Troubling Species

Care and Belonging in a Relational World

THE MULTISPECIES EDITING
COLLECTIVE

RCC Perspectives
Transformations in Environment and Society

2016 / 5

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Introduction

Species categories are not simply an invention of the human mind. Plants, animals, fungi, and viruses engage in "species making" by mingling and separating.[1] Yet, at the same time, the boundaries that define or differentiate species are not simply "natural"; they are actively made, maintained, politically charged, and fashioned to serve some needs more than others, inviting new essentialisms even as they alert us to important differences. Like other rubrics for organizing social worlds—race, ethnicity, gender, age, ability—the concept of species and the alternative classifications it invites are complicated and controversial. Whether wild or domestic, pet or pest, such categories are subject to temporally fluctuating human motives, shifting values, and cultural diversities.

The systems that exist for identifying an animal's place of "belonging" are useful in discovering the multiplicity of life-forms and life-worlds, even as they raise troubling questions about the limits of categorization. Before it came to designate a group of living beings, the term "species" meant a kind of quality, appearance, or characteristic. In a sense, this notion of species is not unlike the South Asian notion of *jāti* (often translated as "caste"), which classifies human and other-than-human collectives (*jātis* of plants, animals, gods) in a fluid and context-dependent manner. What can we learn about the various forms of life and living that we find ourselves engaged with by reconnecting the biological sense of "species" to this original meaning? And what insights do we gain about humans—who, for a long time in Western traditions of thought, were considered both separate from and above "nature"? The essays in the first section of this volume, *Multispecies Belonging*, present examples of the histories and controversies surrounding some of these categorizations of life and reflect on their implications.

At a time in which human agency is dominating environmental change (and destruction), inquiries into our relationships with the nonhumans with whom we share our lives seem both necessary and just. Even according to conservative estimates, species are disappearing at a rate almost one hundred times faster than the background rate

1 Eben Kirksey, "Species: A Praxiographic Study," *Journal of the Royal Anthropological Institute* 21, no. 4 (2015): 758–80.

normally prevailing between mass extinctions. This is a shocking figure—we care about the loss that is implied—but what does it really mean to us when we read about the "sixth mass extinction" in the newspaper, or see statistics on endangered species turned into colorful infocharts in magazines or on the web? Such quantifications inform of the dimensions of biodiversity loss, yet they also raise questions about how we are affected by other life-forms (and their disappearance). What, for example, is actually lost when a species goes extinct? How should we feel about hundredfold acceleration if we have never experienced a "natural" rate of extinction in our own lifetime? And did it make a difference for Martha, the passenger pigeon, to be the last in her line?

In these "catastrophic times"[2] of species disappearance and anthropogenic destruction, the realities of biodiversity loss and ecological death are troubling our perceptions and understanding of the environment in new ways. Scholars in the environmental humanities and social sciences are increasingly calling for accounts that are more attentive to the ways in which human life depends on and is entangled with other species. We are becoming increasingly aware of the extent to which all human histories and socialities are embedded in metabolic and symbiotic relations with microbes, fungi, plants, and animals. Human beings are made up of more bacterial cells than human ones; our lives are processes inherently entwined in multispecies interactions and made up of a myriad of participants living, dying, and surviving in mutual dependence. We share this with all living beings who "emerge from and make their lives within multispecies communities."[3]

The *hows* and *whys* of the care we designate to these nonhuman participants sharing our lives determine responses not just in thoughts but in actions. Questions of species belonging are often connected to diverse practices of care, which is the focus of the articles in the second section of this volume, *Multispecies Care*. How does care for members of our own species differ from care across species? In exploring this question, the essays in this section draw on—but also significantly expand beyond—a notion of "care" that initially came to matter in the field of feminist ethics. As Tronto wrote, caring can be seen "as a species activity that includes everything that we do to maintain, continue, and repair our 'world' so that we can live in it as well as possible. That world

2 Isabelle Stengers, *In Catastrophic Times: Resisting the Coming Barbarism* (Paris: Open Humanities Press/Meson Press, 2015).

3 Thom van Dooren, Eben Kirksey, and Ursula Münster, "Multispecies Studies: Cultivating Arts of Attentiveness," *Environmental Humanities* 8, no. 1 (2016): 1–23, p. 2.

includes our bodies, our selves, and our environment, all of which we seek to interweave in a complex, life-sustaining web."[4]

It is important to note that care troubles easy antagonisms: it is ambivalent and never innocent, insofar as it creates and often depends upon unequal power relations. While it can be life-giving and nurturing, it can also be violent and even murderous. We cull for conservation; trap pests in greenhouses but also pets within our homes; we rehabilitate research animals. Care not only sustains, but also disciplines and categorizes human and other-than-human bodies, often in ways that are necessarily political.[5] Care is a practice of responsiveness and attentiveness that is always entangled in global economic force fields determining who receives care and at what price.[6]

As writers, we collectively recognize that caring about species, whether as being or as category, entails being care-ful in our accounts of nonhuman others; taking care not to presume we can comprehend the perceptual worlds of other species, but also taking care not to categorically dismiss these perceptual worlds as being beyond the realm of human thought; taking care also to consider the knowledge both of those humans who think scientifically about species, and those humans who form intimacies with other species as companions and caretakers.

Starting from the premise that a deep engagement with the lives of other species productively troubles human-only (hi)stories, the essays in this volume thus turn towards multispecies storytelling. Our hope is that immersion into the lifeworlds of other species will help us to cultivate a more relational ethics that opens up possibilities to "(re) craft modes of living and dying on a richly varied yet fundamentally shared world."[7] In thinking the themes of belonging and care together, we acknowledge that caring for nonhumans has concrete implications for the imagination of species belonging and the actions this can shape. Multispecies encounters sometimes call for care that is aimed beyond or to the side of species. Caring for individual creatures may involve recognizing that they do not necessarily accede to species norms and that the range

4 Joan Tronto, *Moral Boundaries: A Political Argument for an Ethic of Care* (New York: Routledge, 1993), 103.
5 Aryn Martin, Natasha Myers, and Ana Viseu, "The Politics of Care in Technoscoence," *Social Studies of Science* 45, no. 5 (2015): 625–41
6 Kirstein Rummery and Michael Fine, "Care: A Critical Review of Theory, Policy, and Practice," *Social Policy and Administration* 46, no. 3 (2012): 321–43.
7 van Dooren, Kirksey, and Münster, „Multispecies Studies," 6.

of affective relationships in which they engage has the capacity to go beyond the expected. Care that is too narrowly focused on species parameters risks missing realms of creaturely potential.

This volume is the collaborative outcome of the Rachel Carson Center's Multispecies Reading Group, an initiative led by Thom van Dooren and Ursula Münster during 2015 and 2016. The sessions brought a diverse group of scholars from the disciplines of environmental philosophy, environmental history, animal history, history of science, anthropology, and sociology to the Rachel Carson Center, forming a vibrant reading and discussion group on the multifarious relationships between humans and other species. The group debated and rethought a range of concepts that have shaped relationships among a myriad of species. In the true spirit of collaboration, the contributing authors united to form the Multispecies Editing Collective and implemented an internal peer-review process for the volume.

We would like to thank the Rachel Carson Center for enabling our lively discussions across disciplinary boundaries and species lines. Special thanks also go to Harriet Windley for her thoughtful and patient editing, without which this volume would never have been completed.

Multispecies Belonging

Jean M. Langford

When Species Fall Apart

How do we attend to the species identity of nonhuman animals living in sanctuaries, who are retired or rescued from laboratories, entertainment, or human homes? What constitutes care for creatures who are not only physically separated from their wilder conspecifics, but also often psychically dislocated to the point of lacking social skills necessary for living with their own kind? Two North American sanctuaries, one for primates and one for parrots, suggest possibilities for care when species, both as concept and as creaturely collective, fall apart.

At the primate sanctuary, both the chimp house and the outdoor islands sport either actual trees or rope and log structures simulating trees. But G, the director, discovered early on that the chimps are more apt to climb the wire mesh of their enclosures than the biological or artificial trees.[1] Metal is more familiar than wood. She laughed. "My stupid idea that all chimps like trees. . . . I have chimps that climb and can't come down. Is that normal? Of course it's normal for someone who's lived in a tiny little box their whole life!"

She mused about one chimp who bares his teeth when he smiles. "A normal greeting . . . they cover their teeth, the bottom lip is droopy. . . . But Jethro doesn't know how to do a chimp face." When Jethro smiles, he risks communicating fear and aggression to his conspecifics. Nonetheless, Jethro is well respected by the other sanctuary chimps. "He's a big hugger," G said. "He's busy hugging and always getting in between fights."

She described Jeanie (now deceased) as "a chimpanzee who's so burnt, so fried, so done with this life that she spins and urinates and defecates all at the same time, and froths at the mouth and her eyes roll back. That's like watching someone in a mental institution for god's sake, and that's a chimpanzee?" Jeanie went especially crazy when humans walked down the hall toward her enclosure at a certain time of day. "She'd be spinning and screaming and freaking out . . . to the point that you thought she was hurting herself." One day while cleaning Jeanie's room, G noticed that anyone walking down the

1 One of the sanctuaries requested that I use pseudonyms for the humans and actual names for the animals. For the sake of consistency, I follow that practice here for both sanctuaries.

hall at that hour was in shadow, backlit by glare. The situation, she figured, duplicated the lighting at the lab when technicians approached the chimps' cages from a door at the end of a hallway: "Knockdown time, surgical procedures, and they're all in white, you can't make out the face."

Retired lab chimps have typically undergone hundreds of knockdowns. They were anesthetized whenever they were moved or scheduled for a procedure. Many chimps scream and flail, losing control of their bladder and bowels, when faced with a dart gun. Chimps are sometimes anesthetized at the sanctuary too, though preferably not with a gun. Billy (also deceased) was the first chimp to need surgery. G recalled, "I didn't want to partake in this whole event of Billy having a knockdown. I thought, 'I don't want to be the bad guy.' . . . I was around the corner. . . . But there's Billy looking at me, he's screaming . . . he's got his hands out for me to come over. . . . So I went down and I put my mouth to his mouth. . . . He screamed into my face so loud I thought I was going to go deaf. . . . He hung onto my hand and I thought my finger was going to pop. . . . And he took the next injection . . . and he stared into my face . . . and his face just fell into my hand and that's how he went to sleep. And from that moment I knew, I always had to be there."

Billy had spent the first 15 years of his life in a human home, where he wore clothes, went fishing, and watched television. When he became too large for his human family to handle they surrendered him to a research lab where he lived for the next 15 years. When he came to the sanctuary, G attempted to introduce him into various chimp social groups, but he was repeatedly beaten up. He lacked even the most fundamental social skills for living with other chimps. "It was on the fifth beating that I said, 'This isn't going to work.' . . . When you're starting a sanctuary . . . everybody is saying, 'Oh chimps are supposed to live together.' . . . You know what? They're not real chimps. . . . Tell me what about their life makes them a real chimp? . . . They're kind of a weird cross of some very messed up beings, who don't fit in anywhere anymore."

As she handed out bananas and cups of tea, G told me the history of the sanctuary's "tea drinking culture." Tom refused to take his medication, until his closest friend Pat, a human, took the medicine himself in a cup of tea. "And so Pat would have a cup of tea and Tom would have a cup of tea." Although Tom has since died, his legacy lives on, as several other chimps request cups of tea each day.

When we left the chimps G took me to visit Theo the baboon. When Theo first arrived at the sanctuary he stood outside, calling into the surrounding cornfields for three nights. Later G learned that when baboons in the forest are separated from their troop they also call out for three nights, before apparently concluding that their troop is no longer in earshot. Theo was captured from his troop in Kenya at the age of two and probably still remembers them. But at the sanctuary, where there are no other baboons, he has made friends with Newton, the macaque who lives in the adjacent enclosure. They play chase, sit near each other, and groom each other through the bars.

Caring for Billy meant reassuring him with human touch. Caring for Jeanie meant trying not to trigger her terrifying memories. Caring for Tom meant serving his meds in a cup of tea. Caring for Theo means housing him near Newton.

The parrot sanctuary houses about 80 birds of a dozen or more species. Each bird has a file in the sanctuary office in which their species is recorded, along with their name, history, behavioral concerns (feather-plucking, aggression, self-mutilation, withdrawal, stereotypic movement), and prescribed medications. (Commonly used psychotropic drugs include chlomipramine, fluoxetine, and amytriptiline.) But beyond the note in their file, species is not a particularly salient identity for these birds, many of whom were bred in captivity and have lived their lives in closest contact with nonconspecifics.

Ravi is an Indian ringneck, belonging biologically to the genus *Psittacula*. At the sanctuary, though, Ravi shares a room with cockatiels. Even when there are other *Psittacula* in the flock, he bonds only with cockatiels. "He's the one who always wants a little cockatiel of his very own," the sanctuary director, H, told me. Ravi is one of many birds at the sanctuary who loves across species lines. The white-fronted Amazon Calypso fell for Stubby, a lesser sulfur-crested cockatoo. "They were the cutest pair," K, a volunteer and ex-vet technician, commented. "Sometimes you have weird little companions that love each other. Okay, sure, whatever." Malachi, a male Moluccan cockatoo was bonded for years with Gomer, a male military macaw. They spent their days side by side in one or the other's cage, preening each other's feathers. When Malachi died, Gomer grew listless, lost his appetite, and refused to leave his cage for weeks. There are many cross-species (not to mention same-sex) intimacies at the sanctuary, all of which are encouraged by the humans, who are happy for the birds to form intimacies of any kind.

For many of the parrots, especially those bred in captivity, cross-species relationships extend beyond birds to humans. Parrots bred in captivity for the pet trade are typically separated from their parents long before they would separate from them in forest habitats. The breeders "think it makes a nicer, human-bonded bird," H said. "It actually creates the opposite, a bird who has no idea what they are or how to interact." The wild-caught birds are markedly less interested in learning human speech. "The reason [human-bonded birds] copy us," H said, "is because we're their flock. . . . They want to fit in with us." K commented that most of the birds at the sanctuary are "pretty messed up." The Moluccan Cowboy (called Cowboy the cockatool-maker for his habit of sharpening toothpicks to wound himself in the chest) "doesn't fit into anything," H said, and Harpo, another Moluccan, "has no clue what to do with other birds." Cowboy and Harpo form intimacies only with humans, and they even court us, tapping their bills against our hands or thighs and building nests for us in the sanctuary hallways.

Philippe, another Moluccan, is more often referred to by the nickname Bird. It was some weeks before I learned that the volunteers started calling him that as a way of reminding him that he is biologically a bird. The Moluccan Karly often screams loudly for minutes on end. One day when his screams were especially deafening I was surprised to hear a volunteer comment, "Sometimes we rue the day we taught Karly to scream." "You taught him to scream?" I asked. "He was too scared to scream," H explained. "He rarely would make a peep. He was beaten [at his previous home] for making noise. So . . . any time we heard him make noise, we were like 'Yay, Karly, yay.' Now we're like 'Why did we do that to ourselves?'" But her question is both rhetorical and a joke. They did it to nudge Karly along an unusual continuum of "speciation," from anomalous creature toward cockatoo. Species here is less a secure identity, a noun, than a tenuous becoming, a verb.

Although the sanctuary has a policy of not clipping any birds' wings, many of the larger captive-raised birds have never learned to fly. Selected staff work to teach them. "It's part of trying to teach them that they're birds," H tells me. "It helps them become more stable mentally. . . . Birds fly to get away from things, birds fly to get places. If they've never felt that they've had a way to escape something or get where they want to go, it generally turns into a lack of confidence, increased aggression, adds to them not really recognizing that they're a bird, helplessness, increased reliance on humans. . . . [Learning to fly] can decrease feather-destructive behavior." Here H refers to

the habit of many of the larger birds of compulsively plucking out their feathers as if in contempt for their capacity for flight. Some of the feather-destructive birds self-mutilate like Cowboy, gouging their skin with their bills if not prevented from doing so by vests or collars. Malachi eventually died from his own self-injuries, and some of the staff understand his death as a suicide.

Figure 1: Cowboy inviting a head scratch. Photograph by author.

One bird, who I call Jody at H's request that he not be identified, killed another bird, Unchi, during what H referred to as a "psychotic break." Unchi was one of the few wild-caught birds at the sanctuary who, H explained, are more apt to be "birds' birds" who "know they're birds." Unchi often harassed more human-bonded birds like Jody. It was during one such incident that Unchi was killed. Afterward, Jody descended into a depression that lasted for eight months. That is, he grew silent, lost his appetite, and became socially withdrawn. During those months, Jody seemed to be haunted by Unchi's death. But perhaps he was also haunted by Unchi's life, which exemplified the possibility of being a bird who could distinguish between harassment and a fight to the death, a bird who confronts Jody with the impossibility of being a "birds' bird" himself. Caring about Jody means concealing his identity, protecting him from the stigma of his murder, so that human volunteers will continue to befriend him.

A key element of care at both sanctuaries is the cultivation of social life, which is critical to the vitality of both parrots and primates. Sociality is both constrained and facilitated by the arrangement of physical space and of movement within that space. Fostering relationships through spatial configurations involves knowledge of individual animals based on observation and intuition.

At the parrot sanctuary, smaller birds like cockatiels live together in large flights, while larger birds have their own roomy cages. Each bird is released from their cage or flight for at least four hours every day to allow them to explore their environment and interact with other birds or humans. This uncaged time is carefully orchestrated, since flock dynamics change with each shift of volunteers, depending on current intimacies and jealousies. Some birds are hostile to one another; others can only be trusted together when certain humans are or are not present. For birds with especially poor social skills, uncaged time may consist of time spent in the "playroom" with one or two humans or an avian friend if they have one. Maintaining an amicable flock conducive to individual flourishing requires continuous fine-tuning of interspecies sociality in the sanctuary's "public" space. (Unchi's death resulted from a human mistake in the orchestration of avian movement.)

In primate sanctuaries, clusters of rooms can be opened or closed to one another to allow for changing social groups. Introductions of individuals into groups range from carefully planned to semispontaneous. G described the day she introduced Annie to a group of chimps she hadn't lived with before. "She was frantic, she was looking . . . at the door . . . bobbing up and down. . . . She looked at me. . . . She was so vocal, she was squeaking . . . like a whimper. . . . I've got the keys in my hand and . . . once the lock is off we're in trouble, honey. . . . Donna Rae was directly in line with her. . . . I took the lock off and Annie . . . just flung the door up . . . and off she went. . . . Donna Rae started to walk and Annie started walking and . . . they came around the corner and they met right in the middle. They hugged, they hugged, they hugged. . . . Annie turned around, Donna Rae turned around, she hugged her from behind, they hugged from the front, they held each other's faces, they panted into each other's faces. . . . From that day on they shared nests. . . . They doted on one another, they lay in the sun in the morning . . . Donna Rae under the sheets and Annie resting comfortably with her feet up in the air, just lovely, beautiful relationship."

While this encounter might be understood as the enactment of a chimply capacity for familial touch, the personal histories of the chimps belie the simplicity of this interpretation. In the laboratory, Annie was a "breeder" who, after being artificially inseminated, showed little interest in caring for her baby. Donna Rae was raised in a human family, wearing dresses, riding a bicycle, and playing with her human foster sister, before being sold to a lab where she spent the next 19 years in a cage by herself. Given these histories, we might understand Annie and Donna Rae as two creatures whose chimpanzee identity has been compromised, but who still manage to form a friendship amid the strangeness of captive life.

In these sanctuaries, it is less species that are the subject of care than creatures with unique histories and idiosyncrasies. Sanctuary life invites us to consider a form of care where animals are asked less to conform to normative parameters of biological species, than to participate in collectively extemporized transpecies socialities. We are called to care *beyond* species, when species fall apart.

Harriet Ritvo

The Domestic Stain, or Maintaining Standards

The categories of "wild" and "domesticated" have been taxonomically potent at least since the emergence of modern classification systems in the eighteenth century, and they were socially and economically potent for centuries and millennia before then. Most versions of modern systematic taxonomy have enshrined these categories in the form of nomenclature, emphasizing the value added by domestication with Latinate binomials: thus, *Bos taurus* is the offspring of the extinct ancestral *Bos primigenius*, and *Canis familiaris* is the offspring of the still extant ancestral *Canis lupus*. Two hundred years ago, in the freewheeling early days of systematic zoology, domesticated animal kinds were frequently elevated to the level of genus, with breeds of dogs or cattle consequently allotted their own species or subspecies.[1] But, of course, power does not necessarily produce or even require clarity. Although the categories of "wild" and "domesticated" are implicitly opposed, drawing the line between them—or, to put it another way, establishing mutually exclusive definitions—has never been easy. Many animals (and even more plants) have inevitably remained tantalizingly ambiguous or ambivalent. Several factors have contributed to this persistent imprecision. Some are scientific, deriving ultimately from the elusiveness of an abstract definition of "species" (and consequently of both higher and lower taxa). Others, at least equally influential, reflect cultural notions about categories and relative value. For these reasons, among others, the increasingly sophisticated analytic tools of modern biological science have not made things much clearer.

In particular, although domesticated animals are routinely treated as species separate from their wild ancestors, it has been difficult to pinpoint the theory behind this widespread practice. The guidance offered on this point by the International Commission on Zoological Nomenclature, which, by its own declaration, "acts as adviser and arbiter for the zoological community by generating and disseminating information on the correct use of the scientific names of animals,"[2] is hardly concrete.[3] Nevertheless,

1 See Harriet Ritvo, "Flesh Made Word," chap. 2 in *The Platypus and the Mermaid: And Other Figments of the Classifying Imagination* (Cambridge, MA: Harvard University Press, 1998).

