

Multispecies Knots of Ethical Time

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Death narratives, nurturance, and transitive crossings within species and between species open pathways into entanglements of life of earth. This paper engages with time in both sequential and synchronous modes, investigating interfaces where time, species, and nourishment become densely knotted up in ethics of gift, motion, death, life, and desire. The further aim is to consider the dynamic ripples generated by anthropogenic mass death in multispecies knots of ethical time, and to gesture toward a practice of writing as witness.

Introduction

Within the ecology of life, death is a necessary partner. Margulis and Sagan (2000) tell us that while accidental death has always been a contingent factor for life, many bacteria can survive more or less forever as copies are made again and again through cell division. In contrast, “programmed death,” in which cells age and die as part of the life of the individual, came into the world with reproduction (156–7). The link between sex and death is apparently coded into our DNA. Species as well as individuals have life expectancies, and extinction, too, is a functional part of the evolutionary process (May et al. 1995). And while animals and plants have a more tenuous life when compared with bacteria, theirs (ours) is also a more complex one. Organisms die, but new non-copy organisms are brought into being (Margulis and Sagan 2000, 91). Life, therefore, is an extension of itself into new generations and new species (144). And from an ecological point of view, death is a return. The body returns to bacteria, and bacteria return the body to the living earth (91). Margulis and Sagan go on to define life as it works productively with time: life is always “preserving the past, making a difference between past and present; life binds time, expanding complexity and creating new problems for itself” (86). Life in this broader context is “a network of cross-kingdom alliances” (191).

My aim in this paper is to engage with James Hatley’s work on the murder of ethical time, and bring it into the biosocial context of the anthropogenic mass extinction event now in process. I will address aenocide—the mass murder of individuals that constitutes a sustained attack on the future of the group, and thus an attack on ethical time.

I am drawing on previous work in which I have discussed “double death”: the process that is driving the great unmaking of life in this era known as the Anthropocene. The notion of double death contrasts with the ecological and evolutionary contexts in which death is immanent in and necessary to life. Double death breaks up the partnership between life and death, setting up an “amplification of death, so that the balance between life and death is overrun” (Rose 2006, 75). Similarly, contemporary man-made mass extinctions are an amplification of double death: the irreparable loss not only of the living but of the multiplicity of forms of life and of the capacity of evolutionary processes to regenerate life (Chrulew 2011, 149).

The extinguishing of ethical time is yet another form of double death. Drawing on Hatley’s point that analysis of the cross-overs between the generations of humans could be expanded to consider species and wider questions of life (Hatley 2000, 63), I address the gift of life as a multispecies offering at the intersection of sequential and synchronous time. I add flesh to the relatively abstracted analysis of kinds of time and patterns that connect through examples drawn from the life worlds of Australian flying foxes (*Pteropus* species) and their co-evolved myrtaceous flora. Connections between generations of living beings, and relationships among currently living beings, offer the basis for an account of the life-giving and life-affirming qualities of ethical time. We are then in a position to consider ecological aenocide, or the multispecies “murder of ethical time” (219).

Knots of Embodied Time

In this time when so much is being lost on earth, we are well attuned to the importance of diversity: cultural diversity, biodiversity, linguistic diversity, and habitat diversity, to name a few. We are perhaps less accustomed to thinking of temporal diversity, but numerous scholars today are analyzing heterogeneity in the context of time: the generations of living things, ecological time, synchronicities, intervals, patterns, and rhythms, all of which are quite legitimately understood as forms of time (Adam 1998). Indeed, Salleh (1997, 137) argues from an ecofeminist viewpoint that complex time concepts are necessary to understanding ecological processes. In attending to the world of “nature,” she makes a case for a concept of enduring time—a time of continuity between past and future. In place of the abstracted, disembedded, disembodied absolute time posited by Newton, scholarship that emphasises diversity and complexity focuses on the embodied and embedded qualities of time.

My research with Aboriginal people of the Victoria River region of the Northern Territory of Australia has led me to consider time from a perspective that is complementary to contemporary approaches to

diversity (Rose 2000 and Rose 2005), and in this paper I continue a path of analysis that started in my ethnographic research and now takes me into wider contexts of anthropogenic extinction. I will consider two main patterns of time that are integral to the wider ecologies of “patterns that connect” (to use Gregory Bateson’s term), and thus are integral to life on earth: sequence and synchrony.

