and thrive once again, or will they go the way of so many other 'anachronistic' plants? What kinds of human–pig cohabitation will be possible in the future to come? Will crows and many other endangered species find a place in the islands' forests, and at what cost to whom? Stretching back into the distant past and rippling forward into the many possible futures for Hawaii's forests, these are the kinds of complex relationships that characterize life at the edge of extinction. Much is at stake here for crows, but for a host of others, too.

This book has explored some of these kinds of entanglements in an effort to develop a broader, more complex, notion of what extinction *is*, and why and how it matters. This is necessarily a project that works against simplistic human exceptionalisms to tell stories that implicate us all—to varying extents and in a range of ways—in this incredible period of loss.

A motley gaggle of birds have been our guides. Each in its own way, they have required us to rethink what it means to be a fleshy, mortal creature, bound up with others, in a time of extinctions. In short, we have seen that what is at stake here are *ways of life*: ways of being with others, of mourning, of relating to a place, of rearing young, of making one's home in the world. All this stands to be lost as unique species slip out of the world, as millions of years of intergenerational labor, of evolutionary

achievement, disappears. The natural sciences enable us to give some sort of an account of these ways of life: who these birds are and the experiential worlds that they inhabit, how they evolved, how they are woven into ecosystems with others.

But the natural sciences also need the humanities. This is the domain of the "environmental humanities," of a thinking that inhabits complex multispecies worlds without the aid (and impediment) of simplistic divisions between the human and the nonhuman, the cultural and the natural. The world is far messier and more interesting than this. And so the tools of ethnography and philosophy are required to develop a fuller picture of the entangled significance of extinction, of its myriad *meanings* and the diverse ways in which it *matters*. Alongside endangered species themselves, again and again we have seen that possibilities for ongoing life for a variety of others are drawn into extinction events: the loss of healthy environments to live in, of pollinators, of livelihoods for some and religious practices for others.

In taking seriously the entanglements of ways of life across evolutionary, ecological, affective, and multiple other domains, we are inevitably drawn into a set of complex *responsibilities* for what has come to pass and what may yet still be possible. If this period of incredible loss cannot rouse in us an awareness of our place in, and our responsibility for, a *shared* world, then I am not sure what can. The time has long since passed to learn a genuine appreciation for other forms of life, including the countless "animal subjects" (Noske 1989) with whom we share this planet, each with its own unique ways of inhabiting richly storied worlds.

This book is an effort to tell these kinds of stories. As noted in the introduction, extinction stories that implicate humans have a long history. But, despite this fact, we have not yet found good enough ways of thinking through what extinction *is* and what it *means*. At the same time, we have seen that there is no singular extinction phenomenon. Rather, in each case a different way of life, a different set of relationships and entangled significances, is at stake. And so just how these extinction stories might, or should, be told requires continual rethinking. Again and again, we need to ask: What does it means to bring an abrupt ending to *this* particular way of life? What does *this* loss mean inside its specific multispecies communities? How are "we" called into responsibility *here and now*, and how will we take up that call?

NOTES

INTRODUCTION

1. Just how large they were—or, rather, how "fat"—remains a topic of contention (Angst, Buffetaut, and Abourachid 2011a, 2011b).

2. According to Julian Hume (2006), the notion that Dodos were unpalatable is probably the result of a misunderstanding of reports that noted that they were less sought after than other abundant, more familiar, and "more tasty game, e.g. pigeons and parrots" (82).

3. The question of "cause" is complex. Of course, humans introduced pigs, rats, monkeys, and other animals to Mauritius—as well as ate a lot of Dodos themselves—but these introduced animals have their own agency that should not be denied in efforts to place the blame on humans (however rightly). We might also ask about the extent to which we ourselves inherit culpability for the actions of past generations (on this theme, in different contexts, see Bastian [2012b] and Clark [2007]). In short, there are various ways in which "our" implication in the extinction of others might be understood. This book is an effort to think through some of these possibilities.

4. As outlined in chapter 3, I think that the notion of "habitat loss," and thinking about animals as occupants of "habitats" more generally, is deeply problematic. I have used the term here because it is the one that most commonly appears in the literature.

5. "Background extinction" is the "normal" level of extinction expected as part of underlying evolutionary processes in which species are constantly coming into and going out of existence (discussed further in chap. 1). With this is mind, it might be thought that viewing current anthropogenic extinction as something distinct from "background extinction"

implies that it is somehow outside "normal evolutionary processes." While it might make sense to think about an asteroid-induced mass extinction in this way, the notion that the actions of one species (co-evolved with countless others on this planet) should be viewed as not a part of these processes is clearly conceptually problematic on some level. In terms of the scale of our impact on the diversity of living forms, however, at the present point in evolutionary history *Homo sapiens* clearly has more in common with an asteroid than it does with any other species. In reality, however, the definition of a "mass extinction" does not rest on the notion that the cause is external to normal evolutionary processes (that is, extraterrestrial in origin). Rather, it rests on the identification of a pattern of loss that is (1) temporally brief in terms of geologic terms, (2) broad in terms of the taxonomic diversity of the species affected, and (3) occurring at a much higher rate than that normally found in the fossil record (Raup and Sepkoski 1982).