2 International Commission on Zoological Nomenclature (ICZN), accessed 28 February, 2016, http://iczn.org/.

3 "Wild vs. domestic animal names. The majority of domestic animals and their wild ancestors share the same name but in a few cases the two forms were named separately, which has created confusion. It was proposed that the first available specific name based on a wild population be adopted. Therefore, despite the fact that these names post-dated or were contemporary with those based on domestic derivatives, the Commission recently conserved, as valid, the usage of 17 species names based on wild species. . . . [2003]," from "Biodiversity Studies," ICZN, accessed 28 February, 2016, http://iczn.org/content/biodiversity-studies.

many taxonomists continue to stress the importance of maintaining separate binomials, not only for reasons of intellectual clarity, but also because in many cases both the lived experience and the legal status of the two forms are very different.[4] Such decisiveness prescribes a clear course of action, while leaving the underlying question unanswered.

Or perhaps its implied answer is based on surprising grounds. For example, three distinguished taxonomists have argued that "since wild species and their derivatives are recognizable entities, it is desirable to separate them nomenclaturally when distinct names exist." In this formulation the key term—"recognizable"—refers to judgments that interested laypersons can make as confidently (or as provisionally) as can specialists. The "four main characteristics" of domesticated animals that they specify allow plenty of room for interpretation, or indeed for argument: breeding controlled by humans; provision of a useful product or service; tameness; selection away from the wild type.[5] (One characteristic that they do not mention is that which has ordinarily, although always problematically, been used to establish a boundary between similar species: the ability or inability of crosses to produce fertile hybrid offspring.) One of the commonest kinds of pet thus provides an example of the definitional difficulties that remain (or emerge). Most people would automatically classify house cats as "domesticated," and, as is the case with other domesticated animals, their scientific name *Felis catus* differs from that of their wild ancestor *Felis sylvestris*. Nevertheless, the authors of an article adding five thousand years to cats' historical association with humans (based on both DNA and archaeological evidence) hedge their bets. They answer the question "Are today's cats truly domesticated?" with notable restraint: "Although they satisfy the criterion of tolerating people, most domestic cats are feral and do not rely on people to feed them or to find them mates. . . . The average domestic cat largely retains the wild body plan."[6]

Since the preceding quotations have been taken from articles published in scientific journals, their authors do not commit themselves with regard to whether this ambiguous status is a good thing or a bad thing. Such restraint or objectivity has not, how-

4 Anthea Gentry, Juliet Clutton-Brock, and Colin P. Groves, "The Naming of Wild Animal Species and Their Domestic Derivatives," *Journal of Archaeological Science* 31 (2004): 645–51.
5 Gentry et al., "The Naming of Wild Animal Species," 645, 649.
6 Carlos A. Driscoll, Juliet Clutton-Brock, Andrew C. Kitchener, and Stephen J. O'Brien, "The Evolution of House Cats," *Scientific American* 300, no. 6 (2009): 68–75.

ever, characterized everyone with an interest in whether a particular animal or group of animals is domesticated or wild. Over time, while the desire to distinguish between wild forms and their domesticated relatives has remained constant, the valence of this distinction has shifted significantly. The eighteenth-century practice of labeling breeds as species simultaneously celebrated and reified the power of domestication; it also enhanced the cash value of breeds whose unique qualities were deemed to merit such recognition. But an alternative to the traditional penchant for domestication was already emerging; with the beginning of the Romantic movement, wildness became a symbol of prestige, at least from some privileged perspectives. Thus, the aristocratic proprietors of a few herds of unruly white cattle in the north of England and Scotland allowed them the run of their large estates and fantasized that they were surviving remnants of the aboriginal aurochs.[7] Similar fantasies have subsequently become attainable for more modest proprietors. For example, Bengals are expensive even in comparison to other pedigreed cats, but they are still much more affordable (and cheaper to maintain) than pedigreed cattle, whether ostensibly wild or otherwise. According to the International Bengal Cat Society, the breed is "a medium to large domestic feline that originates from crossings of the small Asian leopard cat to the domestic cat in an attempt to create a companion with an 'exotic' look but a domestic temperament." (To enhance the thrill, prospective owners are warned that "the energetic Bengal is not for people who just want a leopard print cat for decoration.")[8] Other feline hybrids designed to appeal to a similar market include the Savannah (domestic cat and African serval) and the Chausie (domestic cat and Asian jungle cat).

This is not to say that wildness has definitively triumphed in every context—and indeed one explanation for the difficulty of distinguishing wild animals from domesticates is that more or less identical animals can seem very different depending on their circumstances. The modern pit bull is the latest of a series of dog breeds (predecessors include the bulldog, the German shepherd, and the Doberman pinscher) that were appreciated initially for their ferocity (or other qualities associated with their wild relatives), and subsequently for an appearance and a temperament that retains some of the cachet of toughness, without any of its danger. Thus a typical apologist locates them firmly within the realm of domestication, declaring that "pit bulls are not

7 See Harriet Ritvo, "Race, Breed, and Myths of Origin: Chillingham Cattle as Ancient Britons," *Representations* 39 (1992): 1–22.

8 "The Bengal Cat," International Bengal Cat Society, accessed 28 February, 2016, http://www.tibcs.com/whatis.aspx.

the stereotypical devil dog put forth in media myth. They are companion animals who have enhanced the lives of many through their devoted people-loving natures, [and their] positively channeled physical prowess, bravery, and intelligence."[9] Or, as Vicki Hearne—a much less typical apologist—put it, with characteristic intensity: "many Americans believe that there is a breed of dog that is irredeemably, magically vicious. That is not the only reason the current era is going to go down in history as one of the most remarkably hysterical and superstitious of all time, but it is a bigger reason than current speculation allows for."[10]

Such dual significance can be conveyed by animals that begin as wild as well as by those that begin as domesticated. Thus, among the principal attractions for visitors to southern Africa are the numerous national parks and private game reserves, where many kinds of large, wild animals can be viewed in habitats that appear natural, behaving in ways that also appear natural. But it is also possible to view their conspecifics in situations that give a very a different impression—for example, in roadside paddocks that implicitly present various antelope species as incipient food items for people (livestock rather than game), and in tourist attractions that implicitly present ostriches or elephants as pets. In a more generalized, less immediate way, most zoo animals also have similar functions—not just made harmless by captivity and enclosure, and micromanaged according to the policies or whims of their guardians, but available for metaphorical purchase as "adoptees" and as cuddly toys.

Breeding offers a more abstract way to overlay wildness with the trappings of domestication. As the untrammeled reproductive options historically available to both house and barn cats have made them seem somewhat more wild (or feral), the application of the machinery of pedigree developed for elite domesticated breeds can make even tigers seem a little less so. Studbooks have controlled the mating of zoo animals, especially of representatives of species that have become scarce in the wild, for more than half a century.[11] The standard justification for this practice is to maintain genetic diversity and to avoid the inbreeding that may otherwise weaken small captive populations. But it has also frequently been used to reify the category of subspecies (that is, to maintain racial purity). Both agendas mean that zoo animals whose parentage is unknown are precluded from

9 "Pit Bull 101," Canine Justice Network, accessed 28 February, 2016, http://www.defendingdog.com/id7.html.
10 Vicki Hearne, *Bandit: Dossier of a Dangerous Dog* (New York: Harper Collins, 1991), 7.
11 Peter J. S. Olney, "Studbook," in *Encyclopedia of the World's Zoos, R–Z*, ed. Catharine E. Bell, vol. 3 (Detroit: Fitzroy Dearborn, 2001), 1180.

breeding, and zoo animals whose parentage is deemed inappropriate may be precluded from breathing. The famous episode at the Copenhagen zoo provided an extreme (or at least spectacular) case of the possible consequences of such policies. A young giraffe named Marius (another indication of his status as a notional pet), just past the stage of baby cuteness, was shot, then publicly dissected, then fed to the local lions. In language that resonates at least as much with economics and marketing as with zoology and conservation, he was declared surplus, both genetically (that is, there were no suitable partners for him within the network of approved European zoos) and physically (that is, he took up a lot of room, and accommodation for large zoo animals is limited).

The advent of DNA analysis in recent decades has made it both easier to distinguish between domesticated animals and wild ones, and more difficult. For example, the Scottish Wildcat Association was established in 2007 to protect the small remaining British subpopulation of the very widely distributed species ancestral to domestic cats. (Again, the fact that such creatures are considered worthy of protection signals a distinctively modern valuation of wild animals; Victorian gamekeepers hunted down the ancestors of these cats and nailed their skins to barn doors.) The targeted felines strongly resemble domestic tabbies, although they tend to be larger and more irascible. Perhaps for this reason, the distinction between pure wild animals and those contaminated by miscegenation features prominently on the association's website: "In 2004 a team of scientists . . . estimated that 400 wildcats remained, the other 5,000 or so being feral domestic cats or hybrid mixes of domestic and wildcat." It further advocated "improving legal protection, launching a public awareness campaign, supporting the captive breeding program and creating special reserves for wildcats which would in turn benefit many other species."[12] As a result of these efforts, the Scottish wildcat was declared a "priority species" (at least in Scotland). It therefore became eligible to benefit from the establishment of a studbook, a captive breeding program, and other measures that blur the cultural boundary between the wild and the domesticated, even as they attempt to reinforce the genetic boundary that separates them. The efficacy of these measures has been questionable, however, and the association currently supports an enterprise devoted to "complete feral cat removal across a vast landscape using a humane trap, neuter and return methodology."[13]

12 Scottish Wildcat Association, accessed 5 March, 2014, http://www.scottishwildcats.co.uk/wildcat.html.
13 Wildcat Haven, accessed 28 February, 2016, https://www.wildcathaven.com/about/.

The case of the American bison is more puzzling still. Having teetered on the brink of extinction in the late nineteenth century, it has become one of the success stories of species preservation. Although their free-ranging populations remain far below their historical maximum (in the tens of thousands compared to estimates as high as 50 million or more[14]), bison are now sufficiently numerous to be eaten undiluted as "buffaloburgers" or in hybridized form as "beefalo." But the relation of contemporary bison to the noble former inhabitants of the Great Plains is far from straightforward. The animals who end up in fast food restaurants and grocery stores clearly come from domesticated stock, not from the wild herds that roam Yellowstone National Park; in fact, the name beefalo indicates its mixed descent from both the American bison (*Bison bison*) and the domestic cow (*Bos taurus*). But it also appears that beneath their reassuring demographic success, even the apparently wild bison populations may be similarly compromised. They look like bison and they act like bison; they seem indistinguishable from the iconic beast who once adorned the American nickel. But looks can be deceptive; an article in the *Sierra* magazine pointedly celebrates the 3,700 Yellowstone bison as "free of cattle genes . . . our last wild bison."[15] Despite their reassuring phenotype, most of the current American bison (in public herds as well as in private herds) include substantial genetic contributions from domesticated cattle.[16] At least in theory (and if it is assumed that genotype trumps phenotype), this raises substantial questions about exactly what has been saved and why.

14 "Bison Factsheet," San Diego Zoo, accessed 28 February, 2016, http://library.sandiegozoo.org/factsheets/bison/bison.htm.

15 Molly Loomis, "Bison and Boundaries," *Sierra* (2013): 28.

16 James N. Derr, Philip W. Hedrick, Natalie D. Halbert, Louis Plough, Lauren Dobson, Julie L. King, Calvin Duncan, et al., "Phenotypic Effects of Cattle Mitochondrial DNA in American Bison," *Conservation Biology* 26 (2012): 1130–36.

Daniel Münster

Zero Budget Natural Farming and Bovine Entanglements in South India

New Affective Relationships

Figure 1:
Lakshmi and Appachan.
Photograph by author.

Lakshmi was different. She stood by herself, tied with a loose rope around her neck in the main yard of Appachan's small four-acre farm in Nadavayal, one of the Christian settler pockets of Eastern Wayanad, South India. She would not stand with the hybrid cows—those ubiquitous crossbreeds that were a mix between local cows and exotic breeds like Brown Swiss, Holstein-Friesian, or Jersey, who had to spend all day in the stable. Appachan cared for her like for none of his other half dozen cows, who had over these past months fallen so much in his estimation that he had conveyed their care entirely to his adult son. Lakshmi was treated by Appachan and his family like a pet; cuddled, stroked, caressed, and admired for her beauty.

It was only logical that she was the single bovine in the household to have a name—the others were just cattle. His "hybrids," as he called them, were remnants of a time when Appachan was still following the recommendations for dairy improvement in the state of Kerala and was yet unaware of the microbial abundance provided by "real cows."

Appachan's appreciation of Lakshmi as a "real" cow goes hand-in-hand with his realization that he had, for many years, falsely assumed that any cattle could be cows—*paśu* in Malayalam. Now, however, he had become convinced by his teacher in natural farming that only *Bos indicus*, the Indian zebu cattle, are "real" cows and that European *Bos taurus* and its crossbreeds are not actually cows but a dangerous alien species. Jokingly, Appachan referred to crossbreds as *yakṣi*, after the female vampire-like spirit of Kerala mythology who, whenever she visits earth, sucks the blood of male virgins after seducing them.

Appachan and other natural farmers follow a nativist biopolitics, whose new dualist taxonomy casts exotic bovines outside the boundaries of the cow species and even outside nature itself. The degree of disaffection for hybrids is mirrored by the natural farmer's newly found regard for indigenous breeds, zebu cows, *dēśi* cows—as his guru would say—or *nāṭan paśu* (native cows) as Appachan and farmers like him would call them.

Lakshmi's excrement, her urine, and her dung, were venerated by her human owner as precious matter, as a part of Nature (with a capital n) that provided a myriad of beneficial microbes and substances, which the farmer would in turn culture and ferment to create their "miracle preparation": *jīvāmṛta*—The Nectar of Life.

After preparation, *Jīvāmṛta*, with its billions of beneficial microorganisms, is then applied to Appachan's fields, where the ferment generously attracts and feeds even more microorganisms, earthworms, and bacteria, which in turn break up micronutrients like nitrogen, making them available to plants. Native cow breeds, in their multiplicity, are the key multispecies assemblage for the health and fertility of naturally farmed soils, which in themselves are another group of living, multispecies assemblages built on relations of symbiosis,[1] mutuality,[2] and affect.[3]

1 Lynn Margulis, *Symbiotic Planet: A New Look at Evolution* (New York: Basic Books, 1998).
2 Kniaz P. A. Kropotkin, *Mutual Aid: A Factor of Evolution* (Radford: Wilder Publications, 2012 [1902]).
3 Carly Hustak and Natasha Myers, "Involutionary Momentum: Affective Ecologies and the Sciences of Plant/Insect Encounters," *Differences* 23, no. 3 (2013): 74–118.

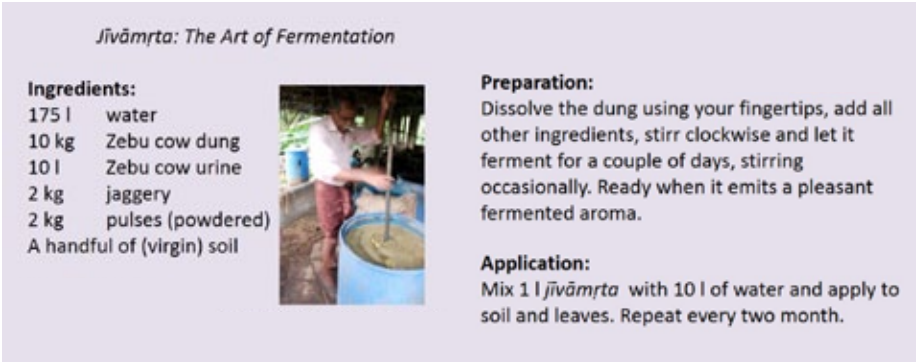

Figure 2:
How to prepare The Nectar of Life. These instructions have been compiled by the author according to the recipe of Subhash Palekar, a promoter and guru of Zero Budget Farming.

Zero Budget Natural Farming

One year ago, at the age of 64, Appachan—a member of the Christian settler community that had moved to Wayanad's forest frontier after the Second World War—started practicing Zero Budget Natural Farming. This method is one of the more successful heterodox natural farming agronomies that is emerging in India and challenges agricultural development with its technoscientific or sustainable/organic guises.[4] Appachan and other natural farmers of Wayanad—many but not all of whom are Christians and older farmers—had first begun looking for native cows after their encounters with the charismatic guru and promoter of Zero Budget or Spiritual Farming, Subhash Palekar. Palekar has held natural farming camps in Wayanad since 2008,[5] and converted many of the participants to a farming ontology of liveliness, naturalness, and microbial abundance for which the excrements of *nāṭan paśu* were essential. Lakshmi was thus one of many native cows reintroduced across the district by this very recent brand of natural farmers.

All his life Appachan had been committed to what he now called chemical farming (*rāsa kṛṣi*), in which he had followed the recommendations and "Packages of Practices" disseminated by the agricultural extension service of Kerala's development state. These recommendations had imposed an increasing reliance on synthetic fertilizers

4 Daniel Münster, "Agrarian Alternatives: Agroecology, Food Sovereignty, and the Reworking of Human-Environmental Relations in India," *Rivista Degli Studi Orientali Nuova Serie* 88, supplement 2 (2015): 233–50.

5 See Daniel Münster, "A Letter to Subhash Palekar, Natural Farmer," in Beyond Doom and Gloom: An Exploration Through Letters," ed. Elin Kelsey, *RCC Perspectives* 2014, no. 6, 23–25.

and pesticides, the cultivation and rearing of "improved" varieties of cultivars and livestock, and the production of "nonfood" cash crops such as coffee, areca nut, or rubber. Together, the growing costs of farm inputs, the lurking debt trap of increasingly speculative farming, the drying up of wetland soils, and most of all, a deep concern about bad-tasting, unhealthy food and cancer-causing pesticides, had estranged Appachan and several dozen other farmers in Wayanad from Kerala's development consensus, attracting them instead to the new techniques and radically ecological ontology of Zero Budget Natural Farming.[6]

Lakshmi's urine was collected in its own bucket and her droppings were picked up with great care by members of her human family. They also made sure that her precious excrement never got mixed up with that of the hybrid cows, whose dung and urine where collected rather carelessly in a large tank to run the household's biogas installation, which the government had subsidized some years ago. Some natural farmers had cemented small dams in their cow sheds to make sure that the substances of their native and hybrid cows didn't mingle. In contrast to her crossbred sisters, Lakshmi was not expected to give any milk; therefore, she was neither earmarked for artificial insemination by veterinary officers nor for feeding with the enhanced "cowfeed" that would make her hybrid companions produce up to 20 liters of milk a day. Palekar had taught his followers to have a skeptical outlook on the "dairyfication" of Indian diets and agriculture, and his true followers were giving up both the production and consumption of milk products for the sake of "nonexploitative" agriculture. Thus, Lakshmi was allowed to graze in the spice garden of the farmer's field and led with great affection on a leash to different places where delicious greenery could be found.

Improving and Protecting Landraces

For decades, the state of Kerala cared little for native breeds. Since the 1960s, in its drive to increase milk production and to promote animal husbandry, it had classified most indigenous cattle as unproductive, undesirable, or defective. Forging ties with the Swiss government in the Indo-Swiss Project, the state of Kerala launched a dual campaign of

6 Daniel Münster, "Agro-ecological Double Movements? Zero Budget Natural Farming and Alternative Agricultures after the Neoliberal Crisis in Kerala," in *Critical Perspectives on Agrarian Transition: India in the Global Debate*, ed. B. B. Mohanty (New Delhi: Routledge, 2016), 222–44.

crossbreeding exotic cattle and of exterminating unproductive indigenous cattle. The ambitious "planned breeding program under tropical conditions"[7] was launched with the import of 22 Brown Swiss bulls and 46 cows from Switzerland, and the establishment of Artificial Insemination (AI) Centers across the state. The successor organization, the Kerala Livestock Development Board, has grown to be the largest frozen semen producer in India, and in 2004 sold more than 1.5 million doses of frozen semen to 2,971 AI Centers in Kerala alone. The Board proclaims that 85 percent of Kerala's current female milk cattle have acquired genes from Brown Swiss, Jersey, Holstein-Friesian, or American Brown Swiss, whereas in the rest of the country crossbreeds account for only 12 percent of the milk cattle population. Milk production and consumption have increased dramatically from 200,000 tonnes in 1956 to 2.1 million tonnes in 2006.[8]

Figure 3: Government Veterinary Dispensary, Wayanad. Photograph by author, 2009.

In its fight against unproductive landraces, the government implemented the infamous Kerala Livestock Improvement Act of 1961. Farmers remember the slow violence of this drastic state intervention into their breeding practices; the act required them to obtain a "license," issued by a veterinary officer, for keeping bulls (cattle or buffalo) beyond a prescribed age—bulls whose owners had been denied licenses had to be "castrated within one month" under threat of penalization. Next to "defective," "inferior," or diseased bulls, animals to be denied licenses included those that appeared to the licensing officer to be "of a breed which it is undesirable to propagate in the State of Kerala." Most bulls were sold for slaughter in the years after 1961, and the act ultimately resulted in the mass culling of native breeds. Small plot sizes and the prevalent cultivation of perennial plants (which need very little plowing) made it undesirable to retain castrated bulls, whose only alternative use would have been as draft animals.

7 "Livestock Development Board," Kerala Livestock Development Board, accessed 15 February, 2016, http://www.livestock.kerala.gov.in/

8 Richard Gerster, *Partners in Development: India and Switzerland* (New Delhi: Social Science Press, 2008), 43.

For Palekar and his natural farmers the praise for microbial abundance and importance of the zebu cows is coupled with their bio-nationalist critique of European *Bos taurus* and its crossbreeds. Palekar's powerful campaign against the demonic and abominable non-Indian, nonnatural, not-cow species that were introduced as part of a "preplanned foreign conspiracy" to destroy Indian agriculture, ratified many small holders' economic disaffection with hybrid cows. Their higher yields came at the cost of greater expenditure on feed, shade, medicine, and veterinary attention. When Wayanad's recent converts to natural farming went looking for landraces, they found them nearly extinct. In the ensuing race for local breeds these farmers teamed up with individuals and scattered institutions that had in the past devoted themselves to the conservation of bovine heritage. The most important of these was the Vechur Conservation Trust, which was set up in 1989 on the campus of the Kerala Agricultural University by Professor Sosamma Iype and her students to protect the Vechur cow, the smallest cow breed on earth. Vechur, the only native cattle breed stemming from Kerala, has made it as "INDIA_CATTLE_0900_VECHUR_03030" on the list of 39 indigenous breeds recognized by the National Bureau of Animal Genetic Resources. All cows not belonging to breeds on this list are classified as nondescript cattle.