Recognition of these two main patterns can never be entirely abstract; for Aboriginal people, recognition starts with events in country. Because these patterns, and their intersections, are so foundational to life on earth, Aboriginal people articulate social groups and many other relationships through the basic patterns of sequence, synchrony, and their intersections. An excellent example of intersecting basic patterns comes from the Arnhem Land region of North Australia, and was reported by archaeologist Rhys Jones. In response to questions about plants, Jones relates that his host Frank Gurrmanamana:

cleared off a layer of sand, [and] carefully marked out two parallel sets of small holes. . . . One set, he said, were the vegetable foods which grew *gu-djel* (in the clay), namely roots and tubers. The other set were the vegetables *gu-man-nga* (in the jungle/vine thickets), namely fruits. These two sets were linked, a pair, one from each set, appearing together at the same time of year to be successively replaced by another pair, and so on. . . . They were likened according to Gurrmanamana to plants walking side by side through the seasons. At the end, the same pair would re-appear as the ones we had started with, and the whole process would begin once more. (Jones 1985, 198–199)

In Gurrmanamana’s explanation, the pattern of temporal synchrony demarcates those plants that appear together, and the pattern of sequence demarcates which set precedes which. The intersection of the two patterns, which was central to Gurrmanamana’s explanation, is the complex web of temporal patterns and their renewal through time.

Within Aboriginal eco-cosmologies, there are many such patterns. Patterns form across numerous scales and domains, so that the web of life can be understood as the complex interactions of sequence and synchrony, as these patterns play out across the lives of individuals, species, country, climate, and years. My focus is on one particular intersection: where generational time intersects with synchronous encounter. Both patterns of time are given substantive presence in the world through flows of material being, energy, and information. Generational time involves flows from one generation to the next. Synchrony intersects with sequential time, and involves flows among individuals, often members of different species, as they seek to sustain their individual lives. The intersection is a temporal site of embodied

interface, using the term “interface” in its everyday sense of a common boundary where two systems interact.

James Hatley works his way into the analysis of generational time with a philosophical analysis that draws on the death narrative concept. His analysis focuses on, but is not limited to, humans. A death narrative in human terms situates death and the dead within an historical community. Hatley writes: “What is important about a death narrative is that one’s own passing away becomes a gift for those who follow, as well as an address to them. Death narratives are vocative; they call to one’s survivors for some mode of response” (Hatley 2000, 212). Generational time clearly involves both death and birth, using the term “birth” loosely to designate any coming-into-being (hatching, germinating, sprouting, and so on). As Margulis and Sagan tell us in their illuminating book *What is Life?*, organisms die, but new non-copy organisms are brought into being (Margulis and Sagan 2000, 91).

The death narrative concept evokes the temporal pattern of sequence; it is accomplished through the transmission of wisdom, memory, and traditions from generation to generation. Hatley writes:

Situated in the difference between death and birth, one is addressed by the lives one inherits. These lives inspire one, literally, breathe into one one’s own possibility of existence. Yet the existence one receives in this inspiration does not belong to one’s forebears, precisely because the very terms of its inspiration is a transitive crossing-over that generates a new existence characterized in terms of a new responsibility. (2000, 61)

Death narratives are localized; they belong to those who inherit and transmit them, and they thus form bounded sequences. Any given group or population is formed through its death narrative, and thus any given group or population “can be seen as a wave of memory, insight, and expectation coursing through time, a wave that lifts up and sustains the individuals of each succeeding generation, even as those individuals make their own particular contributions to or modifications of that wave” (60–1).

Central to Hatley’s analysis is the fact that the death narrative is a gift. He uses the term “gift” in a way that is both modest and ineluctable. I will return to it in a later section; for now it is essential to understand that the narrative breathed across generations arrives unasked for and carries an obligation. “Precisely because one is not one’s forebears, one experiences one’s time as a gift, the proffering of one’s own existence from out of the bodies and lives the beings who preceded one. One in turn offers this gift to those who come after one” (61).