6. On endangered animals and charisma, see Lorimer (2007); on the extinction of unknown species, see Smith (2011).

7. This "lively" approach to storytelling is the result of an ongoing collaboration with Deborah Bird Rose and Matthew Chrulew. For the past four years, together the three of us have been talking, thinking, and writing about extinctions and how it is that we might best tell extinction stories. At present, we are beginning work on a paper that takes up this topic in a more proscriptive matter. This discussion is also part of a wider collaboration with the Extinction Studies Working Group (www.extinctionstudies.org).

8. For further discussion of the extinction of the Passenger Pigeon, see Albus (2011) and Allen (2009).

1. FLEDGING ALBATROSSES

1. The "pelagic zone" is the area of the world's oceans that is far removed from land, either the coast or the seafloor.

2. In order to achieve this efficient form of flight, albatrosses alternate between periods of gliding in a steadily descending movement toward the ocean's surface and short, very abrupt periods of upward movement in which they position their long outstretched wings to catch the wind and momentarily lift them skyward. Even the seemingly energetic task of holding wings outstretched is made easy for the albatross by means of a tendon that locks the wings in place, requiring little muscular effort (Lindsey 2008:66; Safina 2007; Shaffer 2008:152).

3. Not all species of albatross commonly breed each year (some breed only in alternate years). This dynamic of returning to particular places to breed each year (side fidelity and philopatry) is discussed in greater detail in chapter 3, in the context of an urban colony of Little Penguins that makes its home along a disappearing shoreline in Sydney Harbour, Australia.

4. I take the term "long engagement" from Olsen and Joseph (2011; see also Lindsey 2008:83–84). Undoubtedly, the best-known aspect of albatross courtship is the elaborate dances performed by paired birds. Intricate combinations of bodily gesture and vocalization are synchronized by two birds, moving in response to each other, to produce what Lancelot E. Richdale called the "Ecstatic Ritual" (quoted in Rice and Kenyon 1962:530). It is impossible to capture in words the sound and sight of these courtship dances—wings outstretched, bodies bowed to each other, long necks reaching up to perform the "sky call." Even once the birds have settled into a pair, in future years when they return to the island to breed they will again sing and dance together for the period between arrival and the building of a nest. Albatrosses are largely monogamous, so pair-bonds usually endure until broken by the death or disappearance of one of the birds, with "divorces" being very rare (in this context, "divorce" refers to a situation in which both members of a breeding pair are known to still be alive, but are no longer breeding with each other [Rice and Kenyon 1962:524]). If a bond is broken, however, it usually takes more than a year for a new one to be established.

5. In practice, it is often not easy to determine what constitutes the "beginning" (or the "end," for that matter) of a species. There is an important distinction here between "speciation" and "phyletic evolution." The former refers to the splitting off of a group within an existing species, such that over time the new (reproductively isolated) group, responding to different selection pressures, heads down a distinct evolutionary path and a new species emerges. The latter, by contrast, is an ongoing process of change within a species (without splitting) that is significant enough to produce a species different from the one that previously existed (Mayr 2001:177).

It should also be noted that this distinction between Darwinian and pre-Darwinian understandings should not be overdrawn. As a growing body of literature in the history and philosophy of biology is now showing, pre-Darwinian notions of what constitutes a "biological species" were far from homogeneous (Amundson 2005; Wilkins 2009). As Ron Amundson (2005:36) makes clear, until roughly 100 years before Darwin, Western philosophy and science tended to regard "species" as relatively fluid. In particular, the popularity of "transmutationist" views encouraged a belief that plants or animals of one kind might readily change into those of another. These transformations could take place either within a single generation (through metamorphosis or subtler adaptations to climate) or across generations (through hybridization). It was through these avenues that a barnacle might become a goose, maize might be transformed into wheat, or a giraffe might come into being through the pairing of a camel and a leopard.

For obvious reasons, these transmutationist understandings played havoc with efforts to create a systematic taxonomy of living things. Through the work of Carl Linnaeus (1707–1778), his students, and others, however, empirical evidence began to emerge to indicate that these kinds of radical transformations did not occur and that species were actually fixed entities (Amundson 2005:34–41). John Wilkins (2009:95), like Amundson,

argues that species fixism emerged much later in the history of naturalism, but he "credits" John Ray (1627–1705), not Linnaeus, with its invention.

However it arose, this understanding of species as relatively stable entities provided an important grounding for many of the taxonomic efforts of the period—especially the Natural System now associated with Linnaeus's work. In this historical context, species fixity represented an important scientific advance over previous transmutationist understandings. It was these fixist views, however, that the growing acceptance of evolutionary theory soon replaced.

Through the work of Darwin and others, from the middle of the nineteenth century, it was increasingly accepted that species are involved in ongoing processes of evolution (although the speed and mechanisms through which this evolutionary change occurs remained, and to some extent still remain, controversial). As a result, taxonomic efforts to organize the diversity of life gradually shifted from an ahistorical comparison of morphological features (type) to an expression of evolutionary history and phylogenetic relatedness. At the core of this transition is Darwin's notion of "common descent." Whereas previous proponents of evolution tended to assume a unique creation event for each species (which may then evolve over time), and so essentially singular phyletic lineages, "one of Darwin's major contributions was to have proposed the first consistent theory of *branching evolution*" (Mayr 2001:19). The Natural System becomes a family tree of sorts, a Tree of Life (Amundson 2005:133).