Not adhering to the scientific definition of breeds (which is very vague), vernacular taxonomy has identified many more "breeds" of Keralite cows on the basis of their place of rearing. Kerala's natural farmers have identified several more "own" (*svantam*) varieties including the Vechur, Kasargod dwarf, Wayanadan, Cheruvalli, and Vadagara. Mr. Balakrishnan, who was collecting and trading 12 breeds of cattle, highlights the importance of place: "They belong to a particular place (*sthalam*) with its particular environmental conditions. One cannot say that they are from Kerala, they are older than the state of Kerala." Ready to compromise on the question of "recognized" breeds—as long as they get one of the native breeds—natural farmers are very careful to test that the local cows they look for are indeed native, *dēśi, nāṭan, svantam*; as only those are effective providers of microbial plenty.

Native Cows and the Nectar or Life

Before he sent them off to rid their farms of all chemicals and hybrids, Palekar gave his followers a set of tests to accurately identify zebu cows. Among its characteristics are a hump on the shoulder, oily skin, a straight back, beautiful eyes, and a pronounced dewlap (the flap of loose skin under the throat). Touching them with a finger, natural farmers love to demonstrate the native cows' ability to dispel insects by shaking their skin where they have been touched. But the morphology of native cow dung is perhaps the most important indicator for the vernacular taxonomy that distinguishes native cows from aliens or hybrids. Native cow dung has a pleasant fragrance, is semisolid, and falls "like a ring" (according to Haridas, a natural farmer) rather than in the flat cowpats of the hybrids. Wayanad's natural farmers like picking it up to inspect it for the insect holes that are a clear sign of the microbial attractiveness of native cow dung.

This is how Subhash Palekar, in his inimitable English, describes his olfactory theory of affect between the aromas of dung and the earthworms in the yogic state of *samathi*:

> As the deshi cow dung is dropped on the surface of soil, immediately some scent messages are spread out from that cow dung dropping in the soil towards the dormant (Samadhi) local earthworms. As a result, the local earthworms break the Samadhi and start to activate. That means, there is tremendous attraction capacity in the local cow dung to attract the local earthworms.[9]

But native cow dung is not allowed to rest on the ground very long. Natural farmers collect it to prepare *jīvāmṛta*, the cheap, simple, and effective ferment that has an even stronger "capacity to attract" beneficial organisms.

The Limits of Relationality

It was his care and affection for Lakshmi that stood at the center of Appachan's recent conversion to natural farming, *prakṛti kṛṣi,* and his support for moral and affective shifts toward Nature, Nation, and Autonomy in smallholder agriculture. His care for his native

9 Subhash Palekar, *The Principles of Spiritual Farming: Zero Budget Spiritual Farming, part 2* (Amravati: Zero Budget Spiritual Farming Research, Development & Extension Movement, 2013), 53.

cow was a central activity in his reimagination of farming as a symbiotic and relational activity, an affair that relied on the more-than-human "togetherness"[10] of a variety of naturally generous species such as zebu cows, microorganisms, earthworms, and humans. For natural farmers the native cow, with its metabolic capacity for eating plants, ruminating and digesting those plants within the ecosystem of its guts, and its generous supply of an ocean of beneficial microorganisms through its dung, was part of their microbiopolitics of "rethinking soil as a living, interdependent community."[11] The native cow's attested friendly character, its beauty, and its modest requirements for food and water made it the ecological and cultural embodiment of self-sufficient and yet bountiful farming.

However, the relational ontology of human-cow-plant-microbe interconnectedness—"the mesh"[12] that is carefully cultivated—depends on drawing new boundaries: literally dividing the cowshed between those breeds that excrete desirable substances and the lesser beings that are released to the impurity of the market, their excrement metabolized for energy (biogas). Increasing intimacy and new relationships of affective care come at the expense of severing affective connections with increasingly unloved bovine others. Natural farmers' and veterinary officers' approaches to the care of nonnative cows rest on similar logics. State breeding programs had placed unproductive and nondescript landraces outside the temporality of technoscience, development, and food security; natural farmers have, by reviving landraces, placed foreign cows outside the species boundary of cattle and thus outside of Nature and Nation.

10 Filippo Bertoni, "Living With Worms: On the Earthly Togetherness of Eating," PhD diss., University of Amsterdam, 2016.

11 See Maria Puig de la Bellacasa, "Making Time for Soil: Technoscientific Futurity and the Pace of Care," *Social Studies of Science* 45, no. 5 (2015): 691–716, particularly 692. For more on microbiopolitics relevant to this context, see Heather Paxson, "Microbiopolitics," in *The Multispecies Salon*, ed. Eben Kirksey (Durham NC: Duke University Press, 2014), 115–21.

12 Timothy Morton, *The Ecological Thought* (Cambridge, MA: Harvard University Press), 15.

Amir Zelinger

Caring, Hating, and Domesticating: Bird Protection and Cats in Imperial Germany

As many scholars in the environmental humanities have noted, human care for other species is an ecological and moral quagmire.[1] Actively caring for individuals of a certain species almost always entails causing harm to those of another species or even to certain groups and cultures. Through their caring, humans interfere in interspecies relations and in many cases it is inevitable that the lives of some of those involved will become less convenient (or less existent) than before. Ecological systems in which different species share habitats are never serene havens of mutual enhancement and equality, whether cared for by humans or not.

Care is problematic not just because of these contradictions but also because, in themselves, caring practices are entwined with other exercises that we would not usually associate with care. In certain forms of livestock husbandry for instance, care for the healthy development and proliferation of the animal's breed is at the same time an exploitation of their bodies for purely human interests, which often ends in the animals' destruction. Care for wildlife, in turn, sometimes dictates that humans actively avoid contact with the species being cared for. Here care is simultaneously noncare. As such, care is one of the best examples of an unsettled and transgressed category in the spirit of Donna Haraway's scholarship—one that can only be tentatively defined by its incessant intermingling with other categories that are allegedly extraneous to it.[2]

One of the most common interspecies conflicts to be subjected to intensive interference by caring humans is that between songbirds and domestic cats. On the face of it, this avian-feline dispute features none of the complexities that make care such a murky undertaking. From a bird lover's point of view especially, the issue is very simple: cats violently prey on defenseless birds for effectively recreational purposes, thereby "unjustifiably" destroying avian lives. Humans should therefore interfere and take care that bird life is protected from cats by reducing their populations or constraining their move-

1 See Thom van Dooren, "Care," in "The Living Lexicon for the Environmental Humanities," *Environmental Humanities* 5 (2014): 291–94.

2 See Maria Puig de la Bellacasa, "'Nothing Comes without Its World': Thinking with Care," *Sociological Review* 60, no. 2 (2012): 197–216.

ments. Conversely, the primary concern of cat advocates is care for their welfare and their right not to be targets of human aggression and violence. For them, caring for cats means refraining from meddling in cat-bird relations, regardless of the consequences for bird life. The campaigns to protect songbirds from cats are contested by feline supporters, who fight for their cause as adamantly as their adversaries. Such disputes often lead to verbal wars, conducted on behalf the nonhuman species involved, by quick-tempered animal lovers with an obsession for unverifiable statistics about predations and extinctions. However, the avian-feline conflict goes deeper than these superficial quarrels and represents something of far greater significance; ultimately, it embodies fundamental questions about the degree of intimacy human society wishes to nurture with certain species, and its correlating desire to keep other species at bay. Even more, it reveals how such human endeavors—of integrating and alienating animals—may be both sophisticated and confounding in their realization.

This article focuses on a specific period in modern German history—the *Kaiserreich* (Imperial Germany, 1871–1914)—as it highlights the complex entanglements of care in the songbird and cat conflict. It was in the second half of the nineteenth century, a hundred years before Rachel Carson's dystopia of a world without birdsong triggered the onset of a new environmental consciousness, that so-called bird protection (*Vogelschutz*) became one of the most seminal domains of emerging nature conservation in Germany. As elsewhere, German bird protection grew out of a love and fascination for these feathered creatures. To members of the rising middle class, songbirds exhibited a lifestyle abundant with bourgeois virtues similar to those they themselves glorified as constituents of a decent existence in a civilized age: monogamy, devoted care of offspring, musical talent, industriousness, and cleanliness. Because they believed these creatures to be so similar to their ideal selves, they wanted to befriend them and care for their presence alongside human society.

This strong cultural sentiment gained such momentum that by the beginning of the twentieth century, German bird protection had crystallized into a fully-fledged environmental movement led by the influential "League for Bird Protection" (Bund für Vogelschutz). The league had thousands of members, all committed to caring for the life of songbirds—that is, protecting them from modern developments perceived as detrimental to their (free) lives. Public interest in, and admiration for, the avian way of life was so pronounced in Imperial Germany that there was an almost complete identification between bird love and bird protection, and between bird protection and ornithology.

However, from its early beginnings, bird protection was not only fueled by love, companionability, and genuine feelings of friendship towards birds; it was also shaped by hatred and animosity. For just as much as bird protectors (*Vogelschützer*) cared for songbirds, they despised the alleged enemies of their feathered friends. Before the "barbarous" Italians who were hunting migrating birds on their passage from south to north and the "insolent" sparrows who were reproached for driving worthier birds away from nest boxes, it was the "ferocious" cats that protectors identified as the greatest menace to avifauna in their *Heimat* landscape. Bird protectors—who, as members of the German bourgeoisie and aristocracy usually despised expressions of rampant violence—showed little restraint when verbalizing their hostility towards the domestic cat. For example, Hans Freiherr von Berlepsch, arguably Germany's most important ornithologist at the time, called for nothing less than a "ruthless war of extermination" against the "most dangerous enemy of birdlife."[3] In fin de siècle Germany, where protection of songbirds was unavoidably accompanied by this vehement hatred, it was a clear case of "violent care."[4]

The escalation of the avian-feline conflict in Imperial Germany appeared to be of a simple nature. The direct and antagonistic language of bird protectors reflected their clear-cut view that cats had to be eliminated for the sake of songbirds; one form of life privileged over another. Death was an instrument for sustaining life. Bird lovers not only expounded the benefits to birdlife from the removal of its "greatest threat"; they also vilified cats as ill-natured creatures. In ornithology discourse the domestic cat was portrayed as a malevolent outcast, undeserving of the position of true companion in human society: "The cat has never been a genuine German pet," one bird fancier stated, "her nature will forever remain alien to us, for it is malignant and treacherous."[5] Another passionate bird protector even referred to cats as an invasive species, namely as "foreigners on German soil, . . . enemies immigrated from the East."[6] For Wilhelmine ornithologists, the domestic cat represented the archetypal outsider—an animal that, cleanliness aside, contradicted everything bourgeois society cherished and believed to be personified by songbirds.

3 Hans von Berlepsch, *Der gesamte Vogelschutz, seine Begründung und Ausführung* (Halle: Hermann Gesenius, 1904), 16, 109.
4 See Thom van Dooren, "A Day with Crows: Rarity, Nativity, and the Violent-Care of Conservation," *Animal Studies Journal* 4, no. 2 (2015): 1–28.
5 Quoted in Agnes Engel, *Vogelschutz und Katze* (Berlin-Friedenau: L. M. Weibel und Co., 1911), 7.
6 Friedrich Schwalbe [1914?] "Notwendigkeit und Nutzen des Vogelschutzes im Land- und Gartenbau," Geheimes Staatsarchiv Preußischer Kulturbesitz, GStA PK, XVI. HA Rep. 30, Nr. 954.

This seems like a German version of the kind of cat hatred Harriet Ritvo ascribed to English society around the same period. Similar to bird-loving German *Bildungsbürger*, for middle-class Victorians, cats epitomized "bad creatures" that stubbornly perpetuated their inborn remoteness from human society, even in a modern age.[7] This view of cats as "faithless, deceitful, destructive, and cruel"[8] has become one of the most consistent representations of the animal world by nineteenth-century European (bourgeois) societies. From a long-term perspective, it amounted to a modern form of a die-hard European tradition, passed down from the Middle Ages, of incriminating cats as the associates of witches and the devil.[9]

Interestingly, bird protectors presented this disengagement of cats vis-à-vis human society as the reason that they posed such a threat to songbirds. Free-living songbirds were put in great danger because cats were allowed to roam freely, escaping any form of human control: on the loose "both day and night," cats prey on birds with "slyness and a desire to kill." One ornithologist remarked that "not a single nest, neither at the top of the tree, nor in the bush, nor on the ground is safe from them."[10] This outdoor omnipresence was what bird protectors set out to fight. Their discontent was first and foremost with the cats' incomplete domestication, in a twofold sense—on the one hand concerning space, as cats were not confined to the dwellings of human owners, and on the other hand concerning their character and behavior, which even after at least eight thousand years of co-existence with humans had remained uncivilized, to the detriment of birds.

Shortly after the turn of the century, the love-hate entanglements of anti-feline bird protection in Imperial Germany started to become complicated. For when ornithologists identified the imperfect domestication of cats as the main reason for why cats presented a hazard to songbirds, they proposed as a solution the radical domestication of these yet unbound creatures. While some of the more extreme anti-feline ornithologists were certainly still putting their ruthless ideology into practice—killing not an

7 Harriet Ritvo, *The Animal Estate: The English and Other Creatures in the Victorian Age* (Cambridge, MA: Harvard University Press, 1987), 21–22.
8 Harriet Ritvo, *Noble Cows and Hybrid Zebras: Essays on Animals and History* (Charlottesville and London: University of Virginia Press, 2010), 41.
9 See Robert Darnton, *The Great Cat Massacre and Other Episodes in French Cultural History* (New York: Basic Books, 1984), 75–104.
10 "Der zweite Vogelschutztag in Stuttgart und seine Beschlüsse zur Katzenfrage" [1911?], Sonderausdruck aus der Allgemeinen Forst- und Jagdzeitung, Geheimes Staatsarchiv Preußischer Kulturbesitz, GStA PK I. HA Rep. 87 B, Nr. 20037.

insignificant number of felines (and even boasting about it)—most bird protectors were not so naive as to believe that the eradication of Germany's cat population was anything more than an unattainable utopia. In fact, many of them possessed a solid scientific understanding of ecological balance (and threats thereto) and did not fail to appreciate the cats' service as exterminators of "unworthy" "pest" animals such as mice and rats. The majority of Wilhelmine ornithologists were thereby too anthropocentric to endorse the extinction of felines. Herein lies the paradox: instead of resolving their hatred with hostility, they suggested *caring* for their feline adversaries; integrating them as intimately as possible into the realm of the human; making them subordinate. They sought to ensure that cats lived *with* people rather than merely alongside them—they were not so much anti-feline as they were anti-loitering. They were fighting cat freedom, not cat life.

So, while extermination should be limited, domestication had to be exhaustive. First and foremost, bird protectors wished for cats to become genuine animals of the home (*Haustiere*) and they conceptualized this feline transmutation primarily in spatial terms. Berlepsch, for instance, stated in his typically uncompromising tone that "the house and courtyard" constituted a cat's sole and "proper sphere of activity." House and courtyard were contrasted with such spatial realms as the "garden" or "forest and field," places where cats were prone to regress to their pre-domestication pasts as "beasts of prey," satisfying their predatory desires uninhibited. Hence, Berlepsch and his kind did not despise all cats equally. They especially sneered at "feral cats prowling around far away from any village or town."[11] They hoped to revolutionize feline existence in space: instead of remaining the liminal animals they had been for millennia, commuting at will between the home and free spaces, cats should be confined to the domestic sphere.

However, feline domestication wasn't only about this physical confinement. It was also a scheme of "pet-making." As ironic as it may sound, through campaigning for the domestication of cats by rendering them unfree, bird protectors themselves metamorphosed into friends of felines, wishing to associate them not merely with the house as a spatial unit, but also with the home, as a prop in the setting of bourgeois domesticity in which caring for subordinate pets was actually another constitutive element of decent family life. They supported the strict notion that each animal has its place,

11 Berlepsch, *Der gesamte Vogelschutz*, 16, 108.

distinguishing between (and glorifying both) the wild and free and the domesticated and subdued. As the authors of a guide to bird protection in agriculture put it, "there's nothing wrong about cat-fanciers whose animals are dear to their heart, and who . . . care for them." Indeed, bird lovers should demand "that cats will be properly cared for, and properly supervised and nurtured, just like other pet animals, especially the dog," in other words, "properly" domesticated. Only as fully fledged pets are they unable to "pursue their passion of hunting birds unfettered."[12] This story of bird protection and cats in Imperial Germany reveals the problem of care "in all of its ambiguity and complexity,"[13] not just because care for one type of animal was embedded in hatred for another, but because the remedying of this hatred dictated caring for the reviled species even more devotedly than for the animals that were actually loved. Hatred was associated with care, and love with noncare.

Until now I have referred only to bird protectors as agents of love, hatred, and care. Yet, Imperial Germany also had its share of people who fancied cats and even fought for their cause; the so-called cat protectors (*Katzenschützer*). Incorporating their point of view into the discussion makes the avian-feline conflict even more intricate. Bird protectors regarded their solution to the conflict as a win-win situation (songbirds will be saved, and cats will become subjects of human care); however, cat protectors failed to see how their favorite animals would benefit from such a radical domestication. They refused to let the animals they cherished become encompassed (and compromised) by human society, and fully subjected to the interferences of human care.

Led by the "German Federation for Cat Protection" (Deutscher Bund für Katzenschutz), cat protectors fought above all for the felines' right to roam unconstrained outdoors—something cats have done for thousands of years. In their opinion, it was not just impossible, but indeed unjust, to forcedly confine cats to the home and to a domestic way of life; they upheld the conviction that it was perfectly natural for cats to prowl, and to "extensively investigate both the nearby and distant environment of their vicinities."[14] In fact, it would be "totally . . . unnatural to keep these animals locked within four walls."[15] For Wilhelmine cat advocates, cats were vested with a right to freedom of movement based on their very

12 *Vogelschutz in der Landwirtschaft* (Munich: Carl Gerber, 1910), 1–2.
13 Van Dooren, "Care," 291.
14 Deutscher Bund für Katzenschutz E.V. to the Chancellor of the Reich Dr. von Bethmann-Hollweg (23 October 1911), Geheimes Staatsarchiv Preußischer Kulturbesitz, GStA PK I. HA Rep. 87 B, Nr. 20037.
15 Gustav Simon, "Vogelschutz und Katzenrecht" [1911?], Geheimes Staatsarchiv Preußischer Kulturbesitz, GStA PK I. HA Rep. 87 B, Nr. 20037.

nature. Cat protectors construed the cats' right to live freely in accord with their nature not only in spatial, but also in behavioral terms, for which they found themselves caught up in an irreconcilable conflict with the ornithologists. In their view, to behave naturally meant, among other things, that cats should prey on weaker animals.

Nowadays, many cat advocates strategically maintain that the harm caused by cats to avian populations is not as considerable as often presumed. In Imperial Germany cat lovers had a more radical standpoint: they did not deny the relentlessness of cat predation on songbirds but at the same time asserted that such predation was not only legitimate, but even favorable, as a vital expression of cats' natural behavior; "a custom conformable with the law of nature."[16] Interpreting things this way, cat protectors relocated the avian-feline conflict into the sphere of "nature." Cats prey on birds, they argued, because "nature is governed by the eternal rule: 'eat or be eaten.'"[17] But furthermore, they classified cats, to some extent, as wild fauna; belonging to an animal kingdom not tamed by humans. Allowing cats to predate on birds meant protecting their "wild dignity"[18] against attempts to transfigure them into bona fide pets. This meant letting them live freely, without restraint from the caring hands of humans—like songbirds, only with a portion of (nonbourgeois) brutality.

The entanglements of bird protection in Imperial Germany reveal how even the most common and natural interspecies conflicts become irrevocably complex once well-meaning humans meddle with their arsenals of care, love, hatred, and violence. But even more than that, the Wilhelmine avian-feline conflict demonstrates how interventions aimed at benefiting certain species to the detriment of others may test the boundaries of prescribed categories of human-animal interactions; in the course of the conflict, hate metamorphosed into care, disdain involved integration, wild behavior was made a reason for radical domestication, and supporting animals entailed keeping them at a distance. This takes us back to cats as the real protagonists of the story; as even today, having become the most popular of domestic companions, the cat's status as a domesticated animal remains dubious[19] due not only to feline nature, but also the convoluted

16 Simon, „Vogelschutz."
17 Deutscher Bund für Katzenschutz E.V. to the Chancellor of the Reich Dr. von Bethmann-Hollweg (23 October 1911).
18 See Lori Gruen, *Ethics and Animals: An Introduction* (Cambridge and New York: Cambridge University Press, 2011), 151–55.
19 See Ferris Jabr, "Are Cats Domesticated?," *The New Yorker*, 23 October 2015, accessed 19 February, 2016, http://www.newyorker.com/tech/elements/are-cats-domesticated.

"nature" of almost any multispecies relations involving humans. This alone is a reason for us to take greater analytical care of them as our imperfect companions.

Emily O'Gorman

Pelicans: Protection, Pests, and Private Property

In 1911, on a group of small, rocky islands in the Coorong lagoon in South Australia, approximately two thousand pelicans were slaughtered. Australian pelicans (*Pelecanus conspicillatus*) were seen as particularly conspicuous competitors for fish by the growing fishing industry there as they took fish from the nets when fishermen brought their catch to the surface.[1] After the killing, the islands were leased by a group of ornithologists who sought to protect the pelicans and other birds that nested there.