Sequence is not the only story, however. At any given moment, life-processes also require synchrony. Lives are nourished by others,

not only members of one's own group, but by others as well. All living things owe their lives not only to their forebears but also to all the other others that have nourished them again and again, that nourish each living creature during the duration of its life. Metabolic processes require energy to flow across species and systems; embodied time is always a multispecies project. It follows that life depends both on the sequential processes of generational time/gift and on the synchronous processes of multispecies nourishment. These processes and patterns intersect to form dense knots of embodied time.

Gifts of Life, Flying Fox Style

Australian flying foxes are members of the order Megachiroptera. The term chiroptera means "hand winged." There are two suborders: mega and micro. The two are quite different, size being only part of it. Microchiroptera navigate by echolocation (animal sonar); they are small and feed mainly on insects, but there also are blood-eating vampire bats, fish-eating bats, and others. In contrast, Megachiroptera all feed on plants. They navigate principally by sight, and many of them are large. In Australia, the largest male flying foxes weigh about one kilogram and have wingspans of up to 1.5 meters (Hall and Richards 2000, 1-3). Four main species of flying foxes make up the Australian contingent: black (*Pteropus alecto*), grey-headed (*P. poliocephalus*), little red (*P. scapulatus*), and spectacled (*P. conspicillatus*). They are arboreal, nocturnal, and nomadic. By preference they travel widely in search of pollen, seeds, and fruit, covering vast areas during an annual round as they follow flowering and fruiting trees and shrubs. With at least thirty different vocal calls, all of which are audible to humans, they are, from a human point of view, very noisy folk (Hall and Richards 2000, 64), and when they camp in the thousands, and feed in the hundreds and thousands, their presence is unmistakable.

There is no way of knowing the flying fox population figures prior to British settlement, but certainly the numbers would have been in the thousands of millions. After more than one hundred years of concerted efforts to eradicate the grey-headed and spectacled flying foxes, in particular, and after serious habitat loss and other anthropogenic impacts, both grey-headed and spectacled flying foxes are listed as threatened under the Commonwealth Environment Protection and Biodiversity Conservation Act of 1999.

Australia flying foxes and their preferred myrtaceous trees and shrubs are probably co-evolved.¹ The animals are crucial to pollination and (for some trees and shrubs) for seed dispersal, while the trees and

1. Myrtaceae is a family of plants also known as myrtles with "a wide distribution in tropical and warm-temperate regions of the world,

shrubs that benefit form the basis of the flying fox diet (Hall and Richards 2000, 82–84). There are some quite specific adaptations. For example, flying foxes have a keen sense of smell and their eyes are adjusted to night vision and to recognizing light colours. Many myrtaceous trees and shrubs produce clumps of flowers that are strongly scented and usually light in colour, and many of them produce their nectar and pollen most prolifically at night (Eby 1995, 38). That means that the trees are at their most alluring and most nutritious during the hours when flying foxes are abroad in search of food. Because the trees flower sequentially, “myrtaceous forests and woodlands provide a constant food supply throughout the year for these animals” (Hall and Richards 2000, 82).

The co-evolved relationships between flying foxes and myrtaceous flora demonstrates both sequential and synchronous temporal patterns, and the interface of embodied time knots. Once again, let us begin with stories from Aboriginal country. A story that brings all these (and more) patterns together goes like this: “when the flying foxes hang upside down over the river they are telling the Rainbow Snake to bring rain.”

In order to understand the significance of both rain and flying foxes, we need to pause to consider the interplay of wet and dry seasons in North Australia. The Victoria River region of the Northern Territory where I have undertaken years of research is a tropical monsoon savanna region in which life is dominated primarily by the alternation between wet and dry seasons, and by the needs of living things both to survive the scorching heat of the transition from dry to wet, and to survive the inundations of the wet season itself. The sequence works from the winter dry season into a time of increasing heat and aridity when the country becomes incredibly hot and dry; ephemeral water sources disappear, plants and animals become stressed for both food and water, and the overwhelming question concerns rain: when will it (ever) come to cool the earth and restart new cycles of growth? The sequence continues through the floods of the rainy season, and into the time of proliferating plant growth which itself stimulates health in all the plant-eating animals. It continues into the winds that mark a turn in the season, and back into the cooler part of the dry season, with its gradual drying out of the country and then to its increasing heat, reaching a point when the earth is too hot to walk on comfortably, the grasses are totally desiccated, and living things are in danger of perishing for lack of water.