6. These characteristics of a species are inherited in the form of complex developmental systems that include genetic and various extra-genetic dimensions (Jablonka and Lamb 2005; Oyama 2000). For a slightly more detailed discussion of inheritance, see chapter 3. Of course, there is a great deal of individual variation within each species, variation that, as Darwin noted, is vital to the dynamic and evolving nature of life (Mayr 1996).

7. At Midway, this destructive human presence has taken many forms over the years. From the late nineteenth century, albatrosses in this area were killed in the hundreds of thousands by Japanese feather hunters who stripped breast and wing feathers and left the rest of the bird to rot. These feathers made their way around the world, as stuffing for bedding, but also to supply the growing demand of the fashion industry, especially for the adornment of hats (De Roy 2008:111–12). From the early twentieth century, the atoll's convenient midway location resulted in a series of ongoing disturbances: first as a way station for telegraphs between Asia and the United States; then as a refueling spot for early trans-Pacific flights; and finally, from the 1940s until the 1990s, as a major base for the U.S. Navy. During this time, the navy completely transformed the atoll, replacing breeding grounds with buildings, aircraft hangars, and runways. In this environment, albatrosses were both accidentally killed—ensnared in cables and antennas or through collisions with aircraft—and deliberately killed in the tens of thousands in an effort to reduce these collisions (De Roy 2008:113; Lindsey 2008:104–5). These threats have now mostly subsided, and since the 1990s the atoll has been a National Wildlife Refuge, administered by the U.S. Fish and Wildlife Service (Lindsey 2008:105).

8. This dubious honor excludes families with only one species. It should also be noted that over the past several decades, many fishing vessels, governments, and nongovernmental organizations around the world have developed and adopted a range of technologies or changed practices in an effort to reduce this mortality. Despite their considerable achievements, mortality levels remain very high and bycatch is still a very significant threat to the continuity of albatross species both in the North Pacific and around the world (Arata, Sievert, and Naughton 2009:23; Molloy, Bennett, and Schroder 2008; Sullivan 2008). For several decades, the high-seas squid and salmon drift-net fishery was also a central part of this spiraling albatross mortality in the North Pacific, until it was officially closed by a United Nations resolution in 1992 (Naughton, Romano, and Zimmerman 2007:10). Pelagic long-line fisheries, however, are still common in the region.

9. But, of course, it is not just albatrosses that are exposed to danger here: a range of other birds and mammals eat at the upper trophic levels, ourselves included. Striped dolphins in the North Pacific Ocean, for example, have PCB and DDT levels that are 13 million and 37 million times higher, respectively, than the concentrations found in the waters they inhabit (Thornton 2000:25). We are poisoning and contaminating our oceans: from the polar regions to the equator, from whales to the smallest bacteria; wherever we look closely, we find our presence in this most destructive and insidious of forms.

10. Among the albatrosses of Midway, this toxic burden has been borne primarily by the Black-foots. Likely as a result of their different foraging areas during the long breeding season, each species seems to be exposed to a different level of contamination (Finkelstein et al. 2006). On average, Black-foots have two to five times the levels of PCBs and DDTs that Laysans do (Finkelstein et al. 2006). Both species, however, possess levels of contamination that are one to two orders of magnitude higher than those of the albatrosses of the Southern Ocean (Guruge, Tanaka, and Tanabe 2001).

11. Kauaʻi is at the northwest edge of the main chain of the Hawaiian Islands. Before the arrival of Polynesians on these islands about 1,500 to 2,000 years ago, albatrosses would have nested here in very large numbers. After being almost completely extirpated from this and other larger islands in the chain, in recent years a handful of birds have returned to establish small colonies—usually within fenced or otherwise protected areas where there is a reduced threat from recently introduced predators, such as domestic dogs. Today, there are around 200 pairs of nesting birds on Kauaʻi, but due to the dedicated work of some locals, this number is growing. See, in particular, the work of the Kauaʻi Albatross Network (www.albatrosskauai.org).

12. On the complex notion of "wild animals," see chapter 4.

13. For further discussion of the evolved "sensitivities" of birds to environmental change and the need to think about them outside of simple, hierarchical notions of "intelligence" (or its absence), see chapter 3.

14. This albatross experience took place with Hob Osterlund and Deborah Bird Rose. Osterlund runs the Kauaʻi Albatross Network. When we visited these albatrosses together, she remarked on the peculiar "trust" that these birds show toward people and so initiated

the process of thought that led to some of the central strands of this chapter. I thank Osterlund for sharing her time and her insight on albatrosses, death, and a range of other topics. Thank you also to Michelle Bastian (pers. comm.) for her framing of this situation as that of inhabiting a "geological moment."

15. While it may well be possible to find meaning and value through a temporal frame locked on periods of millions of years, this is not the approach of this chapter (Rolston 1998). George Levine (2006) has also offered a convincing argument for the need to move away from understandings of evolutionary theory as a necessarily disenchanting discourse.

16. Of course, the kinds of time frames within which evolution takes place are very variable, depending on the organisms in question and a range of other factors. In this context, the slow, extended, temporal frames of evolution are always relative (Hird 2009; Oyama 2000:4).