Centering on this event and its fallouts, this essay explores the way in which specific modes of caring for the Australian pelican have been entangled with class politics, cross-cultural relationships, and the law. I first came across the slaughter in an archive created by the South Australian Ornithological Association (SOA) held by the State Records of South Australia. This archive reveals the complex roles of the ornithologists, who sought to maneuver through a highly legalized landscape and circumvent legislation in order to realize the kind of protection they wanted for birds. I draw on this archive and other sources such as newspapers and ornithological publications and place them critically within broader colonial power structures and discourses.[2] In doing so, I situate the ornithologists' care for pelicans within particular and intersecting class structures, colonial ideologies, and legal frameworks. Ultimately, the ornithologists' mode of caring for pelicans—their approaches to protecting breeding areas—had a range of important consequences.

The Coorong, Pelicans, and Islands

Today, the Coorong is an iconic wetland in Australia known for its birdlife. It is a long, relatively thin and shallow saline lagoon, located southeast of Adelaide. In the north, it lies adjacent to two lakes—Lake Alexandrina and Lake Albert—and the mouth of the Murray

1 This essay draws on material published in Emily O'Gorman, "The Pelican Slaughter of 1911: A History of Competing Values, Killing, and Private Property from the Coorong, South Australia," *Geographical Research* 54, no. 3 (2016): 285–300. Please refer to this text for full references of all archive entries where they are not provided here.

2 For an overview of the relationship between archives and power see: Joan M. Schwartz and Terry Cook, "Archives, Records, and Power: The Making of Modern Memory," *Archival Science* 2, no. 1–2 (2002): 1–19.

River. From there it stretches approximately one hundred kilometers south. Historically, this area has attracted many different kinds of birds, with over two hundred species recorded in the region, as well as other animals and plants. In 1966 part of the area was declared a national park and in 1985 it was listed as a wetland of international importance under the 1971 Ramsar Convention.

The Australian pelican is just one of the birds that visits the Coorong and is amongst the most visually prominent. These birds are big and have, in fact, been claimed as one of the "heaviest flying birds in the world," with adult males on average weighing eight kilograms. These birds can also gather in the thousands. It is perhaps no surprise then that the epithet in the species name means "conspicuous." For pelicans, the Coorong is perhaps most significant because of its islands. They have nested on the Pelican Islands—a group of six small islands in the lagoon—almost every year since at least the mid-eighteen hundreds, but probably much longer. By the early twentieth century ornithologists regarded the islands as one of only two main nesting places for pelicans in the state.[3]

A small fishing industry started in the Coorong and Lower Lakes region in the 1840s, expanding rapidly after 1885 when steam rail connected the local town of Goolwa to Adelaide markets. Local fishermen have long seen pelicans as pests, and reports of young pelicans being killed and eggs smashed on the islands in the Coorong go back to at least the 1870s. It is unclear how often these "raids" on the rookeries took place but there is some evidence that they may have happened almost every year. In many ways, then, the 1911 slaughter was not an unusual event. However, the strength of the debates it mobilized, particularly regarding care for specific species and more generally native Australian birds, the archival and newspaper records it generated, and its fallouts clearly indicate that something set it apart. In many ways this "something" may have been a growing ethos of care and protection for native birds fostered by certain groups at the time.

3 Samuel White, "Destruction of Pelicans," *Emu* 10, no. 5 (1911): 344. See also F. R. H. Chapman, "The Pelican in South Australia with Special Reference to the Coorong Islands," *The South Australian Ornithologist* 24 (1963): 9.

The Slaughter

Of the two thousand or so pelicans slaughtered in 1911, most if not all were young birds. A group of local men had in fact waited for a large number of eggs to hatch in order to kill more birds. This was so that they could collect the maximum payout from the one-penny bounty that had recently been put on the head of each pelican by the State Fisheries Department—for which they needed to present the heads. Already seen as problem by many fishermen, the birds had recently been added to an official list of pests (which already included cormorants, turtles, and tortoises) by the State Fisheries Department.

Just after pelicans were listed as pests, they were also listed as "unprotected" in the Bird Protection Act 1900. Presumably, this was to tally with their listing as a pest to fisheries. This meant that there was now no closed season for killing them and they were no longer protected within a protected district in the Coorong. This is a fairly complicated set of events, but in general terms, within the space of two years, a number of legal changes meant that pelicans were no longer protected at all in either the Coorong or the state as a whole. The fact that the Minister of Fisheries declared a bounty on pelicans was regarded by many at the time as the direct motivation for the slaughter. The bounty not only encouraged people to kill pelicans, but reinforced the culling as a community-minded action. However, as news of the slaughter spread, many people were outraged that young birds had been massacred and questioned whether pelicans were a pest at all.

Members of the South Australian Ornithological Association—who were strong advocates of bird protection—were especially outraged. One of the members, Samuel White, expressed his views to newspapers soon after news reached Adelaide. He stated that: "It is one of the most dastardly acts I have ever heard of." He argued that more of these raids, "so brutally perpetrated," would lead to "the extermination of this remarkable bird." White thought that pelicans were being unfairly vilified and argued that the ornithologists "can prove that pelicans do not consume the enormous quantities of fish they are alleged to do." Other members of the association and biologists similarly argued that pelicans did not eat enough fish to be pests, or that they ate fish that commercial fishermen did not want, like bony herring.[4]

4 See White, "Destruction of Pelicans."

Ornithologists and other bird-protection advocates saw the pelican massacre as an example of the type of events that were possibly contributing to increasing local and species extinctions of birds in Australia and around the world. They argued that it was due to human activities that in the north Atlantic great auks had become extinct in the 1840s, and now pelicans and other bird species could no longer be found in some areas of Australia.[5] The story of the raid on the rookeries, and particularly White's interview, gained quite a lot of publicity and was featured in metropolitan newspapers across eastern Australia. Many reporters commented on Australian pelicans as "quaint," "noble," and "remarkable" birds that were native to the continent, and so should be protected. The massacre of young birds seemed insupportable to many, particularly when coupled with White's argument that pelicans in fact were not eating the quantities of fish that the fishing industry claimed. One reporter called the massacre of pelicans "illogical" and another both "foolish" and "cruel."

While no one defended the killing of the young birds, local fishermen voiced their views that pelicans reduced their hauls, eating the fish they needed for market. A former fisherman from the nearby town of Meningie, W. Tregilges, wrote: "I have frequently been four or five dozen . . . bream short [due to pelicans]. . . . I have put out a mullet net at night and in the morning have seen about 20 or more . . . [pelicans] along the net quietly saving me the trouble of taking the fish out, but they would go a little further than that and cause me to buy more nets," because of the damage they caused when they pulled the fish out. While many saw the pelican as a national icon, for Tregilges pelicans were "one of the most useless and ugly birds we have."[6] Fishermen and ornithologists disputed knowledge about pelican behavior, specifically whether or not they ate large quantities of marketable fish. These conflicting views may reflect their different values, framing how they defined the problem.[7] For example, these groups may have had differing opinions about what were acceptable losses: what ornithologists regarded as minor losses, fishermen may have seen as major or unacceptable, with the added expense or inconvenience of damaged nets.[8] There were also clear

5 For more on emu extinctions in particular areas of Australia see Libby Robin, "Emu: National Symbol and Ecological Limits," in *Boom and Bust: Bird Stories for a Dry Country*, eds. Libby Robin, Robert Heinsohn, and Leo Joseph (Collingwood, VIC: CSIRO Publishing, 2009), 250.

6 W. Tregilges, "Destructive Pelicans," *Daily Herald*, 15 February 1911, 3.

7 Daniel Sarewitz has explored the connection between knowledge and values in the context of the sciences; see Sarewitz, "How Science Makes Environmental Controversies Worse," *Environmental Science & Policy* 7, no. 5 (2004): 385–403.

8 Emily O'Gorman, "Remaking Wetlands: Rice Fields and Ducks in the Murrumbidgee River Region, NSW," in *Rethinking Invasion Ecologies from the Environmental Humanities*, ed. Jodi Frawley and Iain McCalman (London: Routledge, 2014): 215–38.

socioeconomic differences intersecting with and shaping these different values and needs. The leaders of the metropolitan South Australian Ornithological Association, who advocated pelican protection, were from middle-class and wealthy backgrounds, whereas the fishermen were often much poorer.

Protection, Pests, and Private Property

In Australia, by the 1880s, there was an extensive system of bounties in place for particular native and introduced animals and birds, supported by legislation.[9] The killing undertaken under this system was extensive and often became fixated on eliminating particular species in a given area. Deborah Bird Rose, in her work on past and more recent dingo hunting and baiting, has used the phrase "will-to-destruction" to describe this kind of systematic killing of all of a particular kind of animal.[10] A single "pest" animal or bird was seen as too many by some (but not all) farmers and fishermen and any loss as too great. It was within this context that arguments for the protection of birds gained increasing traction among biologists and advocacy groups from the end of the nineteenth and into the early twentieth century. Most Australian states then passed legislation that offered some protection to native animals by default, and in order to be considered "unprotected," they needed to be specially listed.[11] The protection laws, which were not always successful, mainly aimed to regulate hunting through closed seasons over the periods that were thought to be the birds' breeding seasons.

Scientific groups and other bird advocates often argued for the protection of birds because of their utility in agriculture and fisheries by feeding on and thereby controlling pest populations. Protecting useful species was one of the main goals of the South Australian Ornithological Association. Support for humanitarian protection of birds and animals also grew through the first decades of the twentieth century and these sentiments were evident in the widespread condemnation of the slaughter of young pelicans in 1911. There were many conflicting views about killing and protecting animals in this period, even within the same government administrations.

9 Steven White, "British Colonialism, Australian Nationalism and the Law: Hierarchies of Wild Animal Protection," *Monash University Law Review* 39 (2013): 452–72. In South Australia, it was only in the early twentieth century that animals regarded as pests by fishermen were officially listed as such. This was a period of expansion and intensification in agriculture and fisheries.

10 Deborah Bird Rose, "What If the Angel of History Were a Dog?," *Cultural Studies Review* 12, no. 1 (2013): 67–78.

11 South Australia did this in 1874, which is relatively early in Australia.

Privatizing Protection

Prior to British colonization, the Ngarrindjeri indigenous people had lived in the region for approximately eight thousand years. Aboriginal laws stem from sets of kin relationships within a particular country (to Aboriginal people, country refers not just to a landscape, but the culture, community, and all else encompassed within it); for example between people, plants, animals like pelicans, ancestors, land, and water. The Coorong was the territory of the Tanganekald, one group within the Ngarrindjeri. During the period of initial British colonization, which began in earnest in South Australia in the 1830s, Ngarrindjeri numbers significantly decreased, due in most part to introduced diseases such as smallpox and frontier conflicts with colonists. The British government had previously declared South Australia to be "unoccupied," and in the late nineteenth and early twentieth centuries many Ngarrindjeri were moved onto land set aside by the government for Aboriginal people or to pastoral properties and missions.

Aboriginal people had a tradition of collecting the eggs of both black swans and pelicans, a practice pre-dating colonization. These collections were mostly carried out when the pelicans had laid their first clutches of between one and three eggs. Pelicans would lay a second clutch if their eggs were taken or crushed—something that the ornithologists seem not have known at the time. In the nineteenth and early twentieth centuries, Aboriginal people were exempt from the bird protection laws on Crown Land but not on private land, unless they first gained the permission of the owner. These practices also became rapidly entangled in the responses to the 1911 pelican slaughter.

Soon after the cull, the ornithologists sought security for the pelican rookeries from the state Crown Lands Commissioner. Ultimately, the commissioner—who had a personal interest in bird protection—decided to lease a number of islands, including the Pelican Islands, to the South Australian Ornithological Association to create a place where birds were protected absolutely, even those listed as unprotected (like the pelicans). With this lease the islands became subject to some of the laws of private property. One condition of the lease was that the ornithologists prevent people from visiting the islands, and they soon erected signs that notified people to keep off.

One of the intentions of leasing the islands was to stop Aboriginal people from gathering bird eggs. One ornithologist wrote that: "The island rookeries will now . . . be less

liable to receive visits from the bird-killers and egg-robbers," meaning both Aboriginal people and fishermen. Some also sought to change legislation to prevent Aboriginal people from collecting eggs more widely. At least some ornithologists wanted Aboriginal people to be subject to the bird protection laws that prevented hunting or egg collecting during the birds' breeding season. Another ornithologist wrote in a report to the Crown Lands Commissioner that the "natives":

> ". . . rob the nests disgracefully, taking both fresh & well incubated eggs . . . the latter are thrown out. . . . I have the records from authentic sources that the natives go in small parties . . . to the best breeding places. . . [and] take hauls of 200, 400, & 500 eggs of the swans, this is repeated as long as the laying lasts . . . the Bird Protection Act [should] be applied to blacks and whites from the line south of Adelaide and Mannum."[12]

Echoing the complementary discourses of colonization, race, and assimilation, the state Animals Protection Act 1912 stated that only "full-blooded" Aboriginal people were exempt from adhering to bird protection legislation.[13] While the next protection act in 1919 did not include this qualification, it did include the paternalistic provision that if "any of the privileges . . . are being abused" the governor could suspend them. The National Parks and Wildlife Act 1972 did not include any provisions for Aboriginal hunting or egg collecting, and cultural geographer Philip Clarke noted that after this act "swan-egging practices of the local Aboriginal people were by stealth" in the region.[14] Many state acts of the 1970s did not include exceptions for Aboriginal people and therefore prevented activities such as hunting, burning, and harvesting plant material within protected areas, which continue to be important in indigenous philosophies and practices of caring for country. In recent decades in the Coorong National Park, Aboriginal rangers have, however, facilitated the incorporation of some of these activities into park management.

12 State Records of South Australia, South Australian Ornithological Association (SOA): Re Islands in Coorong (1911).

13 Many Aboriginal people and scholars have problematized these ideologies, embedded in language, within the postcolonial movements of the last few decades. Notions of "blood purity" have also been examined by many indigenous scholars as problematic notions of identity that have carried forward discourses of race and assimilation. See discussion in Mitchell Rolls, "The Meaninglessness of Aboriginal Cultures," *Balayi: Culture, Law, and Colonialism* 2, no. 1 (2001): 7–20.

14 Phillip Clarke, "Contact, Conflict and Regeneration: Aboriginal Cultural Geography of the Lower Murray," PhD diss., University of Adelaide, 1995, 332. See Clarke for more on local Aboriginal peoples' practice of collecting eggs and Europeans' negative views of this.

Over the last 40 years various avenues have also been developed at state and national levels to include indigenous people in protected areas management, a process that has been significantly influenced by the Aboriginal Land Rights movement.[15] Contemporary environmental problems pose new questions, but the complex, opposing sets of values of different communities today resonate with those of the pelican slaughter of 1911. Indeed, in some ways they cannot be fully understood without these histories. We continue to live in contested landscapes and with the legacies of these past disputes. The slaughter and the leasing of the islands reveals some of the intersecting ideas about killing, private property, and care that, sometimes at odds and sometimes in agreement, shaped lives, livelihoods, and the values and practices of care across species on the Coorong.

15 Indigenous Protected Areas (national) and Co-Management (state and national) are two government arrangements, developed over the last 30 years, that have sought to officially recognize and value indigenous environmental knowledge and management. See Helen Ross, Chrissy Grant, Cathy Robinson, Arturo Izurieta, Dermot Smyth, and Phil Rist, "Co-Management and Indigenous Protected Areas in Australia: Achievements and Ways Forward," *Australasian Journal of Environmental Management* 16, no. 4 (2009), 242–52.

Etienne S. Benson

The Cattle Guard

Figure 1:
D. K. Gleason, "16. Mile Post No. LB 40.0, Cattle Guard viewed from the north. West Feliciana Railroad Right-of-Way, Woodville, Wilkinson County, MS," 1979. Photograph from the Historic American Engineering Record (HAER).

Parallel lines of steel stretch toward the horizon, interrupted by overgrowth and dappled shade. Half-hidden below the center of the photographic frame, a pair of triangular wings rises at a 45-degree angle from the railroad tracks into the encroaching brush. Between them is a horizontal grid of wooden and metal bars. This arrangement of bars constitutes what is variously called, depending on one's location in the English-speaking world, a cattle guard, cattle grid, or stock grid. The bars are spaced such that the hoof of any would-be bovine or ovine trespasser can easily slip into the shallow pit between them. The aim is to prevent livestock from even attempting to cross. Similar to the granite coffen stiles used for centuries in Cornwall, cattle guards are Maxwell's demons for living things, keeping cattle and sheep on one side of a fence or wall while

allowing free passage to humans traveling by foot or on wheels.[1] They are material-semiotic devices that establish an ontological divide between certain humans who can move at will across the landscape and certain kinds of animals who cannot.[2] Although cattle guards are designed to make passage physically difficult for cattle and sheep, their intended impact is mainly psychological. If a cow or sheep steps onto a cattle guard—where his or her hoof will possibly become irremovably trapped—the device has, in a sense, already failed. Indeed, the perception of danger is more important than the real hazard. Under certain conditions, painted stripes of alternating black and white can have the same deterrent effect as physical bars and gaps.

In the United States cattle guards have been used to govern the movements of humans and animals at the intersections of fences and railways since the very beginning of the railroad age in the 1830s.[3] Poised between abandonment and reclamation, the particular railroad tracks and cattle guard depicted above are located along the West Feliciana right-of-way in the town of Woodville, Mississippi, not far from the Louisiana border. Documented by the Baton Rouge-based photographer David King Gleason in 1979, they represent part of the nation's industrial and engineering legacy as preserved in the Historic American Engineering Record (HAER).[4] The HAER survey was launched by a coalition of national heritage and engineering organizations in 1969, just as the country was beginning to shudder and creak from the postwar boom into the postindustrial era. It aimed to evoke "the intellect, ingenuity, hard work, and sacrifice of engineers and inventors, workers and businessmen and women, their families and communities."[5] At the same time, it offers a more mundane record of the enduring give-and-take between human and nonhuman agents. Although no animals can be seen in it, Gleason's photograph serves as a reminder of how the needs and desires of other forms of life leave imprints on our infrastructures, and how our infrastructures, in turn, help determine what it means to belong to a particular species and to have a body of a particular kind.

1 On the Cornish coffen stile, see Robin Menneer, "Geology and Cornish Hedges," accessed 5 March 2016, http://www.cornishhedges.co.uk/PDF/aonb.pdf.
2 This claim bears some similarity to Giorgio Agamben's idea of the "anthropological machine," except that rather than dividing humans from animals, the cattle guard and similar devices divide particular kinds of humans from particular kinds of animals. I am grateful to Jean Langford for helping refine my argument here. Cf. Giorgio Agamben, *The Open: Man and Animal* (Stanford: Stanford University Press, 2004).
3 For a comprehensive history, see James Hoy, *The Cattle Guard: Its History and Lore* (Lawrence: University of Kansas Press, 1982).
4 More information on the Historic American Engineering Record (HAER) is available online from the US National Park Service, accessed 5 March 2016, http://www.nps.gov/hdp/haer/.
5 National Park Service, "HAER: Historic American Engineering Record," Brochure, p. 1, accessed 5 March, 2016, http://www.nps.gov/hdp/haer/NPS_HAER_Brochure.pdf.

Construction on the 35-mile-long West Feliciana line began in the late 1830s and was completed in 1842. Progressively incorporated into ever-larger rail networks, it remained in operation until the 1970s. Over the course of those 130-odd years, its tracks were built and rebuilt upon a complex sediment of histories, some of them deeply troubled. When the first trains reached Woodville in 1842, they were borne on rails made not of steel as in this photograph, but of cypress, cedar, and longleaf pine protected by a thin sheath of iron.[6] These wooden rails, long since replaced, were hewn and laid by enslaved men owned by Woodville's most prominent resident, Edward McGehee, who also financed the building of the line.[7] When a census of the county where Woodville is located was conducted two decades later, more than three-fifths of the population of about 16,000 were identified as slaves.[8] One way or another, most of them were involved in producing the bales of cotton that were transported on the West Feliciana line to the Mississippi River and thence to the textile mills of New England and Lancashire.[9] McGehee was one of Mississippi's wealthiest planters, and he worked in ways both overt and indirect, both ideological and material, to build a world in which the lines between enslaved blacks and free whites were unmistakable. In addition to financing the railroad, he was a sponsor of the Mississippi State Colonization Society, which sought to resettle freed and free-born black men and women in far-off Liberia and thereby prevent them from troubling the logic of what its members considered to be an unbridgeable racial gap.[10] Infrastructural development enhanced the mobility of the few while tightening the chains of the many.

In a roundabout way, the fact that the West Feliciana railroad was built by slave labor in the heart of the antebellum Cotton Belt helps explain why it was the site of the United States'—and possibly the world's—first railway cattle guards.[11] Well into the nineteenth century, most areas of Mississippi, like other parts of the South, adhered to open-range

6 Anne Butler and Norman Ferachi, *St. Francisville and West Feliciana Parish* (Mt. Pleasant: Arcadia, 2014), 10.
7 Carolyn E. DeLatte, *Antebellum Louisiana, 1830–1860: Life and Labor* (Lafayette: Center for Louisiana Studies, University of Louisiana, 2004), 443.
8 For historical census data, see the Office of Coast Survey's distribution map of slave populations, http://historicalcharts.noaa.gov/historicals/preview/image/CWSLAVE and the US Census Bureau's records from 1790 to 1990, accessed 5 March 2016. https://www.census.gov/population/www/censusdata/pop1790-1990.html.
9 Sven Beckert, *Empire of Cotton: A Global History* (New York: Knopf, 2014), 102.
10 McGehee is identified as a "manager" of the Mississippi State Colonization Society in the *First Annual Report of the Mississippi State Colonization Society* (Natchez, 1832), 10. Available at http://louisdl.louislibraries.org/cdm/fullbrowser/collection/p16313coll51/id/1070/rv/compoundobject/cpd/1077.
11 On the West Feliciana Railway's "firsts," see Federal Writers' Project of the Works Progress Administration (Miss.), *Mississippi: A Guide to the Magnolia State* (New York: Viking, 1938), 344.

laws that required crops rather than livestock to be fenced in.[12] When a farmer failed to enclose his crops within adequate fences, livestock owners were legally absolved from responsibility for the damage caused by their free-roaming pigs, sheep, or cattle. Two factors contributed to the elimination of this open-range system in the Mississippi and Louisiana counties traversed by the West Feliciana line. The first was the dominance of cotton production and the planter class that grew wealthy on it during the period between Mississippi's admission to statehood in 1817 and the Civil War in the 1860s. McGehee's Bowling Green Plantation was worked by nearly a thousand enslaved men and women and covered several thousand acres.[13] Planters with such vast holdings had little interest in maintaining an open-range system whose primary beneficiaries were people with many cattle but little or no land.[14] The second factor was the railroad itself. Even at the slow pace of trains in the 1840s, livestock on the tracks posed a threat to the safe operation of the line. Even when trains were undamaged, railroad companies could be, and were, held responsible for the livestock who were killed or injured on the tracks.[15] Thus the predominance of slave-holding planters lent itself to a techno-legal system that kept livestock in place but lubricated the passage of cotton-laden trains.