The story of relationships between flying foxes, rivers, and rain draws on Dreaming origins and also articulates some of the main social

and . . . typically common in many of the world’s biodiversity hotspots” (*Wikipedia: The Free Encyclopedia*, s.v. “Myrtaceae”).

categories that bind human and animal species into groups of shared flesh, but my concern is with the nonhuman side of the story. As stated, flying foxes feed by preference on the blossoms and nectar of eucalypts and melaleucas.² Victoria River people point especially to the inland bloodwood (*Corymbia terminalis*) and the magnificent tree known in vernacular English as the half bark (*C. confertiflora*). Both of these species produce large, showy, and heavily scented flowers and are thus obvious candidates for both flying fox and human attention.

In the Victoria River region eucalypts flower in succession from higher ground to lower ground, which is also to say from the drier country on the hillsides down to the river banks and channels. My pre-eminent teacher of botany, Jessie Wirrpa, divided the eucalypts into those which flower in the dry time and those which flower in the rain time. *C. terminalis* and *C. confertiflora* are among the prominent dry-time flowerers, along with several other species including *Eucalyptus pruinosa* (smoke tree) which grows out along the lower reaches of stony hills, and *E. microtheca* (coolabah) which grows around billabongs. *E. camaldulensis* (river red gum) is the outstanding example of those which flower in the rain time, and the river paperbarks flower then as well (*Melaleuca argentea* and *M. leucadendra*). Along the Victoria and other large rivers, the banks are lined with paperbarks and river red gums. They burst into flower in one final extravagant outpouring of vitality at the end of the sequence moving from dry to wet and from hill to river.

The flying foxes in this region are primarily the black ones (*P. alecto*). They arrive en masse when the eucalypts start to flower. That flowering brings them by the hundreds of thousands first to the higher and drier country where they scatter out, and finally to the riverside where they concentrate in large camps. Aboriginal people say that the flying foxes talk to their mate the Rainbow, telling it to move, to get up, to get to work, to bring the rain. Camping along the river, the noisy mobs tell that the earth is getting too hot, that everything is too dry.

This very short story of flying foxes hanging in the trees over the river calling for rain holds within it a complex pattern of the intersections between sequential and synchronous temporal patters. It is a story of time in the mode of sequence: the flowering of eucalypts in a series that starts in the higher and drier country and finishes at the riverside. It is equally a story of time in the mode of synchrony: the arrival of flying foxes who come from somewhere else to feed on the pollen and nectar. And it is a story of communication: how trees call to flying foxes, how

2. In the mid-1990s the Eucalyptus family was subdivided into Eucalypts and Corymbia. For the clarity of expression, I use the term Eucalypt to include the Corymbias, although when identifying a particular plant I use the newer terminology.

flying foxes call for rain. Most seductively, for me, it is a story of desire: of how flying foxes and trees want to live, how they attract and benefit each other, and how the patterns fit and keep on renewing themselves. It is a story of mutual gifts across species and through time.

Ethical Time

Hatley's analysis of the death narrative is set within generational time (diachronic time, in his terms) and is focused on humans. Hatley is a Levinas scholar, and his understanding of ethics is responsive to, and in dialogue with, Levinasian ethics. Thus Hatley's generational time, with its death narrative and cross-generational gifts, is to be understood as an ethics: "one lives in the accusative, one is already obligated and involved. If any 'we' is to be articulated, it can only come about through a recognition of the weight of this accusation" (2000, 219). The emphasis on the accusative points to the fact that, for Levinas, to be alive is always to be obliged and involved. Levinas's thought, as is by now well-known, aims to reverse the western philosophical tradition by grounding ontology in ethics rather than layering ethics over a pre-established metaphysical foundation (Wyschogrod 2000, viii). "The proximity of the other is the face's meaning," Levinas writes, and he discusses the nakedness before which one is (I am) always responsible (Levinas 1989, 82–83). There has been debate about exactly how concretely Levinas intended the term "face" to be understood (Waldenfels 2002), and whether he intended his concept of the face to include animals. There is evidence that he did not intend to include animals (Atterton 2004). At the same time, the significance of Levinas's philosophy is too great to be left in a zone of humans-only (see Edelglass, Hatley, and Diehm 2012). If we understand all living creatures to be in connection, in relationship, in systems of mutual interdependence, then surely these relationships must be analysed in terms of ethics. And if we understand genealogical time to be ethical, then there seems to be no reason to bar nonhumans from ethical relations among themselves.³