17. This comment was made by James Hatley at the first meeting of the Extinction Studies Working Group on the southeast coast of Australia, February 13–17, 2012. For more information, see http://extinctionstudies.org/.

18. For example, roughly 39 percent of all Laysan Albatross pairs nesting on the island of O'ahu are female–female pairs, many of them engaged in long-term partnerships (Young, Zaun, and VanderWerf 2008).

19. As the recent controversy over the film *March of the Penguins* (2005) has demonstrated so well, we must remain wary of characterizations of avian (and other nonhuman animal) reproduction that dishonestly squeeze birds' lives into anthropomorphic, and often hetero-normative, frameworks. This is particularly worrying when, as in this case, "zoomorphic" reasoning is then used to extract lessons about "proper" or "natural" ways of life for human individuals and communities from (supposed) bird behavior (Wexler 2008). I am mindful that the reproductive labor of the albatrosses discussed in this chapter is, to some extent, readily "recognizable" and "relatable" precisely because of its surface similarity to the reproductive processes of (some) humans: from "nuclear family" units to the sacrifice, labor, and obvious care by parents. Although I am here thinking with albatrosses as a way into this space, my hope is that—in different ways, ways that will themselves require a great deal of additional fleshing out—a similar case may be made for other forms of speciated life.

20. In this context, a species is simultaneously an open and a closed "community" of beings. Reproductively, species are (ordinarily) closed off to others: through various "isolating mechanisms"—ecological, morphological, behavioral, genetic, or otherwise—successful interbreeding between organisms of different species is usually prevented (Mayr 2001:169–70). On one level, it is this "closure" that makes adaptation possible: the species (or its local population) providing a relatively isolated group among which traits may be selected for or against, and so proliferate or disappear. In this context, species emerge and are continually re-formed through their isolation. But this relative isolation of a species over vast temporal horizons is coupled with other important forms of long-term open-

ness in which species are entangled in diverse relationships of interaction, nourishment, co-evolution, and more. In short, it is an isolation that is shot through with connectivities of other kinds, and yet it is an important form of isolation nonetheless. In this context, the ongoing life of a species, like the other "biological systems" that Cary Wolfe (2009) discusses, is made possible through an "autopoietic closure, on the basis of which—and only on the basis of which—it can engage in various forms of 'structural coupling' "(xxii). In short, species take shape within a partial, and yet fundamental, form of isolation that is constitutive of the possibility of their ongoing flourishing as part of broader and more diverse communities of life.

21. How to inhabit a space in which no one can simply be dismissed as "ethically irrelevant" is a complex question, requiring situated ethics attentive to particularities. The remaining chapters of this book offer some thoughts in this direction.

22. On the complicated nature of care in multispecies contexts, see chapter 4.

23. On the evolution of affective engagements in relation to grief and empathy, see chapter 5.

24. Deborah Bird Rose's work here draws on conversations with the Australian Aboriginal people of the Victoria River Region in the Northern Territory.

25. I take the term "Cenozoic achievement" from Hatley (2012). This is an approach that, as Val Plumwood suggests we must, rejects the simplistic divide between "shallow" and "deep" environmental ethics. The task is not to choose between human well-being "us" and nonhuman well-being "them," but to find ways to cultivate and value mixed ecological communities that include humans (Plumwood 2009:116).

2. CIRCLING VULTURES

1. This understanding of species as "flight ways" is outlined in detail in chapter 1.

2. All references to "Houston, pers. comm.," refer to David C. Houston, e-mail exchange with author, mid-2009. Houston, Honorary Senior Research Fellow at the University of Glasgow, is one of the world's foremost experts on vulture biology and behavior.

3. While vultures sometimes eat "badly decomposed" food, they do prefer food that is relatively fresh (Houston 2001).

4. There are numerous other dimensions of the lives of cattle in India that cannot be understood as anything other than tragic. While almost all Indian states ban the slaughter of cattle, in many cases this has simply meant that slaughter is carried out illegally—and thus in a completely unregulated manner—or that cattle are subjected to long and crowded transportation to slaughterhouses in neighboring states or countries (Singh 2003).

5. All references to "Cunningham, pers. comm.," refer to Andrew Cunningham, interview with author, London, September 11, 2008. Cunningham, a wildlife epidemiologist at the Institute of Zoology, Zoological Society of London, works on the conservation of vultures in India.

6. Here, and in what follows, I have drawn on statistics in an effort to convey the immensity and the inequity of the problems developing in India in the absence of vultures. I am mindful, however, that numbers cannot really do this and that statistics not only fail to capture suffering, but also can undermine the ethical demands that it issues (van Dooren 2010). Despite these drawbacks, in this case the numbers seem to tell a vital part of the story.

7. For a very different discussion of environmental justice and direct relationships with places/ecologies, see Plumwood (2008a).

8. The ecological notion of "functional extinction" provides a terminology to describe a species that is extant, but in such reduced numbers that it no longer fulfills its previous ecological roles. This concept is in some ways helpful, but it cannot do all the work that the "dull edge" might. Functional extinction still fundamentally ties "extinction proper" to the death of the last of a kind, and the other losses that it draws our attention to are (understandably, given the disciplinary origins of the term) purely "ecological."