That said, the effectiveness of the cattle guards in regulating the movement of animals, machines, and humans across the landscape should not be overstated. The legal record richly documents the many cases in which they proved ineffective, particularly after 1892. In that year, the state of Mississippi passed a law requiring railroads to install cattle guards when their tracks passed through enclosed private land. The law authorized penalties of $250 to be paid to any party injured as a result of a failure to comply.[16] More than once, disputes over escaped livestock who damaged crops or who were killed after traversing railway cattle guards made their way to the Mississippi Supreme Court. In 1905, for example, the court ruled that the railroad company now running the West

12 On livestock policy in the American colonies, see Virginia DeJohn Anderson, *Creatures of Empire: How Domestic Animals Transformed Early America* (New York: Oxford University Press, 2004).

13 Samuel C. Hyde, Jr., "Continuity Recast: Judge Edward McGehee, Wilkinson County, and the Saga of Bowling Green Plantation," in *The Enigmatic South: Toward Civil War and Its Legacies*, ed. Samuel C. Hyde, Jr. (Baton Rouge: Louisiana State University Press, 2014).

14 On open-range vs. stock laws and the correlation of the latter with the proportion of African-Americans living in a particular county, see J. Crawford King, Jr., "The Closing of the Southern Range: An Exploratory Study," *Journal of Southern History* 48, no. 1 (February 1982): 53–70.

15 As early as 1852, the state of Alabama passed a law making railroad companies responsible for livestock killed or injured on their lines; Brooks Blevins, *Cattle in the Cotton Fields: A History of Cattle Raising in Alabama* (Tuscaloosa: University of Alabama, 1998), 54.

16 For interpretations of the 1892 law in a case argued before the Mississippi Supreme Court in 1894, see "Kansas City, Memphis & Birmingham Railroad Co. v. J. J. Spencer et al.," in *Cases Argued and Decided in the Supreme Court of Mississippi*, vol. 72 (Nashville: Marshall & Bruce Co., 1896), 491–506.

Feliciana line was not responsible for damage to crops caused by livestock that had crossed one of its cattle guards. The issue at hand was the effectiveness of a particular kind of cattle guard, the so-called Ross guard, which eliminated the pit underlying the crossbars seen in older designs in favor of spike-laden sheets of folded metal laid over the rail bed. One of dozens of novel "surface" cattle guard designs patented in the late nineteenth century, the Ross guard allegedly reduced the risk of train derailment in comparison to the older pit design.[17] The court ruled in favor of the railroad, arguing that a "proper cattle guard" must be "reasonably effective against stock" but also "reasonably preservative of the safety of the traveling public."[18] In other words, perfection was an unattainable ideal and the railroad had the right to balance the effectiveness of its cattle guards against the risks they posed to trains and passengers.

Maintenance was also a major challenge. If too much snow, debris or plant growth accumulated in the spaces between the bars of a cattle guard, whether of the surface or pit type, its deterrent effect could be lost. Even though the law recognized that cattle guards were imperfect devices, railroad companies could still be held responsible for failing to maintain them in reasonably good working order. What counted as "reasonable" varied both over time and from place to place. In 1877, the Indiana Supreme Court ruled that the Pittsburgh, Cincinnati, and St. Louis Railway Company was obligated to pay a man for a horse killed by one of its trains because a "cattle-guard, or pit, was suffered to remain an unreasonable length of time in a condition rendering it useless."[19] The

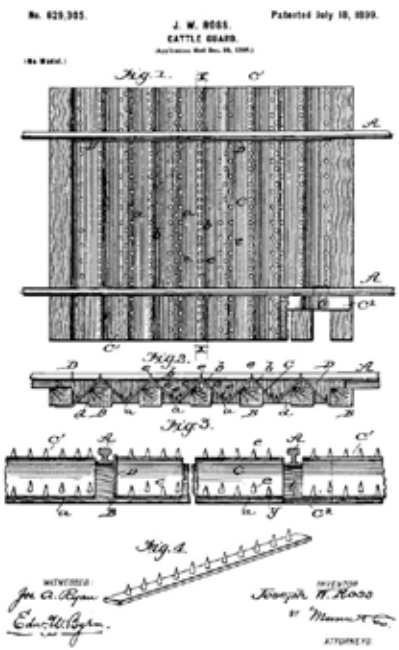

Figure 2:
Drawing from J. W. Ross, "Cattle Guard." See note 17.

17 J. W. Ross, "Cattle Guard," US Patent No. 629,305, filed 29 December 1899 and issued 18 July 1899.
18 "Yazoo and M.V.R. Co. v. Harrington," in *Southern Reporter*, vol. 37: 30 July, 1904–25 March, 1905 (St. Paul: West Publishing Co., 1905), 1016–18, quote on page 1017.
19 "Pittsburgh, Cincinnati, and St. Louis R. Co. v. Eby," in *The American Railway Reports*, vol. 16, ed. W. W. Ladd, Jr. (New York: Cockcroft & Co., 1878), 244–50, quote on page 250.

challenge of maintaining the old pit-type cattle guards, which readily filled with difficult-to-remove debris, was one of the factors behind the proliferation of designs for surface cattle guards around the turn of the twentieth century. In a patent application filed in 1906, for example, Nathan Smith of Garrison, Montana, claimed that his design for a cattle guard would "not clog with snow under ordinary circumstances; but in case of any foreign matter, such as snow, getting under the plates or the longitudinal section they are easily raised and the foreign matter removed."[20] Even with the benefit of such innovations, cattle guards often fell into disrepair. The consequences of cattle or sheep crossing such compromised barriers were rarely good for livestock owners, railroads, or the animals themselves. In landscapes designed to tightly regulate the movement of certain animal bodies, transgressions could be deadly.

More than just evidence of technical failure, such accidents attest to the impossibility of completely mastering nonhuman agencies—whether biological, meteorological, or mechanical. In the real world there are no Maxwell's demons capable of differentiating unerringly between bodies of different kinds, or of perfectly and instantaneously deciding who may or may not pass. Instead, there are many zones of negotiated and costly passage. In this light, the cattle guard appears less as a dividing line than as a constructed space of encounter where the bodies of machines, animals, and humans weave complex paths around each other and sometimes violently and painfully collide. Those collisions reveal the gaps in our understandings of bodily differences as they emerge in encounters with the built landscape, as well as the indeterminacy inherent to the encounters of variable bodies under varying conditions. Certain animals understood the cattle guard as an impassable barrier for the kinds of bodies they had; others stepped, leaped, stumbled, or fled across them and in the process demonstrated what their bodies were capable of.

Instead of seeing the design and installation of a cattle guard as an example of technical mastery over the movement of certain nonhuman animals, we might instead see it as way of setting the stage for an ongoing negotiation over what it means to have a particular kind of body in a particular time and place. Looking beyond the cattle guard, I would argue that it is often precisely through practical interventions of this sort—that is, through infrastructural adjustments that are so minor and mundane that one must

20 N. Smith, "Cattle Guard for Railways," US Patent No. 821,439, filed 14 February 1906 and issued 22 May 1906.

look hard and long at photographs such as this one before they become visible—that speculative ontological divides between different kinds of bodies, human and otherwise, become matters of uncontested common sense.

Multispecies Care

Thom van Dooren

Making Worlds with Crows: Philosophy in the Field

Ubiquitous in their global presence, crows (genus *Corvus*) can be found almost everywhere that people are. From abundant urban species finding new ways to exploit dense and changing cities like Tokyo, to critically endangered island crows just hanging on in the forests of Rota, some of these crows are cared for and conserved by dedicated people while others are the targets of eradication programs. Across the globe, crows draw our attention to a range of instructive sites for exploring the challenges and the possibilities of living well in a more-than-human world. My current research takes these charismatic birds as guides into the complexity of our current period, exploring shifting human/crow relations in six case-study sites within the context of escalating processes of globalization, urbanization, extinction, and climate change. In each case I am thinking about human/crow relations through the lens of specific keywords, most of them concepts with long histories in Western philosophical and scientific thought. From community to hospitality, from inheritance to recognition. But rather than going into depth about any of these crows or these key terms, this short paper is an effort to flesh out the general approach that I am working with here. Specifically, to outline what I take to be the core of a kind of "field philosophy."

This approach is situated within the broad, emerging field of "Multispecies Studies." Under this general umbrella we find work in areas like multispecies ethnography, ethnoethography, anthropology of life, anthropology beyond humanity, more-than-human geographies, as well as in extinction studies. Despite their differences, all of these approaches are united by a common interest in better understanding what is at stake—ethically, politically, epistemologically—for different forms of life caught up in diverse relationships of knowing and living together. At their core, each is grounded in what Anna Tsing has referred to as "passionate immersion in the lives of nonhumans."[1] Drawing, often critically, on the resources of the natural sciences, but also on a range of other knowledges—from artists, hunters, indigenous peoples, and more—this work pays close attention to the "ways of life" of nonhuman others and their consequential entanglements with larger worlds, from the laboratory to the city, the farm to the protected area.

1 Anna Tsing, "Arts of Inclusion, or, How to Love a Mushroom," *Australian Humanities Review* 50 (2011): 5–22, quote on page 9.

Scholars in this area are developing many new approaches to this kind of "immersive" knowledge. Beyond engaging with relevant academic literatures, beyond conventional ethnographic methods and collaborations with local communities, scholars are finding new ways to practice an attentiveness to, to spend time in, and ultimately to learn about, the "other worlds"[2] that are nonhumans: from experimental art practices, to attentive vermicomposting and collaborations with natural scientists.[3]

I am a philosopher by training and so, in a way that is perhaps only possible for a philosopher, I am still thoroughly excited by the novelty of getting out into this place we call "the field" and talking to people, participating, observing—what our less armchair-bound colleagues call "ethnographic research." In conducting this kind of research, I am particularly interested in what the field *does* to our philosophy. I have borrowed the term "field philosophy" from the independent work of both Dominique Lestel and Robert Frodeman, drawing on their accounts of what this kind of philosophy might be, but ultimately taking the term in my own direction.[4] At its core I understand field philosophy as an effort to interrogate the structures of meaning, valuing, and knowing that shape our worlds—often in unacknowledged but profoundly consequential ways: What do particular ways of understanding and inhabiting *do*, how do they help to enact, to *make* worlds? In taking up this broad topic we might, somewhat crudely, consider three key questions about our modes of philosophical inquiry: *how* we know, *what* we know, and *why* we know.

I'd like to say a little more about each of these questions in turn, interspersed, of course, with some illustrative encounters with crows. My aim, in doing so, is not simply to describe various forms of human/crow encounter and relationship. These examples, and this project as a whole, are woven through with questions of care. I explore these sites of interaction for the various possibilities for *responsible cohabitation* that might be, and in many cases are already being, opened up. Ways of knowing and relating help to make and remake worlds. The challenge is to do so responsibly, to do so

2 Barbara Noske, *Humans and Other Animals: Beyond the Boundaries of Anthropology* (London: Pluto Press, 1989).
3 For a fuller discussion of multispecies studies and these various immersive knowledge-making practices, see Thom van Dooren, Eben Kirksey, and Ursula Münster, "Multispecies Studies: Cultivating Arts of Attentiveness," *Environmental Humanities* 8, no. 1 (2016), 1–23.
4 Robert Frodeman, Adam Briggle, and J. Britt Holbrook, "Philosophy in the Age of Neoliberalism," *Social Epistemology: A Journal of Knowledge, Culture and Policy* 26, no. 3–4 (2012): 311–30.

Figure 1: Carrion crows (*Corvus corone*) at dawn in Munich, Germany. Photograph by author.

with *care*—mindful of the fact that caring is itself always a partial and compromised practice.[5] As Dimitris Papadopoulos notes, making is not about autonomous production; "We make as we coexist in ecological spaces."[6]

***

I was drawn to Hawaiian forests by their disappeared and disappearing crows. Extinct in the wild, the Hawaiian Crow (Corvus hawaiiensis)*—known locally as ʻalalā—can now only be found in two small captive breeding facilities. Today, a handful of birds taken into captivity in the late 1990s and early 2000s has been successfully bred to produce*

5 I have written about violent-care and other forms of compromised care elsewhere. See, for example, Thom van Dooren, *Flight Ways: Life and Loss at the Edge of Extinction*, Critical Perspectives on Animals: Theory, Culture, Science, and Law (New York: Columbia University Press, 2014); Thom van Dooren's entry Care, in "The Living Lexicon for the Environmental Humanities," *Environmental Humanities* 5 (2014), 291–94.

6 For a fascinating discussion of "making," see Dimitris Papadopoulos, "Generation M. Matter, Makers, Microbiomes: Compost for Gaia," *Teknokultura* 11, no. 3 (2014): 637–45. "Making starts from what is there. Intensive recycling. Immediate caring. Generation M lives in a terraformed earth: climate change, toxic environments, the 6th extinction, soil degradation, energy crises, increasing enclosures of the naturecultural commons. It encounters these harmful life thresholds with response-ability for the limits of productionism. Production does not characterise generation M's mode of life—co-existence does." Quote on page 639.

over one hundred ʻalalā, and conservationists are ready to start releasing them back into the wider world. But they are facing an uphill battle in the effort to find suitable forests. "Restoring" habitat to a condition suitable for these birds will require fencing and the eradication of pigs and other ungulates within large areas of land. However, some local people, including some native Hawaiians, want to be able to continue hunting these animals. As a result, this conservation project—like many others in the islands—has become deeply divisive. Some Hawaiians oppose it; others support it and see it as part of maintaining the diversity of living beings at the heart of their culture. Long and ongoing histories of colonization come to matter here in the working out of the future of this crow.[7]

Rethinking *how* we know is, quite simply, about expanding and enhancing our approaches to knowing others and their worlds. This involves engaging with a wider range of literatures, perhaps especially the natural sciences, but also getting out into the field: observing, spending time with crows in captive facilities, talking to everyone from conservationists and hunters to artists and activists. In this way we might come to understand and appreciate this disappearing way of life in new ways: what it means to the forest, to the plants whose seeds these crows once dispersed; what it means to people now coming to terms with a world in which, as one local put it, "we have lost the most charismatic component of our forests." But also, what efforts to conserve this species might mean for various living beings, how conservation might challenge and even upset possibilities for life.

Through this work I've discovered that getting out into the field in this way is not just about drawing on new empirical resources, new data points; it is also about the learning of a kind of humility, about the impossibility of an understanding that is not "situated,"[8] grounded in the specificity of actual placetimes. This is a good lesson for many philosophers to learn. In places like Hawaiʻi, grappling with diverse understandings, values, ways of being and of knowing—in short *multiplying* perspectives—radically changes *how* we philosophize, how we are able to imagine, and dare to propose

7 I have explored the conservation of the ʻalalā in a range of articles and chapters. The most detailed discussion of these specific dynamics is in Thom van Dooren, "Spectral Crows in Hawai'i: Conservation and the Work of Inheritance," in *Extinction Studies: Stories of Time, Death, and Generations,* ed. Deborah Bird Rose, Thom van Dooren, and Matthew Chrulew (New York: Columbia University Press, forthcoming).

8 Donna Haraway, "Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective," chap. 9 in *Simians, Cyborgs, and Women: The Reinvention of Nature* (New York: Routledge, 1991).

what might be possible. As a person who is, at heart, an ethicist, this approach to philosophy is reworking what I do. This is about the difference between an "applied ethics" that is formalized and prepackaged in the armchair for later use, and a genuinely "emergent ethics" that grapples with the specificity and complexity of the lived world. This is an ethics that refuses the calculable, refuses to produce a fixed set of rules, but rather aims to hold permanently open the question of "the good," to ask, again and again, how we might respond *well*.[9]

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In 2014 I was drawn to the coastal town of Hoek van Holland by a desire to understand the Dutch government's recent decision to begin killing a small population of roughly 40 house crows (Corvus splendens) *that had been living in the area for about 20 years, since their parents arrived, likely as stowaways on board a cargo ship. Arriving in the area my planned research was immediately hijacked by the site, by its specific contours. Directly across the water from town, right in my face, was the Port of Rotterdam, Europe's largest port. This place is both the center of a massive transportation network and home to a broad range of chemical factories and refineries taking advantage of the easy access to global markets. In short, it is an engine of the "Anthropocene"—the proposed name for a new geological epoch in which "humanity" is taking on an increasingly significant role in the shaping of Earthly futures.*

And so, I realized that coming to terms with this little group of crows required me to think through this port, as the vector of their arrival and the sometimes catastrophic movement of many other "introduced" species around the world, but also as a key site of contrast to explore the incredible inconsistency in the way in which some "environmental problems" (like crows) are actively and lethally managed while others (like the Port itself) are instead celebrated as paths to a better, more "developed," future.[10]

9 Of course there are great existing theoretical resources for this kind of approach. See, for example, Jacques Derrida, "'Eating Well,' or the Calculation of the Subject," in *Who Comes after the Subject?*, ed. Eduardo Cadava, Peter Connor, and Jean-Luc Nancy (New York: Routledge, 1991), 96–119; Donna Haraway, "Sharing Suffering: Instrumental Relations Between Laboratory Animals and Their People," chap. 3 in *When Species Meet* (Minneapolis: University of Minessota Press, 2008); Cynthia Willett, *Interspecies Ethics* (New York: Columbia University Press, 2014).

10 This work has been published in Thom van Dooren, "The Unwelcome Crows: Hospitality in the Anthropocene," *Angelaki: Journal of the Theoretical Humanities* 21, no. 2 (2016), 193–212.

This site is, for me, an example of the way in which the field might reform *what* we know. This is about the kinds of questions that we ask; who determines the scope of an inquiry, who decides what is important? In getting out into the world and thinking with others—not just drawing on their opinions as "data" but collaboratively engaging—a field-based philosophy also ends up being steered in its focus by the concerns and questions of others: What do they struggle with, what matters to them? This can happen in all manner of ways as local people respond to changing environments in their own, usually diverse, ways. But, of course, the "others" that are relevant here are not just humans: they might be crows or any number of other species. Or, as in this case, it might be the place itself which seemingly calls out, reframing the focus of the study. The Port of Rotterdam surprised me; it intervened to pose new questions. As a result, doing philosophy from the field requires a kind of *responsiveness* that can redo *what* we thought we wanted or needed to know, something that good ethnographers have always known.

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In the city of Brisbane, Australia, the local Torresian crows (Corvus orru) *have taken to living in larger numbers than they do anywhere else. One of the results has been complaints from local people about large roosts that are noisy in the morning, but also about the daily, often messy, activities of crows. As part of my effort to understand this situation I am collaborating with a biologist who has been studying the crows and other urban wildlife in the area for many years. We're bringing ethnographic work into dialogue with behavioral biology and field ecology to think about better approaches to urban cohabitation. At the same time, though, we're keen to engage local residents in a "citizen humanities" project that encourages people to become urban field naturalists, paying attention to crows, learning about why these birds do what they do, and sharing their insights online.*[11] *We're interested in whether knowing more might, in this case, make cohabitation easier, or at the very least more interesting for both parties.*[12]

11 For an interesting discussion of "citizen humanities" as a tool for the environmental humanities see Astrida Neimanis, Cecilia Åsberg, and Johan Hedrén, "Four Problems, Four Directions for Environmental Humanities: Toward Critical Posthumanities for the Anthropocene," *Ethics & the Environment* 20, no. 1 (2015): 67–97.

12 Fieldwork for this project has begun but the "citizen humanities" component is still only in the planning stages.

Figure 2:
A Torresian crow (*Corvus orru*) in Brisbane, Australia. Photograph by author.

This example brings us to the *why* of knowing; what is the purpose of our research? Do our modes of knowing make a difference, what kind of difference, and for whom? My own work, much of it a collaboration with Deborah Bird Rose, has thought about this issue through the lens of a lively "storying."[13] We understand story here as a verb: a way of *doing* the world. We are interested in telling stories that draw others, including ourselves, into new forms of curiosity and understanding, new relationships and so new accountabilities. Our storytelling is an inherently ethical project: not just because it explores questions of responsibility, but because it takes up the work of telling stories as an act of response, an effort to craft better worlds with others.

With this in mind, a philosophical approach grounded in the field seems to also require modes of communication, of storytelling, that are—at the very least—widely *accessible* and *engaging* both within and beyond the academy. This is about how we write, but also where we publish: from newspapers and blogs, to the role of open access publishing. Beyond writing and questions of accessibility, this might also be

13 See, for example, Thom van Dooren and Deborah Bird Rose, "Lively Ethnography: Storying Animist Worlds," *Environmental Humanities* 8, no. 1 (2016), 77–94; Deborah Bird Rose and Thom van Dooren, "Encountering a More-than-Human World: Ethos and the Arts of Witness," in *Routledge Companion to the Environmental Humanities*, ed. Ursula Heise, Jon Cristensen, and Michelle Niemann (London: Routledge, 2016).

about genuinely *collaborative* storytelling approaches in multiple media, something that I am just beginning to explore in my work through community anthologies, radio documentaries, and the aforementioned citizen humanities project. All of these projects might be understood as part of a broader, emergent, "public environmental humanities." In this context too, the field has the potential to question and reshape our philosophical practices.