The particular point in Hatley's work that I will pursue links sequence, death, birth, and generations. His analysis goes to show that generational gifts constitute the *genos*. This is to say that the group (or race, or species) is the result of "an on-going series of ethical relationships" (2000, 60). Groups and gifts come together in an ethics of time. In this way, "time is articulated as a differentiation across which and by means of which responsibilities are born" (61). One's kind only comes in the aftermath of generation, of one's being-birthed (219). That

3. Rhizomes may not fit so neatly into concepts of generational time, but the fact of their non-identical continuities means that they, too, experience sequential time.

condition of being-birthered, of always coming after death, means that in generational time one's orientation toward the future is both toward death and toward others. As one has been addressed, so one also addresses the future—a time beyond one's own death. "In this manner," Hatley writes, "one's death is given a future, although a future that is thought of in terms of the survival of one's responsibility rather than the survival of one's discrete existence" (62).

In carrying these ideas over into the lives of nonhumans, I am not arguing that humans and other animals are all identical. The differences between different groups of animals, plants, and other beings is self-evident, and even more importantly, is necessary. My question is how we may encounter ethics in the world of multispecies differences and connectivities, which is to say—in the world of ecological death, gifts, and flows. Let us again consider flying foxes and their co-evolved myrtaceous mutualists. Every night across Australia millions of flying foxes set forth in search of food. They travel up to fifty kilometers per night getting food, usually returning to the home camp; over the year, most of them move from camp to camp, travelling distances of up to a thousand kilometers. They are readily able to know when trees start to bloom hundreds of kilometers away from where they are camping, and to fly off to find the nectar; humans do not know how they do this (Eby 1995, 24). They are the primary pollinators for numerous species, including rainforest species for whom they are also seed dispersers. Indeed, many of the Eucalypts require outbreeding, and thus are reliant on flying fox pollination (Hall and Richards 2000, 79). Because of their capacity to travel widely and opportunistically, they are superbly adapted to the patchy distribution of Australian flora, and to the boom and bust pulses of El Niño influenced abundance.

A growing body of research is showing that mutualism complements competition and is utterly fundamental to life on earth (Margulis and Sagan 2000; Thompson 2005).⁴ Trees put out their delectable and beckoning flowers, and flying foxes sense this great call; they leave their home camp and come racing to the blossoming trees. Their responses include their long tongues that are well adapted to sucking up nectar, and their body fur that picks up thousands of grains of pollen and distributes over 70% of it intact every night (Hall and Richards 2000, 79). They carry Eucalyptus futures on their furry little faces, and across the patchy and increasingly fragmented landscapes of contemporary Australia, the renewal of woodland and forest life hinges on this

4. The type of mutualism that has evolved between flying foxes and their Myrtaceous and Proteaceous mutualists involves the partners as "free-living" mutualists with "sustained, intimate interactions between individuals of the respective species" (Thompson 2005).

relational exchange. Forest futures are borne on fur and tongue, and on the wings that beat through the night carrying the animal to the tree, and carrying the tree's possibilities along to other trees.

In these relational exchanges, we discern not "face" but "interface." If we were to hold ourselves open to the experience of nonhuman groups, we would see multispecies gifts in this system of sequence, synchrony, connectivity, and mutual benefit. We would see that every creature has a multispecies history—it came into being through its own forebears and through others. Each individual is both itself in the present, and the history of its forebears and mutualists. In the presence of myrtaceous trees we would see flying foxes; in the presence of flying foxes we would see dry sclerophyll woodlands and rainforests. We would see histories and futures—embodied knots of multispecies time.