3. URBAN PENGUINS

1. Perhaps this is what ultimately made the wall "remarkable" in its destructive potential, its being among the last in a long sequence of walls.

2. The first wall that I have seen documentary evidence for appears on a subdivision map of 1914, drawn up when the original property was broken into fourteen lots to be sold off. Over the past century, each of these lots has been subdivided many more times.

3. I have borrowed the terminology of "lost places" from Peter Read's moving study *Returning to Nothing: The Meaning of Lost Places* (1996).

4. Many of the ideas in this chapter have their origin in a collaboration with Deborah Bird Rose. See, for example, van Dooren and Rose (2012).

5. I will set aside the ongoing discussion about whether space precedes place in any meaningful way (as has often been assumed) or, instead, lived-place should be understood as prior and space as an abstraction from it (Casey 1996). It is not necessary to resolve this debate in order to appreciate that "place" might be understood as an embodied, lived, and meaningful environment.

6. I am inclined to think of this not as a linear spectrum, but as a "diversity of sensitivities," as discussed later in the chapter. But Darwin's basic point about continuity remains.

7. All references to "Challies, pers. comm.," refer to Chris Challies, correspondence with author. Challis is a recognized expert on Little Penguin philopatry, fidelity, and breeding behavior (his work is actually focused on a Little Penguin subspecies: the White-flippered Penguin [*Eudyptula minor albosignata*]).

8. Another study, focusing on the Manly colony's closest penguin neighbors—at Lion Island—found a high degree of nest fidelity, but did not detect any significant relationship between breeding success and nest changes (Rogers and Knight 2006).

9. Most of these explanations for fidelity are rooted in economic notions of "competitive advantage." More specifically, the benefits conferred by site fidelity are thought to improve penguins' breeding success. While this may well be the case, we should be careful about allowing these evolutionary explanations to become exhaustive accounts of animal behavior in a way that either negates or obviates richer notions of nonhuman cognitive life (Crist 1999). In short, all these practical advantages of fidelity—which make good evolutionary sense—tell us nothing about what site and mate fidelity *feel* like to Little Penguins: how the imperative to be reunited with a place or a partner is experienced by individuals and comes to animate understandings, actions, and relationships. On the important difference between function and motivation, see de Waal (2008).

10. I discuss this casting of penguins as "unwanted guests" in more detail later in the chapter.

11. Beyond the animals, like penguins, that possess more readily recognizable forms of meaningful relationships with their environments, a whole host of organisms, including plants and bacteria, "trade in signs and wonders" (Haraway 1997:8) in ways that deserve recognition. They, too, are part of a broader understanding of "nature in the active voice" (Plumwood 2009). For the sake of simplicity, however, I have confined my discussion in this chapter to penguins (and a few other species with perhaps more recognizable, from a human perspective, ways of making meaning).

12. This inheritance is definitively more than genetic. Contrary to the stories that we often like to tell about evolution and inheritance, much more is gifted between generations of nonhuman animals than a genotype. Through diverse processes of social learning and exposure to particular experiences and environments in early life, many animals inherit traits, behaviors, languages, skills, and other "cultural traditions" that they will, in turn, pass on to their own offspring (Jablonka and Lamb 2005; Oyama 2000).

4. BREEDING CRANES

1. References to "Duff, pers. comm.," refer to Joe Duff, interview with author, June 25, 2012. Duff is the lead ultralight aircraft pilot for Operation Migration.

2. The ultralight aircraft–led migration of Canada Geese was popularized in the movie *Fly Away Home* (Ballard 1996).

3. At roughly the same time, Kent Clegg, James Lewis, and David Ellis (1997) were conducting similar trial migrations with Sandhill Cranes from Idaho to New Mexico. I have used the term "Whoopers" occasionally to refer to Whooping Cranes. This name is widely used in preference to Whooping Crane by conservationists and others who work with the birds on a daily basis.

4. All references to "French, pers. comm.," refer to John French, interview with author, June 30, 2012. French, a wildlife biologist, is the manager of the Whooping Crane project at the Patuxent Wildlife Research Center, Laurel, Maryland.

5. In recent years, however, some Whoopers at ICF have been given Sandhill Crane eggs with which to "practice" incubating and rearing. In addition, there have been some small trials of parent rearing (Tarr, pers. comm.). All references to "Tarr, pers. comm.," refer to Bryant Tarr, interview with author, June 27, 2012. Tarr is the curator of birds at ICF, Baraboo, Wisconsin.

6. Later work on imprinting by Eckhard Hess (1964) and others has established that this following behavior itself may play an important role in cementing a chick's attachment to its parental object.

7. Things are very different for those birds that will never be released, but remain within the captive breeding population for the entirety of their lives. The problems and possibilities that imprinting and habituation raise for these birds are discussed in more detail later in this chapter.