I don't think that every piece of scholarly work that each of us develops needs to tick all of these boxes or push the envelope in each of the broad areas that I've sketched above as the how, what, and why of knowing. As a broad space of inquiry, however, these are some of the questions—perhaps the *demands*—that doing philosophy in the field opens us to. Each of these core dimensions of field philosophy is compatible with much of the work going on in multispecies studies, but might also push some of that work in interesting new directions. In short then, multispecies studies as field philosophy is about paying attention to the ways in which we are always already making worlds with others, and asking how we might do so with care.

Ursula Münster

The Sons of Salim Ali: Avian Care in the Western Ghats of South India

> Caring means becoming subject to the unsettling obligation of curiosity, which requires knowing more at the end of the day than at the beginning.
> —Donna Haraway[1]

Since 2006, I have been doing ethnographic research in the Western Ghats of South India, studying the histories, politics, and ethics of wildlife conservation at a time when species extinctions and human-wildlife conflicts are rife. My work mainly takes place at the border of a wildlife sanctuary in Wayanad, Kerala, where an authoritarian, state-led conservation regime prioritizes the protection of the country's most iconic species: the tiger and the Asian elephant.

During my fieldwork, I encountered a group of loosely connected individuals who care about a variety of less charismatic avian species that live in vulnerable anthropogenic environments and transgress the boundaries of India's protected areas, national parks, and wildlife enclosures. Most of these human caretakers are largely self-trained scientists who have drawn inspiration from the work and writings of India's most famous "bird man": the late ornithologist and conservationist Salim Ali (1896–1987).[2] Ali is well known for the beautiful 10-volume *Handbook of the Birds of India and Pakistan*, written together with his American colleague Sidney Dillon Ripley between 1964 and 1974. This volume, which publicized the diversity of avifauna in India, has inspired people's passions for birds and bird photography all over the subcontinent.

Here I present the untold stories and (literally) silent practices of these bird lovers and photographers who are, at least in spirit, the "sons of Salim Ali." I aim to make visible the ways in which these individuals contribute to avian conservation and the processes of gathering knowledge on bird species in times of their steady loss and disappearance. The "sons of Salim Ali" watch out for their winged friends in landscapes that receive little attention in state-led conservation efforts, such as paddy fields, coffee plantations, and patches of marsh and grassland that lie in the midst of intensively used agricultural land. Since their

1 Donna Haraway, *When Species Meet* (Minneapolis: University of Minnesota Press, 2008), 36.
2 Salim Ali and Sidney Dillon Ripley, *Handbook of the Birds of India and Pakistan*, 10 vols. (Delhi: Oxford University Press, 1968–1974).

practices of care take place in environments with long colonial histories of unequal access to forest commons and exclusionary environmental governance, I also follow recent scholars in feminist science and technology studies by asking the questions: What are the benefits and costs associated with avian care, and for whom?[3]

Taxonomic Care: Listing the Endemic

Figure 1: Survey team in the Western Ghats. Photograph by C. K. Vishnudas.

When I first met him in 2010, Vishnu had just returned from a four-hundred-day hike through the rugged landscapes of South India's Western Ghats. Seventy-five years after Salim Ali had conducted his renowned Travancore-Cochin bird survey—the first systematic and scientific study of birds in the region—Vishnu and a team of six other scientists had been meticulously following Ali's trail, starting their hike at exactly the same day of the year and walking the exact same route across the mountain range as Ali had done. Their goal was to find out what species were left of the avifauna communities first recorded by the famous ornithologist in 1933.

3 On feminist studies see Maria Puig de la Bellacasa, "Matters of Care in Technoscience: Assembling Neglected Things," Social Studies of Science 41, no. 1 (2011): 85–106, and on technology studies see Thom van Dooren, *Flight Ways: Life and Loss at the Edge of Extinction*, Critical Perspectives on Animals: Theory, Culture, Science, and Law (New York: Columbia University Press, 2014).

Equipped with binoculars, telephoto lenses, and camping equipment, the men walked 282.35 kilometers through various habitats and ecosystems, identifying and counting 77,547 individual birds belonging to 338 species. They found out that many of the birds endemic to the Western Ghats described as abundant by Ali, such as the grey-breasted laughing thrush or the Nilgiri wood pigeon, are now rare and threatened with extinction. The International Union for Conservation of Nature (IUCN) has categorized 19 of the region's avian species as globally endangered. Among them are four critically endangered species of vulture that were once common in the region but have now disappeared almost entirely. Huge numbers of them were poisoned by scavenging on domestic cattle that had been treated with the painkiller diclofenac, a drug that is fatal for the birds.[4]

Figure 2: White-rumped vulture nestling in Wayanad Wildlife Sanctuary. Photograph by C. K. Vishnudas.

The scientist's special research permit enabled them to reach places deep within the fragile ecologies of protected areas, where tourists and the general public are not allowed to enter. As trophies, they brought back carefully composed close-up photographs of elusive birds, like a black and orange flycatcher bathing in a stream, or a small sunbird, just eight centimeters long, feeding on the nectar of a plantain flower.

"Beewee, beewee"—Vishnu imitated the characteristic call of the white-bellied shortwing (*Myiomela major*), a rare endemic songbird who lives at high mountain altitudes.

4 C. Shashikumar, C. K. Vishnudas, S. Raju, and P. A. Vinayan, "On Sálim Ali's Trail: A Comparative Assessment of Southern Kerala's Avifauna after 75 Years," *Indian Birds* 9, no. 2 (2014): 29–40.

The small insectivore is hard to locate with human eyes and ears. It hides in the undergrowth of evergreen *shola* forests (*shola* is a Tamil word for "thicket" or "grove") and remains silent throughout most of the year. Only during the breeding season, when the male bird calls its female partner, can its distinguishing song—a "series of shrill whistles and buzzing"—help bird lovers to find and follow the animal more easily.

Vishnu's team was excited to distinguish a "new" species on their trip: the rufous-bellied shortwing, *Myiomela albiventris*, which, formerly considered a "subspecies" and conspecific of the white-bellied shortwing, actually lives on the other side of Palghat Gap, a deep valley cutting the southern Western Ghats into two parts. Older classifications based on physiological similarities grouped these birds as subspecies in the genus *Brachypteryx*. By catching them in nets, taking blood samples, and sequencing their mitochondrial DNA in a lab at the National Center for Biological Sciences in Bangalore, the scientists decided however that according to what they call the animals' genetic barcode, both birds are better classified as two different species.

Discovering new endemic species is an important strategy in today's politics of conservation, since doing so can potentially "upgrade" a region's protection status. The more endemic and endangered species there are to be found, the higher the potential for claiming stricter protection measures, such as the restriction of tourist access, a ban on construction activities, and the appointment of more forest staff to prevent poaching or other illegal activities. Taxonomic listing, in this case, becomes not only a scientific but a political practice.

Affective Care: Mourning Extinction

Curiosity for previously unknown avian song, feeding, and nesting behavior motivates the "sons of Salim Ali" to follow their feathered companions. Yet, above all, their care for birds is driven by anxiety and grief about the loss of so many life-forms from the places of their childhood. Unregulated tourism development, quarrying, and construction have fragmented Wayanad's forests and wetlands. Many small-scale cultivators have converted rice paddies into plantations of cash crops like banana, ginger, and areca nut—crops that demand higher inputs of agricultural chemicals. People report that human cancer incidences have increased since the use of fertilizers and pesti-

cides became widespread. The green revolution has left its toxic marks on a wide variety of species. DDT, Furadan (Carofuran), or endosulfan—which farmers readily applied on their fields until the early 2000s[5]—have poisoned and killed many sensitive plants and animals and caused others to lose their habitat and have to move to more favorable or remote places.

The Indian rice frog (*Fejervarya limnocharis*), for example, and the giant toad that was a source of protein especially for the indigenous *Adivasis* of the region, have disappeared in large numbers from Wayanad's streams and paddy fields. Flying frogs (*Rhacophorus malabaricus*), who used to be a common sight on the cool walls of deep wells near people's houses, are rarely seen now, and freshwater crabs have become scarce in the rice beds. Birds that live in these cultivated wetlands and feed on the small animals have disappeared alongside them. Greater painted-snipes (*Rostratula benghalensis*), for example, have not survived the chemicalized agricultural practices and are almost extinct now.

Wayanad's bird-lovers share a deep concern for these vanishing life-forms. Many of them, mostly men in their forties and older, regularly meet as part of the local environmental group *Wayanad Prakrithi Samrakshana Samidhi* (WPSS), translated from the Sanskrit as "Wayanad Nature Protection Group." Some of them are retired forest officials, teachers, farmers, or veterinary doctors. Most of them have been influenced by Gandhian philosophy and have read the books of Rachel Carson, Aldo Leopold, and Masanobu Fukuoka.

Mr. Badusha, the founding member and spokesman of WPSS, has been an active environmentalist since Kerala's Left movement of the 1960s. Together with his followers he has ignited and fought for many of the region's environmental campaigns: in the 1970s the WPSS successfully rallied against the building of a dam in the famous Silent Valley National Park, and in the 1980s they built human chains to embrace huge old-growth forest trees as part of South India's Appiko (embrace) movement, to prevent them from being logged. Presently, they organize protest marches against the continuing use of pesticides, they file cases—at state- and national-level courts or India's Green Tribunal—against illegal quarrying in ecologically fragile landscapes, and

5 Daniel Münster, "'Ginger is a Gamble': Crop Booms, Rural Uncertainty, and the Neoliberalization of Agriculture in South India," *Focaal—Journal of Global and Historical Anthropology* 71 (2015): 100–13.

they are demanding the enforcement of a night-traffic ban on the NH-212, a highway running through the core area of the Bandipur National Park and Wayanad's wildlife sanctuary.

Their combined appreciation for the beauty of avian life and sorrow for its loss became visible during an exhibition that WPSS organized in 2014 in Manandavadi, a small town in Northern Wayanad. At a public library, the birder-environmentalists displayed avian photographs taken from their own forest gardens, farms, or field trips. They invited school children, local intellectuals, and politicians to contemplate a selection of beautiful close-up photographs of birds: a mother brown hawk owl (*Ninox scutulata*) feeding her nestlings, a lesser grey-headed fish eagle (*Ichthyophaga ichthyaetus*) holding its prey, or a shiny crimson-backed sunbird (*Leptocoma minima*) sitting on a flower, and many more. As a symbol of mourning for all the species that have already vanished from this planet, they had placed a picture on the floor in memory of Martha, the world's last passenger pigeon, with a red rose in front of it and distributed flyers informing visitors about Wayanad's fragile ecologies and the current age of mass extinction.

Figure 3: Picture of Martha with red rose. Photograph by author.

Silent Care: The Multispecies Arts of Noticing

To cultivate what Anna Tsing calls the "arts of noticing,"[6] Wayanad's birders need to practice silence. As Jacob Metcalf argues, many species are best cared for through "a separation from most human activities."[7] To observe most birds and their behavior, the watcher needs to remain distant, make him or herself unheard and unseen, and patiently sit, quietly, for many hours. Knowing nocturnal birds, like a mottled wood owl (*Strix ocellata*), means staying

6 Anna Tsing, "Arts of Inclusion, or How to Love a Mushroom," *Manoa* 22 (2010): 191–203.
7 Jacob Metcalf, "Intimacy without Proximity: Encountering Grizzlies as a Companion Species," *Environmental Philosophy* 5, no. 2 (2008): 99–128.

up all night to witness its hunting and feeding behavior and to differentiate its different calls and songs. Finding out how birds care for each other—which parent feeds the nestlings; if they are brought maggots, frogs, lizards, or snakes; who builds their nests and how; who teaches them to fly—sometimes means building a hide near their nest, many meters up in the dense canopy of trees, watching them from dusk till dawn.

Avian care means being attentive to a diversity of multispecies communities. It calls for noticing the multitude of organisms that a bird depends on and could not survive without: flowers, seeds, fruits, nuts, beetles, butterflies, spiders, worms, snakes, frogs, carcasses of mammals . . . the list goes on. Caring for the rufous woodpecker (*Micropternus brachyurus*), for example, means caring for shady coffee plantations where the bird likes to breed in the nests of acrobat ants (*Crematogaster* spp.), an arboreal ant genus that uses its venom to hunt other insects such as wasps. As Vishnu has observed, the rufous woodpecker "hammers" these ants' nests in order to "conquer them, warding off the attacks of agitated ants" and consuming their eggs.[8]

Yet the survival of the rufous woodpecker is threatened; plantation owners try to eradicate the *Crematogaster* ants on which the birds rely because the ants help mealybugs (*Planococcus* spp.)—insects which suck the juice of coffee plants—to flourish on the plantations by protecting them from predators, carrying them from one plant to another, and fostering them in their nests.[9] The application of toxic insecticides, however, not only kills the ants but takes away the rufous woodpeckers' prey base and nesting sites. Vishnu and his ornithologist friends have thus initiated a campaign to promote organic coffee cultivation in Wayanad, so that complex multispecies communities can continue to survive together on the plantations.

Naturalcultural Care: Compromises and Costs

Caring for birds means having to overcome the convenient but limiting distinctions between "wild" and protected places, forests and fields, jungle and domestic space—between nature and culture—that have persisted in the South Indian landscape since

8 C. K. Vishnudas, "Crematogaster Ants in Shaded Coffee Plantations: A Critical Food Source for Rufous Woodpecker *Micropternus brachyurus* and Other Forest Birds," *Indian Birds* 4, no. 1 (2008): 9–11.
9 Ibid.

colonial times. Some birds, like many species of goose and duck, travel on long migration routes through a diversity of landscapes. Other species, including raptors, live in territories that include a wide range of habitats such as fields, plantations, and less disturbed forest regions. This highlights the importance of trying to know and understand the true breadth of our interconnected worlds; as Donna Haraway reminds her readers: knowing (and caring for) others is a relational practice that opens up new possibilities for coconstituting and living together in a shared world.[10] In South India, caring for birds is also a collaborative project, one that crosses cultural borders and the boundaries of caste and class. To find avian habitats and nesting places, the birders often rely on local experts, mostly indigenous *Adivasi* watchers and trackers, to guide them through unfamiliar forest landscapes, to report sightings of rare birds, and attune scientists to the dangers and particularities of a place: the trackers show them which paths to avoid so that a tiger remains undisturbed in its territory. They safely lead the researchers around herds of grazing elephants at a distance and they guide them to the spots where the leopard has left its prey, so that the birders can observe vultures feeding on the fresh carcass.

Many of the people that Wayanad's birders rely on belong to the community of the *Kattunaika*, a former hunting and gathering group, who were relocated from the wildlife sanctuary during colonial times to be employed as timber workers for the Imperial Forest Department. Today, they have rights to collect tubers, bamboo rice, wild honey, and medicinal plants from the sanctuary and to sell them to Ayurvedic pharmacies, tourists, and government-run NGOs. Their traditional practice of hunting birds and collecting eggs, however, is prohibited. Avian care in South India is thus never innocent; it makes visible vulnerabilities, hierarchies, and exclusions.

One day, when I was walking together with Vishnu in the forest near the sanctuary's boundary, a few *Kattunaika* boys came running up to us, proudly presenting their daily catch: they had killed four rare songbirds with their slingshots and were ready to prepare them on a fire. I was relieved when Vishnu took these feathered animals into his hand, and kept silent. In the context of South India, caring about avian conservation then means being attentive to these situated histories of imperialism and colonization that deprived forest-dwelling people of their access to the forest commons. It means confronting the

10 Haraway, *When Species Meet.*

questions of who benefits (and who potentially loses out) from relationships of care, as well as making careful decisions on how to grapple with a multiplicity of opposing claims, both human and nonhuman.

When practices of care overlap, leading to conflicting interests and divergent needs of the human and other species involved, no easy, fast, and unconditional measures are appropriate. Rather, careful practices go beyond a singular, species-specific focus in order to consider the complex and vital multispecies relations inherent *to* our world.

Figure 4:
Dead songbirds in Vishnu's hands. Photograph by author.

Piers Locke

Interspecies Care in a Hybrid Institution

It seems the Anthropocene is upon us, not merely as a proposal for a geological epoch defined by the terraforming agency of human civilization, but also as a newly minted concept gaining traction throughout our cultural and intellectual industries. This seductive and productive neologism is now all around us: in museum exhibitions, in musical compositions, as a term of nihilistic dismay, and of course, as a discursive concept not just for the earth sciences, but also for the social sciences, for literary studies, history, architecture, the sonic and visual arts, and more besides. On the one hand, it seems that diagnosing our phenomenal power to reconfigure the biogeochemical systems of the planet in life-threatening ways can only serve to confirm a grand narrative of anthropogenic environmental domination and despoliation. On the other hand, it is just this moment of fateful realization that is pushing some to rethink the intellectual architecture of Western modernity implicated in bringing us to the brink of total ecological crisis. For many, the root of our problems lies in a world in which nature and its nonhuman denizens were made conceptually "other," and consequently expedient to our whims. From a renewed engagement with this realization, fertile possibilities are emerging for undoing the tragic anthropocentrism of our global civilization, as the thoughtful reconsider the restrictive boundaries that have developed between different forms of disciplinary knowledge, how human and nonhuman lives are lived together, and how we might yet learn to live well with nonhuman others.

In the discursive age of the Anthropocene then, care for life and care of the planet can no longer be dismissed as the sentimental preoccupation of animal rights activists, Gaian hippies, or other relatively marginal constituencies. Instead, such concern for care, in a sense exceeding merely managerial instrumentality, has become the legitimate concern of multispecies thinkers who are challenging the limiting analytic separations produced by the dualisms of Western thought. No longer restricting the social to the human or segregating the cultural from the natural, this cohort of researchers is concerned with life's capacity for mutual world making, with relations between the bio and the geo, and the possibilities and responsibilities that arise from them. Anna Tsing, for instance, reminds us how the metabolic activity of microbial life made the atmosphere breathable for vertebrate life, sustained by the life processes of plants that

live on soil made by fungi digesting rocks, producing landscapes that humans modified with the use of fire, which made room for other species to flourish alongside them, opening up new possibilities for companionable living.[1] Crucially, by reminding us of multispecies world making as constitutive of life as we actually live it, variously shaped by dynamics of competition, cooperation, predation, and symbiosis, again it becomes thinkable to remove ourselves from the humanist pedestal that elevated and isolated us, and that led to such care-less relations with life and land.[2]

Such moves toward undoing human exceptionalism,[3] and toward redoing our accounts of life as collaborative, caring ventures, inform my own concern with humans, elephants, and the lives and landscapes they make and share together.[4] As I learned during ethnographic research with cohabiting humans and elephants in Nepal, interspecies encounters have the power to change our orientation to the world in fundamental ways. My apprenticeship as a mahout (or elephant handler), involving myself with embodied, communicative interactions with sentient nonhuman partners, was integral to this. That such an intimate experience—attending to elephants as companions—was so revelatory for me is surely indicative of the isolating state of exception I had grown up in, the product of what Giorgio Agamben has called "the anthropological machine" of Western thought.[5] More specifically, my interspecies encounters with elephants challenged the presuppositions of an anthropological education that had delimited ethnographic research in narrowly humanist-cultural terms.

Upon embarking on a project to investigate practices of captive elephant management in the lowland Tarai of Nepal, I had conceived my task as a study of the human use of elephants in which the latter would be ancillary to the former. However, such a set of analytic priorities became untenable as I realized the importance of attending seriously to elephants as world-making partners to their mahout companions. My cultivated disposition as an anthropologist was to practice ethnography in a way that excluded nonhumans as subjective agents. However, as the intimately conjoined and

1 Anna Tsing, *The Mushroom at The End of the World: On The Possibility of Life* in *Capitalist Ruins* (Princeton: Princeton University Press, 2015), 22.
2 See Dominique Lestel and Hollis Taylor, "Shared Life: An Introduction," *Social Science Information* 52, no. 2 (2013): 183–86.
3 See Donna Haraway, *When Species Meet* (Minneapolis: University of Minnesota Press, 2008).
4 Piers Locke and Jane Buckingham, eds., *Conflict, Negotiation, and Coexistence: Rethinking Human-Elephant Relations in South Asia* (Delhi: Oxford University Press, 2016).
5 Giorgio Agamben, *The Open: Man and Animal* (Stanford: Stanford University Press, 2004).

mutually constituted life-worlds of humans and elephants became apparent, such an approach seemed both limiting and impoverished.

Therefore, I had to redo this research in terms of interspecies care. Here I must mention someone who changed my life—Sitasma, 20 years old, a young mother, part of a community dominated by females and attended by men, who welcomed me as a new companion in her life. Yes, one of the most crucial relationships of my field research was with an elephant! With Sitasma as mentor, I experienced the kinesthetic union of human and elephant bodies operating together, traversing the forested, riverine landscapes of Chitwan by day and residing in the *hattisar* (or elephant stable) by night. But this cooperation was the product of more than merely bodily coordination; it was only possible by virtue of a social relationship of amity, with all the implications of consent, communication, and understanding that such relations entail.

Conducting research by participant observation in the Khorsor Elephant Breeding Center at the edge of the Chitwan National Park, I had joined a community of men and elephants. Together, as specialist units of collaborative labor, they play a key role in the apparatus of protected area management, helping to manage space dedicated to the care of nonhuman species and environments. This particular, government-run elephant stable is notable as the location of Nepal's captive breeding and training program. Free-roaming elephant populations are now too diminished to sustain wild capture, necessitating an alternative strategy for replenishing the working elephant population that helps the Department of National Parks and Wildlife Conservation (DNPWC) fulfill its functions managing biodiverse habitats in lowland Nepal. Thus, I found myself studying caring relations between species as institutionalized in the context of a broader endeavor of caring for lives and environments kept apart from surrounding territories of human social and economic activity. In other words, the custodial care of humans for elephants served the imperatives of environmental care enshrined in the state-sanctioned, legally regulated organizational arrangements for managing national parks.