Within this wider world of multispecies knots, ethics may be understood as an interface—a site of encounter and nourishment. Thus the encounter between the flower of the tree and the tongue-and-fur of the flying fox forms an interface where the desire for one's own life is shaped to the desire that others have for their own lives (Matthews n.d.). The trees' desire for pollination meets the flying foxes' desire for food, and in that multi-species knot of ethical time, sequential and synchronous temporal patterns nurture the flows that sustain the present and work for the future.

I have used the term "gift" to refer to the flows of being, energy, and information across the time-knot interfaces. This usage contrasts with the prevailing views of Derrida and Levinas who focussed on the idea that the gift is "infinite" in the sense of being outside of systems of exchange and reciprocity; it can never be repaid (see Smith 2005 for an excellent discussion). An ecological engagement with flow calls for a gift concept inflected toward responsibility. From an ecological point of view, the idea of not returning energy is extremely problematic. The nature of time and life in non-equilibrium systems is that energy is channelled into renewal, or, into order emerging against entropy. Entropy follows from the Second Law of Thermodynamics and tells us about dissipation: everything moves toward disorder. The partner word is negentropy, which is what life does. Life—the "biological order on earth" (Harries-Jones 1995, 107)—draws order out of disorder, organization out of disorganization, and thus can be thought of as a localized reversal of time's arrow. The gift is the way life evades entropy.

In situating the gift within ecological flow, we return to the precarious partnership between life and death. Being-birthed means that one is always already indebted to those who came before, those who nourished, those whose lives make one's own life possible, as Hatley explains. Hatley embeds the gift concept within the wider understanding that there is no autonomous right to have been brought

into existence (2012). The condition of being-birthered is a gift, and every interface that nourishes and promotes life is another gift. It is also, of course, a condition of need, the need to be nurtured. At the same time, the ethics of the gift is that one is always responsible to others. Thus, while the gift is not about repayment or return, the ethics of gift situates living beings as always entangled with and responsible to and for others—both nourishing and being nourished. This is the entanglement that brings “all living entities into relationships that make responsibility the very articulation of the real” (ibid). As Hatley puts it in the context of the death narrative (above), “one experiences one’s time as a gift . . . [and] in turn offers this gift to those who come after one” (2000, 61). The way of life, then, is to continue to “draw order out of disorder,” which is to say: to keep the gift moving.

Aenocide

Ethical time is sustained through multispecies knots, where each interface is a site of flow, a place of mutuality and gift. Hatley’s analysis of generations, the priority of being-birthered, and the future of one’s death lead us to a place from which it becomes possible to articulate some of the enormity of man-made mass-death. In Hatley’s analysis, the term aenocide indicates that the termination of a group (genos, species) is an attack upon time. Generational time is the time of aeons, and ethical time is the flow of death narratives across generations. Aenocide is therefore “the murdering of ethical time through the annihilation of all the following generations” (2000, 219). In considering the murder of ethical time in contexts outside the human, it becomes clear that to murder the ethical time of one group is to imperil the time of other groups, and that in fact there is no knowing where the destruction will stop.

Hatley considers the implications of what is being perpetrated against time in the Third Reich, and his analysis is chilling for the ways in which it sheds light upon our own time in relation to nonhuman aenocides. “The Nazis wished nothing less than to treat time as if it were a resource, a field of possibilities standing before one over which one had utter control” (62). In that “vision of time no room is left for the ongoing generation and generations of responsibility. Human temporality itself would collapse into a ‘final solution,’ an apocalyptic moment in which the ongoing bearing and birthing of differentiation and heterogeneity . . . would simply end” (62). Hatley sees this project as expressing “the reprehensible capacity” to turn the lives of others, past and future, “into a sort of narcissistic mirror. One eliminates all the strangers, all the disruptions of one’s own vision, so that one’s history only articulates one’s own concerns, one’s own needs. . . . All the other times are resources for one’s own” (63).