8. Contrary to some popular statements, imprinting has nothing to do with a lack of intelligence. According to an article in the *Guardian*, Tony Whitehead, public-affairs officer of the Royal Society for the Protection of Birds, recently commented, "Birds have small brains[;] with basic disguising, the young cranes are perfectly happy to accept rigid wings, engines and even [people] as mummy and daddy" (quoted in Malein 2012). Even birds as intelligent (from a human perspective) as corvids—which are very intelligent indeed (chap. 5)—imprint on their parents. In short, this developmental process, like the strong philopatry of Little Penguins (chap. 3), must be understood as an evolved and specific form of sensitivity, not as a black-and-white measure of intelligence or a lack thereof.

9. But for organisms whose species is so close to the edge of extinction, is this necessarily a good, or sustainable, option? The sad reality is that it may well not be. Perhaps being something other than a Whooping Crane—even if "only" behaviorally and socially—is a better option for these birds. This is a question that other captive breeding programs have also needed to take up, asking whether captive animals might be trained to live differently once released in order to increase their chances of survival—perhaps through alternative foraging or nesting strategies, or learning to exploit new food sources (see, for example, the short discussion about this possibility for the Hawaiian Crow in chap. 5). It is highly debatable, however, that cross-species imprinting might be a valuable part of these kinds of efforts for released birds. Later in this chapter, I consider the possibility of cross-species imprinting for birds that will spend the entirety of their lives in captivity as part of breeding populations.

10. I suspect that Vinciane Despret herself would be critical of the ethics of some of Konrad Lorenz's relationships with birds and other animals. My discussion in this chapter has focused on a single paper from Despret's (2004a) substantial body of work (much of which is, unfortunately, unavailable in English). My colleague Jeff Bussolini (2013), an attentive reader of Despret's work in French, informs me that much of her work explores issues of politeness and sensitivity in interspecies relationships that are aligned with my own position. And so while I am not suggesting that Despret is endorsing the ethics of Lorenz's relationships with imprinted birds, in this particular article her emphasis on the innovative

and caring possibilities in his approach to research overshadows some of the violences of the broader context within which his experiments took place.

11. The fascinating short film "My Life as a Turkey" (Allen 2011) provides an example of the kind of 24/7 dedication that might be required to rear human-imprinted birds in a way that attempts to put their needs first. Ultimately, however, it is an ambiguous story, full of complex and fraught relations.

12. This is not about keeping or making birds "wild" in any simple sense. Rather, it seems that the categories of "wild" and "tame" are of little help here. As Clare Palmer's (2010) analysis of conceptions of wild animals shows so well, "the wild" is most often shorthand for "non-humanized" (whether this humanization is taken to occur though relocation to human-dominated landscapes, individual taming, or longer-term and more generalized relationships of "domestication"). This is a highly dualized framework in which the human is the measure of all things; an animal's way of being in the world is gauged solely in reference to its level of entanglement in human lives and projects. But these are not the only relevant cross-species relationships. Being imprinted on a Sandhill Crane, for example, is just as problematic for a Whooping Crane as being imprinted on a human. What is at issue here is not how "tame" or "wild" a Whooping Crane is, but the extent to which the broad social world in which each crane is enfolded is conducive to a flourishing life.

13. Of course, the type is "exhaustible" in an important sense, and it is against this possibility—in some cases *probability*—that these conservation projects work.

14. It is important to note in this context that there are not just two regimes of care at play here—although I am particularly interested in the intersection of two general sets of priorities. Within each of them, however, there is a great deal of variability. *How to care* for a species, or for any given individual, is itself a shifting and contested issue.

15. I have focused in these comments on the other *birds* drawn into this conservation project. Numerous other species might also be mentioned. As in many captive breeding programs, the animals that are bred specifically to be fed to an endangered species are also a significant sacrificial population (Bekoff 2010). In addition, the release of captive-bred animals is often accompanied by "habitat modifications" that have an impact on other lives in various ways. The most obvious of the negative impacts are felt by those animals—usually predators, but sometimes also competitors—that are culled (killed) to give released animals a better chance of survival. This has not been a major component of Whooping Crane reintroduction efforts; instead, for example, in central Florida bobcats have been trapped and relocated (Hughes 2008:145)—a process that can have its own negative impacts. Increasingly, however, it is being recognized that "predator control" is often a vital component of successful release or relocation programs (Fischer and Lindenmayer 2000).

16. The environmental philosopher Holmes Rolston III (1999) offers a typical example in his discussion of a goat "eradication" program on San Clemente Island, off the coast of California. Around 14,000 goats were shot (and many others trapped and removed) to conserve three endangered plant species. This action was justified in Rolston's view because the goats are not endangered and therefore are "replaceable"—as well as not being

"native" to the island. I am in wholehearted agreement with Rolston that the endangered status of the plants is ethically relevant (chap. 1). His discussion takes place in the context of a response to Peter Singer's utilitarian ethic, which Rolston charges with paying inadequate respect to nonanimal forms of life, as well as species. But like those of many other conservationists and environmental philosophers, Rolston's position has the opposite problem. The surety with which he declares the "right" thing to do, his confidence in the fact that conserving endangered species "outweighs" and so justifies the suffering and deaths of individuals, is, I think, deeply problematic. What are the limits of this "trumping" capacity of endangered species? How many goats can be killed to save a species of plant, and in what ways can they be killed? How much can they be required to suffer? Ongoing practices of "invasive species management" in the United States, Australia, and a number of other countries indicate that our tolerance for mass death and suffering in the name of conservation can be very high indeed (Rose 2008; van Dooren 2011a). The other side of this equation, as the Whooping Crane case makes clear, is the suffering of those individuals that are "made to live" in zoos and captive breeding facilities for the sake of the continuity of their own species (Chrulew 2011a). For how long, and in what conditions, can these beings be made to live?