The methodological implications of learning to study life lived with elephants were profound. I was forced to rethink the assumption of human exclusivity upon which ethnography is implicitly based, adopting instead a perspective that allows for the incorporation of nonhumans as active subjects constituting a social world made and shared with hu-

mans. Encountering a space where elephants are variously treated as animals, persons, and gods by the mahouts most immediately affected by them,[6] it became evident that producing an account of captive elephant management that treated elephants as little more than animate objects for human appropriation and deployment would be an act of gross misrepresentation. I had become witness to a social world of interspecies engagement in which human and nonhuman lives are deeply entangled through joint activity, reciprocating relations, moral dependency, and mutually affective impact. Ethnography-as-usual would have demanded a disregard for elephant agency at the ontological starting point that distinguishes cultural humans from natural animals. Finding myself immersed in social relations traversing the species boundary, the immediacy of the field made such a starting point untenable. So it was then that, to properly understand and represent the social space of the elephant stable, its principal human and nonhuman actors, and the relations of care among them, I had to reconceive humanist ethnography as interspecies ethnography. With its focus on the subjective agency of a particular species interacting with humans, we may consider interspecies ethnography a subset of the broader field of multispecies ethnography, which can also be concerned with the network effects of multiple species, as well as with life-forms that exceed the anthropology of human-animal relations, such as plants, fungi, and microbes.[7]

Key to an interspecies ethnography that negates the isolating human exceptionalism of Western intellectual thought was the idea that the object of my inquiry was not so much the activity of particular living entities, but rather the relations produced by their dwelling together, irrespective of species designation. Here Dominique Lestel's concept of hybrid community is crucial in that it reminds us that meaning, interests, and affects can be shared by humans and animals living together,[8] just as I found for the humans and elephants in the Chitwan stables. This was a kind of community that exceeds the minimal ecological definition, usually applied to nonhumans, of interacting individuals occupying the same space. Instead, it was of a kind rather more like the sociological idea of moral community, typically applied exclusively to humans, and involving social integration and shared obligation.

6 Piers Locke, "Animals, Persons, Gods: Negotiating Ambivalent Relationships with Captive Elephants in Chitwan, Nepal," in *Conflict, Negotiation, and Coexistence*, ed. Piers Locke and Jane Buckingham, 159–79.

7 Eben Kirksey and Stefan Helmreich, "The Emergence of Multispecies Ethnography," *Cultural Anthropology* 25, no. 4 (2010): 545–76; Piers Locke and Ursula Münster, "Multispecies Ethnography" (added November 2015), in Oxford Bibliographies in Anthropology Online, ed. John L. Jackson Jr., doi: 10.1093/OBO/9780199766567-0130.

8 Dominique Lestel, "Ethology and Ethnology: The Coming Synthesis, A General Introduction," S*ocial Science Information* 45, no. 2 (2006): 145–53, in particular see page 150.

I remember realizing that humans and elephants dwelling together produce a shared moral community when I learned that the relationship of custodial labor that bound me to Sitasma marked me as her human for the other elephants. This made me subject to a similar pattern of like and dislike expressed toward her by the other elephants, which I was able to explore by asking my mahout colleagues about their elephants' histories of shared encounter. The evidence of some inter-elephant animosities was inscribed on Sitasma's body in the form of wounds, dictating which elephants I myself should avoid. I also remember realizing the significance of interspecies loyalty as I listened to mahouts blame their human rather than their elephant colleagues in cases of human fatality involving elephants. That they could demonstrate an allegiance to their elephant colleagues that could trump that toward their human colleagues suggested their social world could only be adequately understood in not-just-human terms. Although the *hattisar* may be understood as a space of command and control in which elephants (and humans) are made subordinate to human purpose (in which we may consider both elephants and mahouts as subalterns), this does not preclude the possibility of a human-elephant moral community, as indicated by the cross-species dispositions and solidarities reported here. With a moral community exceeding the species boundary then, the elephant stable may be characterized as a hybrid institution of interspecies care.

Finally, though, we must address care itself. In the context of the elephant stable, interspecies care may refer to a complex variety of behaviors, dispositions, and practices enacted through multiple modes of relation that include companionship, domination, and veneration.[9] Consequently, it is crucial to embrace an expansive understanding of care that includes affection, supervision, and responsibility, exercised through love and will. These differing modes of relation, variably emphasized according to context and contingency, seem contradictory at times. While mahouts talk about the need to love your elephant, to establish relations of trust and reciprocal care, they also talk about the need to discipline elephants, to bend them to your will. They also talk about the need to worship the divinity of a living god kept captive. Indeed, it seems the intrinsic contradictions of loving, worshipping, and controlling elephants produces an existential dilemma that is resolved by asserting multiple, coextensive forms of status whereby elephants are seen as animals, as persons, and as gods. Only by conceiving of elephants in this multiplex way can the tensions of loving and forceful care be reconciled.

9 Locke, "Animals, Persons, Gods," 159–79.

While I found that the care of captive elephants presents troubling ambivalences for their human custodians, its morality is of course politically contested, with some advocating its abolition and others advocating its improvement. Absolutists demand the end of all forms of captivity, lauding the virtues of the elephant as a thinking, feeling, social mammal, and decrying as travesty the fact that humans perpetuate what they can only consider as suffering and enslavement. The pragmatists, similarly appreciative of the capacities and qualities of elephants, tend to take a more nuanced view regarding the various forms, conditions, and purposes of captivity, even willing to concede the moral validity of this interspecies relationship. Some work to minimize suffering and improve the conditions of captivity, advocating some forms over others, while others note the welfare crises that can result from the wholesale abandonment of captive elephant employment, as with the 1989 logging ban in Thailand. Yet others point to problems afflicting the mahouting profession, and the need to reinvigorate its occupational culture, arguing that mahout welfare is integral to elephant welfare. These are complex issues to which I merely wish to allude. For me however, there is perhaps a rather more fundamental (and controversial) question of care at stake. And that question is this: Can an elephant develop a meaningful, consenting relationship of care with a human, and if it can, should we deprive life of this interspecies possibility?

Susanne Schmitt

Care, Gender, and Survival: The Curious Case of the Seahorse

Seahorses make for good stories about care. As Donna Haraway so rightly puts it, part of caring about a being is to be curious about it, to position our self and ourselves towards it in a motion of attentiveness, bewitchment, and willingness to know and learn, and, finally, to "enter into responsibility" for its wellbeing.[1] And people are curious about seahorses. This is in no small part because seahorses have very specific ways of caring for their young. The stories that circulate about the Sygnathid family—seahorses and pipefish—are shaped and colored by how they organize care and by how this care is interwoven with gender: male seahorses become pregnant.

Within the ethics of care, there is a basic agreement that all beings receive and give care, that we are thus never truly autonomous, and that relations of attentiveness and responsibility entangle us in a range of emotions, very practical and political concerns, and concrete and often unacknowledged labor.[2] The practice, political context, and range of affects tied to care are also highly gendered. Not only is care often regarded as a human activity that is predominantly a parochial concern of women and part of life as a female member of the human species, but it is also highly morally charged as a form of "woman's morality."[3] Care, construed as a female gift and a given, suggests that women are more suitable for certain endeavors and positions, such as nursing, childcare, or education, and less so for others. These activities, performed by women and discursively feminized—often regarded as a labor of love when wielded in personal contexts and often badly paid in public ones[4]—are foundational to the thriving and very survival of all forms of life, even across species. In the words of Maria Puig de la Bellacasa, "care is somehow unavoidable: although not all relations can be defined as caring, none could subsist without care."[5]

1 Donna Haraway, *When Species Meet* (Minneapolis: University of Minnesota Press, 2008), 36.
2 Joan Tronto, *Moral Boundaries: A Political Argument for an Ethic of Care* (New York: Routledge, 1994).
3 Ibid.
4 Discussions of gender and care, which have recently gained renewed attention, are obviously highly contingent on historical and cultural contexts in relation to lifestyle, economy, and relationships. This essay is written with environmental organizations in mind which, operating globally, refer mostly to Anglo-American contexts and perspectives when storying care.
5 Maria Puig de la Bellacasa, "'Nothing Comes without Its World': Thinking with Care," *Sociological Review* 60, no. 2 (2012): 198.

Storying life beyond humanity is one of many ways of becoming attentive, of the "art of noticing," in Anna Tsing's words. While all kinds of beings make sense of events—storying them—the stories some humans circulate about seahorses have very material and very concrete effects on their survival.

There are 36 different species of seahorses. They dwell in tropical and temperate shallow waters from coral reefs to seagrass beds, from Australia to the river Thames in England. They all belong to the Sygnathid family (genus *Hippocampus*) and are famously at odds with contemporary Anglo-American conceptions of pregnancy: males are in charge of it. Females deposit their eggs in the male's pouch, who then carries the resulting two hundred or so small seahorses until birth, when he releases them through contractions into the open waters where they disperse to the plankton layers of the oceans. The biological characteristics of pregnancy in male seahorses resemble that of female mammals, providing an example of convergent evolution, where unrelated species find similar solutions to survival's challenges. The male's pouch, just like a kangaroo pouch, provides a protective and nutrient-rich environment in which calcium, lipids,[6] oxygen, and the right salt balance[7] are all provided to ensure normal embryonic development.

The stories that circulate about seahorses through biodiversity conservation efforts are scientific narratives made available to general audiences by conservationists who care about the seahorses' survival. These stories are full of images—they can be found on websites or on seahorse tanks in public aquariums. They describe a male seahorse's underbelly as a "caring" environment. How often do you see images of animals that are pregnant? How often do you see images of seahorses that are not? The thought of a pregnant women's uterus as an interdependent, care-providing "ecosystem"[8] that provides an ideal nurturing context, is indeed very much the rhetoric of contemporary Anglo-American notions of pregnancy. Stories about the seahorses' ways of caring are prompted by such narratives and their subversion. In Eric Carle's highly successful children's book *Mister Seahorse,*[9] for example, a seahorse father—obviously heterosexually married to a Mrs. Seahorse—takes on the eggs of Mrs. Seahorse after having asked her "Can I help?" and

6 Camilla Whittington, Oliver Griffith, Weihong Qi, Michael Thompson, and Anthony Wilson, "Seahorse Brood Pouch Transcriptome Reveals Common Genes Associated with Vertebrate Pregnancy," *Molecular Biology and Evolution* 32, no. 24 (2015): 3114–31.

7 Joan Roughgarden, *Evolution's Rainbow: Diversity, Gender, and Sexuality in Nature and People* (Berkeley: University of California Press, 2004), 45.

8 Barbara Duden, *Disembodying Women: Perspectives on Pregnancy and the Unborn* (Cambridge, MA: Harvard University Press, 1993), 2.

9 Eric Carles, *Mister Seahorse* (New York: Philomel Books, 2013).

subsequently travels the ocean floor, meeting other male fishes who care for their young intensively. Thus, it is not only evolution that converges but stories too, and they become important tools in the political armory of conservationists.

All species of *Hippocampus* are now threatened with extinction. The entire genus is protected by the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES),[10] meaning that trading in any of these species is highly regulated; numbers are highly restricted and they need to be legally sourced. Seahorses are threatened by habitat destruction and overfishing, where they end up as bycatch. They are also an important remedy in traditional Chinese medicine: in another ironic twist of seahorse gender trouble, they are a highly sought-after cure for such ailments as impotence and urinary tract infections, as their dried bodies are claimed to stabilize male-connoted Yang in human bodies.[11] One of the main reasons for the disappearance of seahorses is thus the high demand that Asian markets, in particular, put on those who hunt and sell them.

Global networks of careful attention and concrete, practical labor of care are in place to make sure that the various species of seahorses can be kept in the world; they are an intertwined collection of conservation efforts taking place in natural habitats, aquarium-based breeding programs, and attention-generating storytelling that emphasize seahorses' very specific ways of taking care of their young, and their very peculiar outward appearances. Their unique form of offspring-care makes seahorses highly charismatic and thus binds them, by proxy for other species inhabiting the same ecosystems, into complex, transnationally operating care meshworks. Attention counts, curiosity is key, and "boring" stories make for "boring" species. Whenever humans tell stories—be they scientific, mythical, or colloquial—about other-than-human forms of life, a good story can be crucial for a happy ending for the genus or species as a whole. *Hippocampi* are considered iconic, enigmatic animals, not only due to the ways in which they act but also of course because of the way they look. They swim upright, have a curved neck, a snout, and tails that they curl around the nearest blade of seagrass. It is their "horsiness," their bridging of two seemingly incompatible worlds, that makes them stand out within their aquatic surroundings

10 All species of seahorse are listed in Appendix II of the Convention on International Trade in Endangered Species of Wild Flora and Fauna (CITES), which calls for strict regulation of all trade in the species covered.

11 Ierecê Lucena Rosa, Gabriela Rocha Defavari, Rômulo Romeu Nóbrega Alves, and Tacyana Pereira Ribeiro Oliveira, "Seahorses in Traditional Medicines: A Global Overview," in *Animals in Traditional Folk Medicine*, ed. Rômulo Romeu Nóbrega Alves and Ierecê Lucena Rosa (Berlin/Heidelberg: Springer, 2013), 207–40.

Figure 1:
Two pregnant potbelly seahorses at the Tennessee Aquarium, USA. Photograph by Joanne Merriam (CC BY-SA 3.0).

and makes them special. On the ocean floor, so distant from our human environment, they resemble one of our most important companion species—the horse.

Because of their enigmatic exteriors, they have captivated humans and become a muse in meaning-making through transcendental stories; in Greek mythology, they pulled Poseidon's chariot and they made appearances in Etruscan, Pictish, Australian Aboriginal, and Roman creative work.[12] They are also highly represented in both conservation databases and publicity events, precisely because their aesthetic power touches onlookers.[13] They serve as boundary objects that enable different communities to converge around pressing political issues.[14] They represent whole ecosys-

12 See Helen Scales, *Poseidon's Steed: The Story of Sea Horses, from Myth to Reality* (New York: Gotham Books, 2009) for a thorough exploration.

13 Jamie Lorimer, "Nonhuman Charisma," *Environment and Planning D: Society & Space* 25, no. 5 (2007): 911–32.

14 "Boundary objects"—and in this case, of course, boundary organisms—are phenomena that are "both plastic enough to adapt to local needs and constraints of the several parties employing them, yet robust enough to maintain a common identity across sites." Susan Star and James Griesemer, "Institutional Ecology, 'Translations' and Boundary Objects: Amateurs and Professionals in Berkeley's Museum of Vertebrate Zoology, 1907–39," *Social Studies of Science* 19, no. 3 (1989): 393. An example in which the mediating power of seahorses as boundary objects can been seen is Project Seahorse, a collaborative conservation project between the Zoological Society of London and the University of British Columbia. The project stresses the interdependencies of human (local communities, fishermen, trading companies) and seahorse lifeways, as both depend on healthy marine environments. Guylian Belgian Chocolate (famous for its marine-animal shaped chocolates) and the John G. Shedd Aquarium are major partners of the project, which reaches out to general audiences and local communities worldwide.

tems—mangrove forests, coral reefs, seagrass beds—and their survival ensures the further existence of the places and the multispecies communities in which they go about their lives. The hopes that are put on the survival of seahorses thus move beyond the genus itself. Not only have they come to represent certain ecosystems but they have also been identified as key animals for conservationists to use in trialing successful trade regulations for wild specimens. Project Seahorse, one of the main protagonists of seahorse conservation, describes them: "Charismatic symbols of the seagrasses, mangroves, reefs, and estuaries they call home, seahorses are flagship species for a wide range of marine conservation issues."[15]

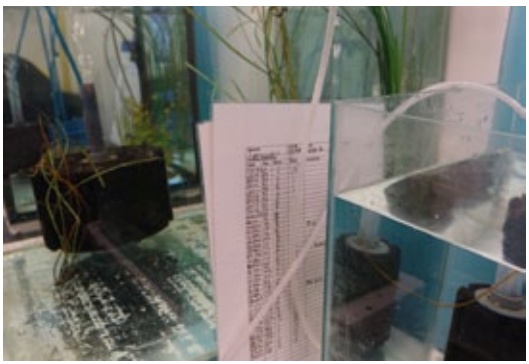

Figure 2: Charting seahorse growth at the London Aquarium. Photograph by author.

A world away from mangrove forests, coral reefs, or seagrass beds, at the Aquarium of the Zoological Society of London (ZSL), caring about seahorses is a strenuous and emotional undertaking. The ZSL is a hub of global seahorse conservation that has helped establish programs to ensure the survival of seahorses. Every morning, the caretakers enter a hall behind the aquarium's exhibits. This is where the short-snouted seahorse (*Hippocampus hippocampus*)—a native to the Mediterranean and more recently the British river Thames—is bred.

During my visit to London Zoo, their aquarium enclosures were being kept relatively cool. Short-snouted seahorses typically live in regions where the seasons are clearly demarcated, and providing them with different temperature levels throughout the year is part of the labor of breeding them and providing care for them.[16] At the large show aquarium, the reverse of which is visible from the breeding area, visitors' eyes slowly adapt to the vast variety of detail within. After a while, the seahorses become visible. Slow and tranquil, their tails curl around stems of seagrass, often together.

15 "Saving Seahorses: Flagship Species for Marine Conservation," Project Seahorse, accessed 12 February 2016, http://www.projectseahorse.org/seahorses/.

16 The complexities and controversies surrounding care in captivity, although of course highly relevant, move beyond the short format of this contribution.

These seahorses live monogamously, and caring for them often implies engaging in life-long matchmaking. Choosing potential partners, introducing them, being curious and observing how they approach and respond to one another, matter as much as the mundane tasks like siphoning the tanks every morning.

Caring for seahorses at London Zoo is an emotional labor—these are the very words the caretakers use. The task is an ongoing one; a work of tinkering and being creative with a vast battery of technological aids and protocols that are necessary for keeping seahorses alive, thriving, and finally breeding in captivity: siphoning, filtration, heating, air conditioning, and the witches' brew of green microalgae and plankton that constantly boils in the food room, to name but a few. Blogging about new breakthroughs in the science of seahorse breeding or checking on the "geriatric tank" that holds a small colony of elderly specimens way past their breeding prime, or two baby seahorses with twisted backs that float adrift in their own little tanks—all these labors are acts of curiosity and intimate care that are overshadowed by the dooming scenario of the world's sixth mass extinction. Everybody who works here knows very well that the *Hippocampus* individuals are contemporary and future agents and protagonists of conservation policies that ensure that *those who care can* gather hope for the future of their ecosystem's s exception from extinction.

Back at the onlooker's side of the show aquarium, the uniqueness of the pregnant seahorse fathers—the feature no aquarium refrains from mentioning—turns the whole of the genus into one that is charged with the appeal of a distinctive and inimitable charm; an entity that one likes to worry and care about. Not only their appearances, but also their stories, touching ever so gently on the concerns of modern and traditional human life experiences in terms of family and relationships, echo from the ocean floor to mobilize forces for conservation. The ways in which we as humans interpret, appropriate, and strategically use these fishes' unique ways of life, support their survival unlike that of many other, less loved and less narratable ones.

The curious case of the seahorse gives an example of the complexities and controversies of care that emerge when we think of it as a practice that is happening both within as well as across species. Seahorses have always been *perceived to be* special, rendering them organisms worthy of care. Their peculiarity and idiosyncratic ways of corporeal caring are, however, not always met with awe and admiration. When Jean

Painlevé first screened his film "Cheval Marin" in Paris in 1934, it became an instant hit. "Have you seen that film about the pregnant male?" people asked each other on the Metro.[17] The film showed seahorse courtship, pregnancy, and birth, and its version of "subversive, feminized masculinity"[18] was regarded as so obscene and offensive that it was banned from being screened in the US in 1936.

The affective power that the stories about seahorses and care nowadays hold, might yet be the key to their survival. The aesthetic, storied charisma of the seahorse family in all its diversity does indeed lead humans in "entering into responsibility"[19] and therefore often into narrative, scholarly, and political action. This responsibility, however, prompts possibility as well: the possibility that there are many forms and facets of care that remain to be explored, and that extend beyond the boundaries of landscapes aquatic and terrestrial.

17 Ursula Harter, *Aquaria in Kunst, Literatur und Wissenschaft* (Heidelberg: Kehrer, 2015), 139.
18 Ibid.
19 Donna Haraway, *When Species Meet* (Minneapolis: University of Minnesota Press, 2008), 36.

Celia Lowe

Viral Ethnography: Metaphors for Writing Life

It's hard to describe what I do. When I tell people I study viruses, they think I mean microbiology. "But I thought you were an anthropologist?" they might ask me.

Recently I have been calling myself a "viral ethnographer." Ethnography, from "ethnos" and "graphos," is the practice of writing the human. What could it possibly mean to write life beyond the human, to write *viral* ethnography? And what would "caring about species," the central idea of this issue of *Perspectives*, mean when the species you study are viruses? I never want to do anything like participant observation—the classical ethnographic method of subjective and bodily immersion—with a deadly influenza or Ebola virus. And don't anthropologists already have their work cut out for them in caring about their fellow humans?

My work on viruses began in 2006 during a global outbreak of a deadly influenza virus. Having recently completed a book, *Wild Profusion*,[1] where I examined biodiversity conservation in Indonesia, tracing out the contours of Indonesian's conservation biology, I was curious to find that Indonesia was again gaining center stage as a site of endangerment: it had become "ground zero" for the H5N1 strain of highly pathogenic avian influenza. The international community feared this new strain would make a sustained leap from poultry to humans and emerge as a global pandemic with the virulence of the infamous 1918 influenza (the Spanish Flu) that had killed more people than World War I itself. As the international community ramped up its rhetoric and interventions around H5N1, what was intriguing to me was the overlap between the idea of a global pandemic threat and the programmatic language of biosecurity that had come out of the Bush administration in the United States in the wake of the September 11th and the anthrax attacks of 2001. How was a new global security agenda being shaped in Indonesia through engagement with the influenza virus and the concept of "pandemic preparedness"?[2]

1 Celia Lowe, *Wild Profusion: Biodiversity Conservation in an Indonesian Archipelago* (Princeton: Princeton University Press, 2006).