The ecological import of Hatley's devastating analysis of ethnic narcissism leads us to our own species-narcissism. We encounter a clear and insightful description of the disastrous thinking underlying the human-centric desire to turn all species and all times into resources for humans, to discount the costs to others, and to make decisions about who lives and who dies without regard to our shared life on earth. To return to the study of flying foxes and blossoming trees, scientific analysis of flying foxes and their relationships with their preferred species have led to the understanding that flying foxes are a keystone species. As long-range pollinators and seed dispersers, their activities are essential to the health of native ecosystems. Indeed, as climate change forces species to adapt rapidly, flying foxes are becoming increasingly important in maintaining gene flow and thus facilitating adaptation (Booth et al. 2008, 4–5). Even as climate change is increasing the need for flying foxes, the creatures themselves are in decline. The greatest amount of scientific research concerns the grey-headed flying fox of eastern Australia (*P. poliocephalus*). In the decade 1979–1989 their numbers dropped by one third, and the base line for that figure showed that their numbers already were down by millions from the pre-1788 estimates (Booth et al. 2008, 10). At the same time, the destruction of Australian woodlands, forests, and rainforests since 1788 has been a botanical holocaust in which up to 95% of some native forests have been lost (Eby 1995, 31), with terrible consequences for both the plants and the animals.

As the sequence of blossoms fails because the diversity and distribution of trees simply is not there, flying foxes experience starvation and mass death (Martin and McIlwee 2002, 105). This is exacerbated because habitat clearance also has the effect of increasing distances between food sources to the point where flying foxes can no longer make it from one area to the next. Populations that become hemmed in are effectively trapped and completely dependent on local foods (Conder 1994, 50), leading to mass starvation. And as the populations of flying foxes are in rapid decline, some forests are no longer being pollinated by flying foxes; functional extinction has begun (Booth et al. 2008, 5). Functional extinction precedes actual extinction; it is a loss of connectivity and mutuality, the beginning of a vortex the dynamics of which are ever more difficult to reverse. Lose the flying foxes, and there is no way of knowing just how far the unravelling of life systems will go.

The lives of flying foxes are found in the trees; the lives of eucalypts are found in soil and rain; the life of a rainforest is found as well in the lives of numerous creatures including cassowaries and others, and it permeates the air we all breathe . . . There is no way to determine where connectivity and responsibility stop. In flourishing life systems they do not stop. The world of life is a world of connectivity; where ethical

time entangles us all, death doubles back to claim us too. Multispecies aenocide opens an entropic vortex into which we are pushing life, and into which we too are being drawn.

Against this vortex, what does one have to offer? Writing is an act of witness; it is an effort not only to testify to the lives of others but to do so in ways that bring into our ken the entanglements that hold the lives of all of us within the skein of life. If we wonder, as many of us often do, if there is any point in telling stories that awaken ethical sensibility in this time when so much is happening so rapidly and seemingly so unstopably, there is a countervailing dread: if no stories are told, if all the violence goes unremarked, then we are thrust into the world of the doubly violated. Silence, however comfortable it seems at times, is a failure to acknowledge the gravity of violence. It has the potential to add to the victimization of those who suffer by appearing to say that the victim is one whose suffering does not matter (Hatley 2000, 3). And if suffering does not matter, then it is difficult to assert that anything matters.

Life is not only about suffering, of course, and my focus has been on the exuberant joy of ethical time. Flying foxes and their co-evolved blossoms express life's glorious desire, the call and response, the encounter, and the great patterns of life, death, sustenance and renewal that intersect across species and generations to form flows of life-giving life. If we choose silence in response to the unmaking of all this exuberance, we ourselves become deader than dead, for without an ethical sensibility we lose our capacity to be responsive to the dynamic exuberance of life. Along with all the multispecies double death, we also start to degrade the future of our own lives and deaths.⁵

References

- Adam, Barbara. 1998. *Timescapes of Modernity: The Environment and Invisible Hazards*. London, Routledge.
- Atterton, Peter. 2004. "Face-to-Face with the Other Animal?" In *Levinas & Buber: Dialogue & Difference*, edited by Peter Atterton, Matthew Calarco and Maurice Friedman, 262–281. Pittsburgh: Duquesne University Press.
- Booth, Carol, Karryn Parry-Jones, Nicola Beynon, Nancy Pallin, and Bob James. 2008. *Why N.S.W. Should Ban the Shooting of Flying Foxes*. Sydney: Humane Society International.
- Chrulaw, Matthew. 2011. "Managing Love and Death at the Zoo: The Biopolitics of Endangered Species Preservation." *Australian Humanities Review* 50:137–157.