17. As previously noted, this already happens with a small number of Whooping Crane young at ICF.

18. The "crane cam" can be accessed on the Web site of Operation Migration (http://www.operationmigration.org/crane-cam.html).

5. MOURNING CROWS

1. All references to "Lieberman, pers. comm.," refer to Alan Lieberman, interview with author, November 29, 2010. Lieberman is the director of Regional Conservation Programs at the Institute for Conservation Research, San Diego Zoo, and has had a long-term involvement in the conservation of birds in Hawai'i, including the Hawaiian Crow.

2. On threats to the Hawaiian Crow, see Banko, Ball, and Banko (2002) and USFWS (2009).

3. It should also perhaps be noted that while for many crow species it is precisely these characteristics that have allowed them to thrive in close contact with the constantly changing conditions of human societies—intelligence and socially learned behaviors enabling high levels of adaptation—for many island crows, exposed to a very different set of selection pressures, this has not been the case. All around the world, this has created a similar situation. In John Marzluff's (pers. comm.) words: "On almost every island, whether you're in the Caribbean or in the Pacific . . . there is a native crow . . . and it's almost always a frugivore, and it's almost always endangered." All references to "Marzluff, pers. comm.," refer to John Marzluff, telephone interview with author, November 13, 2010. Marzluff is a professor in the School of Forest Resources at the University of Washington. Much of his

research focuses on corvid ecology, behavior, and conservation, and he is a former member of the USFWS's ʻAlalā Recovery Team.

There is little doubt that Hawaiian Crows possess the intelligence and adaptability to live alongside people, scavenging waste and taking advantage of our presence in a range of other ways. In fact, the ʻAlalā Recovery Team discussed, and ruled out, the possibility of conserving the species by helping it to more quickly learn to utilize human rubbish. This option was dismissed not because it would be difficult—in fact, it would likely be a far simpler means of conserving the crows—but because the team viewed its role as breeding and releasing birds who would be "as wild, and frugivorous, and forest loving, as possible" (Marzluff, pers. comm.). This situation raises a range of interesting questions about the goals of conservation. In particular, what is to be conserved? Is it more than the biological and genetic diversity of a species? Is its behavioral (and perhaps cultural) repertoire also something worthy of preservation? If so, on what terms? These questions are in the background, and occasionally the foreground, of this chapter.

4. I will primarily refer to Martin Heidegger's *Dasein* (literally, "being there") as "the human." While this description is clearly overly simplistic, in the context of this discussion about Heidegger's distinction between the human and the animal, it is *Dasein*'s being as a human being that is its most salient feature.

5. A more recent example of this kind of view is offered by philosopher Jeff Malpas in his argument that the knowledge of one's own death is essential to the possession of a "life." As Malpas (1998) succinctly puts it: "To be a creature that has a life, to be a creature that has a world, to be a creature that has a sense of value and significance, is also to be a creature that has a grasp of the possibility of its own ending" (134). Although Malpas is not explicit about who does and does not know death, and so who does and does not have a life, his thinking clearly draws on a long tradition in which the salient distinction is that between the human and the animal. The only example that Malpas (1998:120–21) provides of a creature that does not have a life, and so presumably also has no knowledge of its own finitude, is his cat. His paper closes with a long quote from Heidegger's work, focused on the distinction between "man," who dies, and the animal, who merely perishes, and a final footnote that states that the aim of the paper has been to "develop an argument for what is essentially a Heideggarian conclusion, but without reliance on explicitly Heideggarian premises" (Malpas 1998:134). While Malpas perhaps leaves things a little more open than does Heidegger, it seems fair to say that his thought remains centered on an indefensible and assumed human–animal divide.

We see in both Heiddeger's and Malpas's work one of the central reasons why knowledge of death matters. Put simply, there is a notion here that in the absence of death one does not live fully. Malpas (1998) articulates this connection clearly in his opening sentences, drawing on Bernard Williams to argue that life in the absence of death would be "devoid of interest, devoid of meaning" (120). But as Jonathan Strauss (2000) has noted, this idea is by no means limited to these few thinkers, being found, for example, in the thought of Paul Tillich, Herman Feifel, Gillian Rose, and others. In Feifel's words: "[T]he

notion of the uniqueness and individuality of each one of us gathers full meaning only in realizing that we are finite" (quoted in Strauss 2000:93). In this context, as Strauss (2000) goes on to note, humans must—in order to assume our individuality—"sacrifice that animal existence in ourselves, kill off a somnolent living without a life, an existence without death or self" (101).

6. I do not know the answer to this question, but it is clear that any reasonable speculation must engage with the current ethological literature on the topic. In marked contrast, it is interesting to note how infrequently most philosophers reference this literature at all before making their pronouncements. See also Calarco (2008).