2 Pandemic preparedness names new bureaucratic interventions that prepare for medical, social, economic, and political upheaval in the wake of a disease pandemic. They include activities like drug stockpiling, event simulation, vaccination, and risk management, and are notably distinct from conventional public health interventions. See Carlo Caduff, *The Pandemic Perhaps: Dramatic Events in a Public Culture of Danger* (Berkeley: University of California Press, 2015).

While I have written about the term biosecurity and its relationship to emergent practices of global health,[3] what eventually became most interesting to me in the process of studying influenza was the status of the virus itself. Microbes are made significant in given contexts, and the material properties of a virus play an iterative role in shaping the milieu in which they come to exist. In Indonesia, contagious viral agents infected a multitude of living beings—domestic poultry, humans, wild birds, and other creatures—at the same time as Indonesian citizens and scores of organizations were scripted into national and international concerns about pandemic preparedness, biosecurity, and sovereignty. In the sequence of human "index" (i.e.: first identified) case, ensuing illness clusters, and millions of poultry deaths, H5N1 assumed novel forms, evaded detection by health authorities, and introduced a cloudy uncertainty to established biopolitical relations. I called this uncertainty the "viral cloud,"[4] a metaphor playing off of the cloud of genomes that are found in any single instance of influenza infection, and are responsible for frequent mutation and recombination events that transform the virus and its relations.

I wrote about viral clouds in the edition of *Cultural Anthropology* that laid out a program for the new field of multispecies ethnography (of which viral ethnography is a part). Multispecies ethnography, or the study of humans "becoming with" and making worlds alongside of companion species, is also the study of the worlds that these other-than-human creatures make themselves. Many studies beyond the human expand upon the implications of animals themselves having culture.[5] Other multispecies work is interested in how animals have "legibly biographical and political [and I would add historical] lives," and how other organisms intersect with political, economic, and cultural forces.[6]

One distinguishing feature of viral or microbial studies within multispecies ethnography is the lack of visibility: viruses exist invisibly within and around us. While they can be recognized by cell receptors deep inside bodies, they are not accessible to perception, proprioception, or interoception. This makes them different from elephants, bees, or frogs. Viruses can only be inferred through symptoms, or recognized prosthetically

3 Celia Lowe, "Preparing Indonesia: H5N1 Influenza through the Lens of Global Health," *Indonesia* 90 (October 2010): 147–70, and Celia Lowe, "From Biodiversity to Biosecurity," *The Political Ecology Handbook*, ed. Gavin Bridge and James McCarthy (New York and London: Routledge, 2015), 493–501.
4 Celia Lowe, "Viral Clouds: Becoming H5N1 in Indonesia," *Cultural Anthropology* 25, no. 4 (2010): 625–49.
5 John Hartigan, *Aesop's Anthropology: A Multispecies Approach* (Minneapolis: University of Minnesota Press, 2014).
6 Eben Kirksey and Stefan Helmreich, "The Emergence of Multispecies Ethnography," *Cultural Anthropology* 25, no. 4 (2010): 545–76.

through science. In fact, the viral object did not "exist" before the late nineteenth century when Dutch biologist, Martinus Beijerinick, identified the cause of Tobacco Mosaic disease as a "contagious living fluid" that he named a virus.[7] It wasn't until the invention of the electron microscope in the 1930s, though, that it became possible to "see" viruses. In the multispecies connections among humans, animals, and microbes that I focused on in "Viral Clouds," H5N1 became apparent through the experience of infection; identification in laboratories, reference hospitals, and field sites; in political contestations; and through "outbreak narratives"[8] that framed the disease and its importance for particular audiences.

Microbes have taken on renewed significance, not only through the recognition that new and deadly pathogens (like HIV, Ebola, or drug resistant TB) are continuously and rapidly emerging, but also through changed understandings of the role that microbes play in forming and enabling desirable forms of life that we *do* wish to cultivate (think probiotics or cheese molds). Mrill Ingram observes that whereas microbes were once "silent and poorly represented," due to new genetic and information technologies they are now "noisily and prolifically present" in the scientific and popular imagination.[9] Through work on artisanal cheese and astrobiology, Heather Paxson and Stefan Helmreich, similarly, describe what they call "millennial microbes" in which the microbe has become a new popular and scientific model for nature that "unfolds at scales below human perception," and where boundaries are breached between humans, animals, plants, and more. In these arenas, microbes have moved "from peril to promise," no longer only associated with "germs, disease, and contagion."[10]

Viruses have reworked human and other life in newly discovered and subtle ways. Viruses have infected egg and sperm inserting their genes into ours over the course of millennia. As part of the human "metagenome," viruses inhabit every corner of our bodies, vastly outnumbering human and bacterial cells alike, and are arguably responsible for life as we know it. A particular gene found in mammals called a "syncytin"

7 Carl Zimmer, *A Planet of Viruses* (Chicago: University of Chicago Press, 2011).
8 Priscilla Wald, *Contagious: Cultures, Carriers, and the Outbreak Narrative* (Durham: Duke University Press, 2008).
9 Mrill Ingram, "Fermentation, Rot, and Other Human-Microbial Performances," in *Knowing Nature: Conversations at the Intersection of Political Ecology and Science Studies*, ed. Mara J. Goldman, Paul Nadasdy, and Matthew D. Turner (Chicago: University of Chicago Press, 2010): 99–112.
10 Heather Paxson and Stefan Helmreich, "The Perils and Promises of Microbial Abundance: Novel Natures and Model Ecosystems, from Artisanal Cheese to Alien Seas," *Social Studies of Science* 44, no. 2 (2013): 165–93.

codes for a protein made in the placenta that allows a fetus to draw nutrients from its mother. The syncytin is a viral gene, indicating viral infection enabled the evolutionary emergence of mammals.[11] In these stories, the human is really part virus. This is one reason to care about viruses: viruses *are* us.

But while the human is biologically speaking part microbe, viruses arguably play their most expansive social role when they are on a rampage. Along with their lack of visibility, virulence is a key feature for interrogation in viral ethnography. Viruses rearrange social relations most notably when they cause harm. They receive extra attention and motivate social action when they exhibit the capacity to kill or compromise human and animal life. Relations with companion species and human commensals are recently described through love, care, desire, sensuousness, affection, curiosity, pleasure, even sexuality in multispecies work. But multispecies relationships are also about predation, encroaching, poaching, infection, and pathogenicity. This makes viral studies different from recent posthumanist work on more-than-human worlds that attests to the wonder and newly appreciated sentience of animal life.

In collaborative work with my colleague Ursula Münster, we have studied one particular virus on the rampage: the Elephant Endotheliotropic Herpesvirus (EEHV). In "Viral Creep"[12] we examine the capacity of the herpesvirus to mysteriously emerge and then withdraw within three different settings of elephant care: the conventional and contested elephant enclosure of the Woodland Park Zoo in Seattle, USA; the contaminated and violent "wild" spaces of the Wayanad Wildlife Sanctuary in Kerala, South India; and the carefully designed "household-like" spaces of the new Kaeng Krachan Elephant Park at Zoo Zürich in Switzerland. Despite an ancient relationship with elephants, it has only recently begun to kill juvenile elephants in meaningful numbers. EEHV is now an extinction threat for Asian elephants across the free-ranging to captive spectrum. When EEHV turns deadly, it causes violent and sudden hemorrhagic symptoms involving shedding of the endothelium, the inner lining of blood vessels, and the heart. Baby and juvenile elephants are the most susceptible and can die very rapidly, sometimes in less than a day. EEHV also causes miscarriage in pregnant elephants. It is not the initial herpes infection that appears to be the cause of death, but a

11 Carl Zimmer, "Mammals Made by Viruses," *The Loom* 14 (12 February, 2012), available at http://blogs.discovermagazine.com/loom/2012/02/14/mammals-made-by-viruses/.

12 Celia Lowe and Ursula Münster, "Viral Creep: Elephants and Viruses in Times of Extinction," in *Environmental Humanities* 8, no. 1 (2016): 118–142.

reactivation leading to fatal viremia (blood infection). Because reactivation of the virus seems, as with other herpesviruses, to be related to stress causing lowered immunity, the contemporary life histories of elephants and knowing what makes an elephant happy are important to efforts to understand and manage the virus. And elephants don't appear to be happy these days living under regimes of human care, from spaces of zoo confinement to the contaminated and encroached upon "wild."

Our term "viral creep" reflects the capacity of EEHV to suddenly and violently take control of the life chances of another individual or species under conditions of stress and disturbance, and then just as quickly recede into the background for an individual or a population. Our argument attempts to recognize the interconnected lives of keepers, caretakers, viruses, and elephants and the ability of the elephant and its viruses to exist, act, and connect outside the parameters of human observation and understanding. This is not a return to the naïve naturalism of viral allopathy; the virus is not the sole "cause" of elephant deaths from herpes. Nor, do we argue that more naturalism and scientific study are all that is called for. Instead, we develop an interpretation of the herpesvirus that enters into relations within complex and emerging ecologies. Again, developing a metaphor that plays off the properties of the virus, we call the agentive power to change and rearrange relationships by entering into and out of relations the "viral creep."

Whether in the hen house or the elephant barn, the material properties of viral beings suggest metaphors, like viral cloud or viral creep, that draw together and make sense of multispecies worlds. Viruses help us see that the multiple in the term "multispecies" is a host of other hosts with complex trajectories of relationality. Viral ethnography, for me, poses the question of what new ontologies emerge adjacent to microbes, how viruses themselves transform in other-than-microbial contexts, and how diverse numbers of us—human, animal, and microscopic entities—exist in these changed worlds.

Viruses have effects and elicit affect. With H5N1, certain forms of human organization were key to the creation of both an epistemic thing (a potential pandemic) and a material and ontological thing (the seemingly natural H5N1 virus itself which indeed emerged out of industrial agriculture). The same could be said for EEHV where practices of human care meet up with an inscrutable virus that seems to thrive amongst anxious, bored, and depressed elephants. "Care," then means more to me than finding viruses inter-

esting. As Ginn, Biesel, and Barua argue, "flourishing always involves a constitutive violence; flourishing does not imply an 'anything goes' free-for-all, but requires that some collectives prosper at the expense of others."[13] Thus, caring for dangerous viruses means acknowledging both human practices that either encourage or thwart pathogenic viral emergence, and the agency and mystery of viral emergence. This is how I can be both an anthropologist who cares about human futures, and a viral ethnographer who attends to the virus perched as it is on the edges of life and nonlife.

13 Franklin Ginn, Uli Biesel, and Maan Barua, "Flourishing with Awkward Creatures: Togetherness, Vulnerability, Killing," in *Environmental Humanities* 4, no. 1 (2014): 113–23.

Veit Braun

Of Mice and Men: Ecologies of Care in a Climate Chamber

What might it mean to care for something? And what does appropriate care demand from those who care and those who are cared for?

The breeding station's climate chamber, located in the rural southeast of Germany, is a medium-sized room filled with damp air and metal tables. On the tables, there are hundreds of numbered plastic troughs full of wheat seedlings. The first thing Christina usually does when she goes to the climate chamber in the morning is to spray them with water, but today is different.[1] Earlier on, Frank had taken us down to evaluate the seedlings; he picked up a trough, put it on a small table fixed to the wall, and ran his fingers through the rows of seedlings while spreading the leaves with a blue stick. After taking a quick glance at each row, he took out his pocket computer and entered a grade number for each. Shortly afterwards, he left us alone with the remaining three hundred or so troughs to continue the work.

Now, while Christina is appraising the rows and entering the grades for each one into the computer, I am bringing new troughs and disposing of the graded ones. Most of the seedlings are in poor condition: wilted, grey, and limp. Only a few seem strikingly green and healthy. The purpose of the exercise is to evaluate the seedlings' ability to withstand powdery mildew, a common pest in wheat fields. The seedlings grow fast in their hot and humid environment, but the cozy atmosphere of the chamber is only seemingly a means of caring for the little plants; as I soon learn, it is in fact not aimed primarily at the wheat plants, but at the fungus. The conditions in the chamber are meant to enhance its growth and spread. As powdery mildew dwells not only in the climate chamber, but also in the damp wheat fields of a warm spring, the fungus is an important factor that can endanger the ecological and economic success of a wheat variety. The breeding station, however, is situated in a region with a climate rather unsuitable for mildew. What may be a blessing for local farmers is a problem for Frank and Christina: they need to prepare their precious wheat lineages for a cruel world full of pests and parasites, but what if these do not show up? The climate chamber

1 Names have been changed by the author.

Figure 1: Frank appraising a row of seedlings. Photograph by author.

is therefore a way of compensating for this shortcoming. Like a conjectural prosthesis,[2] it offsets a "shortcoming" of the local ecology with the optimized setting of the competing breeder's station. So while spraying the seedlings with water every morning might look like an act of caring for them (albeit a routine one), it also covers them with the spores of the fungus, which have been purposefully mixed into the water. To make absolutely sure the wheat becomes infected, a set of heavily disease-ridden plants, each of a different variety, are brushed over the seedlings in the troughs. This is a way of accounting for the different existing strains of mildew; each specialized on a different set of wheat varieties.

The entire setting is meant to provide the fungus with everything it needs, from suitable hosts to optimal growing conditions. Does this whole apparatus (including Christina and me), then, only care about the mildew? Not quite, as there are also other lifeforms demanding our attention. Christina points to a series of small white spots on a leaf: "Here you can see the reproductive biology of the aphid in action." The female lays her eggs while crawling up the leaves, producing a string of light spots along the leaf axis. Sometimes, these are hard to tell from the kind of spots mildew produces, so they force Christina to inspect the leaves very carefully. Being oblivious or ignorant to the aphid's presence will skew the results of the evaluation. A strange paradox: in order not to take aphids (erroneously) into account, close attention must be paid to them. If aphids are not thusly taken care of (through inspection and deliberate omission), they not only drain the wheat's vitality, but also endanger the success of the project and all the time and effort being invested into it.

2 Bruno Latour, *Politics of Nature: How to Bring the Sciences into Democracy* (Cambridge, MA: Harvard University Press, 2004).

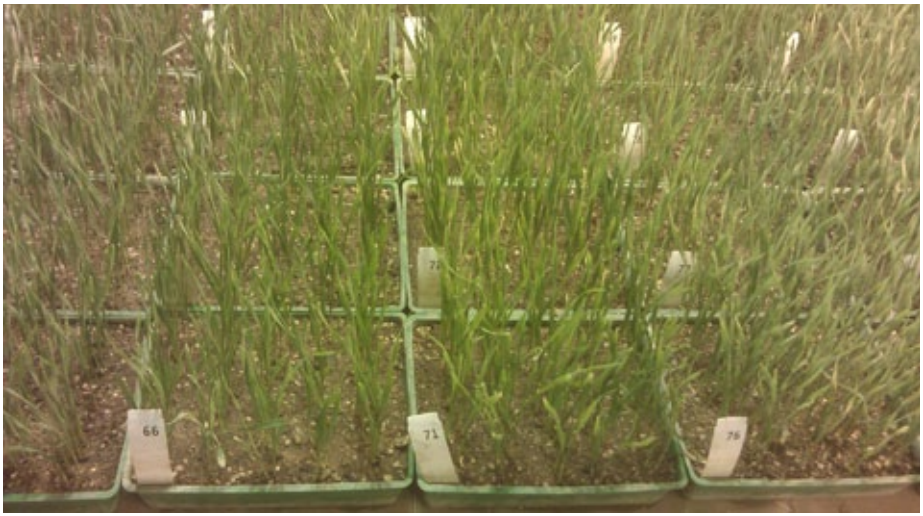

Figure 2:
Seedlings with varying degrees of mildew resistance—from hardly infested (middle row) to severely infested (left and right rows). Photograph by author.

The aphids, however, are not the only ones to demand Christina's attention. Between fetching and juggling troughs, I also do my best to ask stupid questions. "Are these meant to keep the lice in check?" I ask, pointing towards one of several sticky sheets of paper dangling from the ceiling. "No," Christina replies, "those are for fungus gnats. They come with the soil; it's impossible to keep them out." Black-winged fungus gnats are a ubiquitous parasite of potted plants. The strips of fly paper are covered with their dead bodies, but there is no hope of eradicating them from the climate chamber, as Christina tells me. Just like the lice, the fungus gnats are parasites, selfishly drawing from the hard work of Christina, Frank, and all those working at the breeding station, without contributing anything to its success.[3] But unlike the lice, they do not demand more careful attention, for they do not threaten to skew the results. Rather (and like most other gnats), they are more annoying than dangerous. While the lice demand special attention, the best way of taking care of the gnats is not to care about them too much. A few dozen strips of fly paper will suffice.

Less conspicuous is yet another species that I do not get to see that day. And indeed, its members seem almost invisible: only an occasional hole in a bag of seed, a few tiny feces, and the omnipresent plastic boxes with a hole and a handful of poisoned seeds remind us of their presence. Rats and mice are not restricted from the climate cham-

3 Michel Serres, *The Parasite* (Minneapolis: University of Minnesota Press, 2007).

ber, and, much like the fungus gnats, there is no hope of getting rid of them once and for all. Wherever there is food left unattended (or uncared for), they will appear sooner or later. The red seeds in the plastic boxes almost look like sacrifices to a malicious deity that haunts the halls of the station. The intent, however, is not to appease, but to keep in check. But since we almost never see them, it is hard to tell how strongly the mice are affected by the poison traps, and whether they fall for them at all. During my three-week stay at the station, I only see two or three dead mice, but I cannot tell if they died from poisoned seeds.

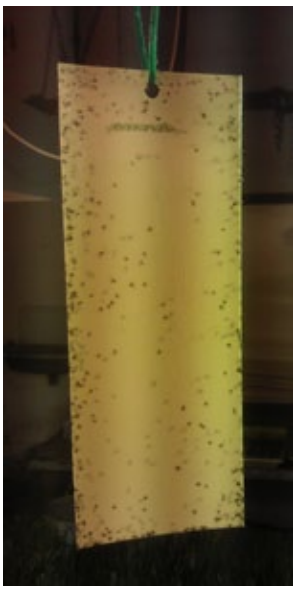

Figure 3: A fly paper covered in fungus gnats. Photograph by author.

Even though they do not take center stage in the climate chamber or Christina's work there, plant lice, fungus gnats, and mice force whoever is working in the climate chamber to take care of them in an appropriate way. "Appropriate" does not necessarily mean charitable or affectionate from the side of the carers, and neither does it imply a beneficial effect on those taken care of. The same is true for the mildew and the seedlings. Of course, the plants get the best conditions imaginable for their growth: Frank and Christina will make sure they grow up fast, so that the results of their infection can be obtained quickly. But when they have served their purpose as guinea pigs, they are transported to the testing fields and thrown into the experimental plots so that they can infect their conspecifics. Likewise, the care for the mildew is full of ambivalence. While everything seems tailored to the fungus's needs, Frank and Christina claim their work is all about breeding wheat, not about breeding fungi. Even though mildew is the entity being addressed within the climate chamber, it is not what Christina and Frank are passionate about or what defines them as breeders. They are striving to produce varieties of wheat—ones that can survive in the field as well as on the market (in Germany, wheat is bred by private enterprises, so rigorous testing is paramount to getting profitable strains released for sale).

As they sacrifice seedlings to powdery mildew, Frank and Christina practice a peculiar kind of care: one that is not affectionate towards and compassionate about a single plant

in a plastic trough, but about a developing variety; an incredibly strange being that, once finished, will exist as part plant, part economic good, and part intellectual property. It would therefore be wrong to mistake Christina's and Frank's calm way of handling the individual seedlings for a lack of attachment or emotion, simply because one would thus be misreading the true object of their passion. Nor is the fact that other beings receive a different kind of "care" necessarily a sign of indifference. Certainly, the death of mice from poisoned seed positions them as victims, but it is also evidence of the time and effort required of the people at the breeding station, to put into design, distribution, and maintenance of the traps. It reminds us that a world where not only wheat, rats, gnats, lice, mice, and fungi, but also breeders, farmers, and consumers, miraculously get along, is doomed to remain the prerogative of fiction and theory. While many academic works focused on the interactions within multispecies communities[4] celebrate the ways in which diverse forms of life come to live together,[5] we should not forget the inherent instances of struggling, conflict, and compromise—as A. N. Whitehead has so drily put it: "Whether or no it be for the general good, life is robbery."[6]

There are so many words for caring and taking care of: to be passionate about, to nourish, to look after, to take into account, to take measures for, to be cautious, to worry about. . . . Likewise, there are so many things and beings that demand our care, leaving us to wonder if we are caring about the right ones. Are we being careful or careless, are we being caring, or do we just not care? Maria Puig de la Bellacasa has pointed to the importance of care for the study of science and technology.[7] All too often, however, it has been assumed that her emphasis on care refers only to acts of warmth, affection, and altruistic interest. Not only do I think that "care" needs to include all of the other forms of close engagement with our others—be they beneficial or harmful—but I also believe that we cannot easily distinguish one from the other. Care, as Puig de la Bellacasa stresses, is speculative: we cannot know in advance whom care will ultimately benefit, or harm.

4 For an introduction to the field of multispecies studies, see Eben Kirksey and Stefan Helmreich, "The Emergence of Multispecies Ethnography," *Cultural Anthropology* 25, no. 4 (2010): 545–76.

5 Donna Haraway, *When Species Meet* (Minneapolis: University of Minnesota Press, 2008); Anna Tsing, *The Mushroom at the End of the World: On the Possibility of Life in Capitalist Ruins* (Princeton: Princeton University Press, 2015).

6 Alfred North Whitehead, *Process and Reality: An Essay in Cosmology* (New York: Free Press, 1978), 105.

7 Maria Puig de la Bellacasa, "Matters of Care in Technoscience: Assembling Neglected Things," *Social Studies of Science* 41, no. 1 (2011): 85–106.

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