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- Conder, Pamela. 1994. *With Wings on their Fingers: An Intimate View of the Flying-fox*. Sydney: Angus and Robertson.
- Eby, Peggy. 1995. *The Biology and Management of Flying Foxes in NSW*. Sydney: NSW National Parks and Wildlife Service.
- Edelglass, William, James Hatley, and Christian Diehm. 2012. *Facing Nature: Levinas and Environmental Thought*. Pittsburgh: Duquesne University Press.
- Hall, Leslie, and Greg Richards. 2000. *Flying Foxes: Fruit and Blossom Bats of Australia*. Sydney: UNSW Press.
- Harries-Jones, Peter. 1995. *A Recursive Vision: Ecological Understanding and Gregory Bateson*. Toronto: University of Toronto Press.
- Hatley, James. 2000. *Suffering Witness: The Quandary of Responsibility after the Irreparable*. Albany: State University of New York Press.
- . 2012. "The Original Goodness of Creation: Monotheism in Another's Voice." In Edelglass, Hatley, and Diehm 2012.
- Jones, Rhys. 1985. "Ordering the Landscape." In *Seeing the First Australians*, edited by Ian Donaldson and Tamsin Donaldson, 181–209. Sydney: George Allen and Unwin.
- Levinas, Emmanuel. 1989. "Ethics as First Philosophy." In *The Levinas Reader*, edited by S. Hand, 75–87. Malden: Blackwell Publishing.
- Margulis, Lynn, and Dorion Sagan. 2000. *What Is Life?* Berkeley: University of California Press.
- Martin, L. and A. P. McIlwee. 2002. "The Reproductive Biology and Intrinsic Capacity for Increase of the Grey-Headed Flying-Fox *Poliocephalus* (Megachiroptera), and the Implications of Culling." In *Managing the Grey-headed Flying-fox As a Threatened Species in NSW*, edited by Peggy Eby and Dan Lunney, 91–108. Sydney: Royal Zoological Society of New South Wales.
- Mathews, Freya. n.d. "Earth as Ethic." Unpublished manuscript.
- May, Robert, John Lawton, and Nigel Stork. 1995. "Assessing Extinction Rates." In *Extinction Rates*, edited by John Lawton and Robert May, 1–24. Oxford: Oxford University Press.
- Rose, Deborah. 2000. "To Dance with Time: A Victoria River Aboriginal Study." *The Australian Journal of Anthropology, Special Issue 12* 11 (3): 287–296.
- . 2005. "Rhythms, Patterns, Connectivities: Indigenous Concepts of Seasons and Change, Victoria River District, NT." In *A Change in the Weather: Climate and Culture in Australia*, edited by Tim Sherratt, Tom Griffiths, and Libb Robin, 32–41. Canberra: National Museum of Australia.
- . 2006. "What if the Angel of History Were a Dog?" *Cultural Studies Review* 12 (1): 67–78.
- Salleh, Ariel. 1997. *Ecofeminism as Politics: Nature, Marx and the Postmodern*. London: Zed Books, Ltd.
- Smith, Mick. 2005. "Hermeneutics and the Culture of Birds: The Environmental Allegory of 'Easter Island.'" *Ethics, Place and Environment* 8 (1): 21–38.
- Thompson, John. 2005. *The Geographic Mosaic of Coevolution*. Chicago: University of Chicago Press.
- Waldenfels, Bernhard. 2002. "Levinas and the Face of the Other." In *The Cambridge Companion to Levinas*, edited by S. Critchley and R. Bernasconi, 63–81. Cambridge: Cambridge University Press.
- Wyschogrod, Edith. 2000. *Emmanuel Levinas: The Problem of Ethical Metaphysics*. New York: Fordham University Press.