7. As these behaviors and expressions—including, for example, birdsong—are taught and travel through generations (chaps. 1 and 3), they must carry the insights and developments of the dead in one way or another, shaping the lives of the current generation. While there may well be differences between human and nonhuman interactions and inheritances in this context—and Françoise Dastur's (1996) precise position is somewhat unclear—it seems to me important to find ways to acknowledge the many kinds of inheritance and intergenerational continuity that occur among nonhumans, and not to jump into the acceptance of another dualistic and anthropocentric "proper."

8. The context for this assertion with reference to the Hawaiian Crow should be clear from this chapter and other work cited in it. For a discussion of human violence toward elephants, see Poole (1996) and Wylie (2010). On elephants' stress and social breakdown, see Bradshaw (2004) and Bradshaw et al. (2005). This situation offers an important example of the mutually reinforcing logic that Matthew Chrulew (2011b) has noted in relation to philosophies of animals. He points to the relationship between captive animals in zoos and elsewhere and the kind of philosophical thinking that represents animals as fundamentally "captive" (for example, Heidegger). Here, ideas about animals as lesser subjects are formed through interactions with, or are justified with reference to, animals that we increasingly force to live in diminished conditions with limited and disturbed socialities.

9. I have used the terms "grief" and "mourning" interchangeably in this chapter, in opposition to more conventional usage, which often reserves the latter word exclusively for humans. I suspect that this conventional usage stems from the fact that "grief" is often employed to refer to responses to loss in general, whereas "mourning" is specifically a response to the loss brought about by death (Attig 1996:9). If animals are unable to understand death, however, then they are unable to experience this specific kind of loss, and so unable to mourn properly—they are limited to grieving, as they would for any other lost attachment. As this chapter makes clear, I am not confident that things are this simple.

10. On anecdote as a respectable part of ethological study, see Bekoff (2007) and Crist (1999). In addition, it must be kept in mind that there are clear ethical problems with the construction of formal experiments to test for an emotion like grief.

11. These conclusions are given further weight by recent comparative work in neurology that highlights important similarities in neural circuits and neurotransmitters between

birds and mammals. It seems that the neural bases that enable grief in many mammals, including ourselves, are also found in the remarkable corvids (Marzluff 2012).

12. This is a view that Darwin seems to have shared in a letter to his recently bereaved cousin: "Strong affections have always appeared to me, the most noble part of a man's character and the absence of them an irreparable failure; you ought to console yourself with thinking that your grief is the necessary price for having been born with (for I am convinced they are not to be acquired) such feelings" (quoted in Archer 1999:75).

13. For a discussion of the possibility of "culture" among New Caledonian Crows, see Hunt (1996) and a reply from Boesch (1996). W. C. McGrew (1998) also offers useful insight into various ways of understanding "culture" and its presence among nonhumans, with particular reference to nonhuman primates.

14. For a discussion of similar gatherings at sites of death by another corvid species, the Western Scrub-Jay (*Aphelocoma californica*), see Iglesias, McElreatha, and Patricelli (2012).

15. On the difference between "function" and "motivation," see de Waal (2008).

16. The "biological" and the "social" are all mixed up here in ways that undermine the coherence of any concrete distinction between them. Sociality in all its multiple forms is rooted in specific biological capacities—in this case, capacities that we might label "emotional" or "cognitive." In a related but distinct vein, plants and various microorganisms are also engaged in ongoing "social" relationships of their own kind—exchanging signs and meanings, communicating in ways that we often underestimate (Hall 2011). In this sense, sociality is perhaps a common feature of all life and should not be restricted to those organisms who possess modes of interaction similar enough to those of humans to be immediately recognizable as such (Hird 2009). In other words, our being social creatures, as well as the specific forms that this sociality takes, are in important ways features of our biological makeup. At the same time, however, biology has itself evolved within the context of very material processes of intergenerational life in the company of others. Sociable life produced the conditions for the evolution of various social capabilities, which, in turn, deepened and enhanced those social relationships. There is no sociality outside of its specific biological possibilities, nor is there any biological form that has not been shaped by its own particular social milieu.

17. It is with this understanding in mind that I would like to suggest, in contrast to some of Judith Butler's (2004, 2009) recent work on the topic, that mourning is less about the "recognition" of a valuable or "grievable" life, and more about the simple embodied reality of our being more or less affected by others, more or less constituted by their presence, more or less emotionally and intellectually bound up in their fate. It is this differential entanglement of affect that gives rise to the varied degrees of grief that accompany death and loss; we are simply more attached to and invested in the lives of some people, some animals, some environments, some jobs and belonging than we are in others. Not to mourn for the passing of some, or to mourn less for some than others, does not *necessarily* indicate

a failure to recognize a life as "grievable" or "worth living," as Butler suggests—although I accept that in some limited cases, it may mean precisely this. In most cases, however, the kind of threshold that Butler's terms imply—valuable or not, grievable or not—cannot do justice to the full spectrum of emotional responses that loss elicits, or fails to elicit, in the countless lives of all those variously connected and entangled others that are left behind. In contrast, I would suggest that a "failure" to grieve may more often result from an inability to "get" (at various experiential levels) how one's own life and world are shared with these dying others.

18. Thanks to Michelle Bastian for pointing out this connection to Matei Candea's (2010) wonderful work on meerkats.

19. For a detailed overview of avian extinctions in the Pacific region, see Steadman (2006).

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