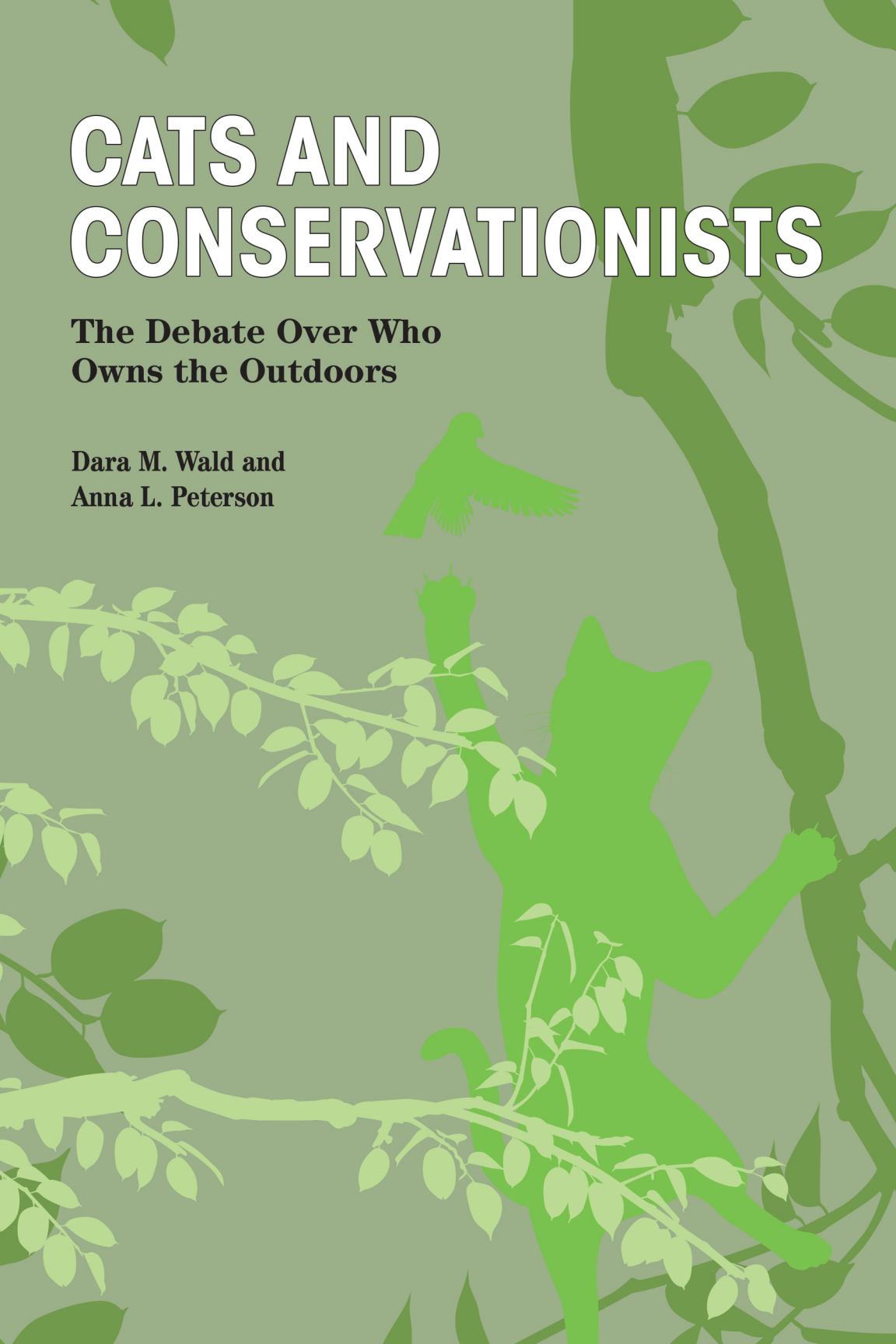
CATS AND CONSERVATIONISTS

The Debate Over Who Owns the Outdoors

Dara M. Wald and
Anna L. Peterson



CATS AND CONSERVATIONISTS

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Acknowledgments

The idea for this book began when Dara was a graduate student in the Department of Wildlife Ecology and Conservation at the University of Florida. Several months into her second year in graduate school, she brought her adviser, Susan Jacobson, an outline of her dissertation proposal to review. Susan, an extremely supportive and patient advisor, handed the document back and informed Dara that she had written a book outline instead of a thesis proposal and she couldn't possibly complete this effort in four years. Fortunately, with Susan's help, Dara was able to whittle the proposal down to several manageable chapters for her dissertation, but the idea for a book stuck. The interviews and research described here would not have been possible without Susan's advice and encouragement.

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CHAPTER 1

Introduction

CAT WARS?

Outdoor cats are ubiquitous throughout the United States. Tens of millions of cats live outdoors. Estimates of the country's "feral" (unowned) cat population range from 25 to 50 million, and almost that many owned cats spend at least part of their days outside.[1] They are literally part of the scenery—a brief flash crossing a street at night, a lone sentinel waiting on a corner, or perhaps a minor annoyance digging in the garden or stalking birds on the lawn.

Although neighborhood cats are everywhere, most people around the world pay them little mind, as felines and humans alike go about their daily routines. However, in the past few decades, sporadic irruptions in the press reveal a wellspring of strong feelings about free-roaming outdoor cats and their presumed ecological damage. A recent book, titled *Cat Wars*, refers to the battles being fought on several fronts over the cats. The subtitle—*The Devastating Consequences of a Cuddly Killer*—reflects the perspective of people who believe that outdoor cats kill large numbers of song birds and other wild animals and pose a potential risk to human health. Conservation organizations, especially those concerned with wild birds, have been at the forefront of the effort to remove (and often kill) outdoor cats, as a way to protect birds and other animals, including endangered species. Their goal is to eliminate, or at least limit, the threat that cats pose to native wildlife.

For many conservation-minded groups, outdoor cats fall into the same category as other invasive animals, including domesticated species such as hogs, goats, and exotic (non-native) wild creatures like Burmese pythons. When invaders threaten both native animals and overall ecological integrity, resolving the problem is critical and often requires a lethal solution.

On the other side of the "cat wars" stand people who deny that cats and pythons fall in the same category. They believe that outdoor cats, owned or unowned, should be able to live healthy lives and that lethal management approaches are inhumane. Many people who share this perspective support trap-neuter-return (TNR) projects, which aim to keep cats healthy and limit population growth. Thousands of volunteers participate in TNR projects, and in addition to trapping and returning the cats, they often provide food to "colonies" where outdoor cats congregate and volunteers can watch out for sick or injured cats, orphan kittens, and others in need of care. TNR has widespread support from local and national humane organizations, including cat-specific groups such as Alley Cat Allies, many programs run through public animal services agencies, and countless small, volunteer-led projects (see Table 1). In all cases, the goal is to allow the cats to live outdoors in peace, with the best welfare possible, while limiting excessive population growth through ongoing spay and neuter of new cats.

The two groups—whose identities are often oversimplified as cat-lovers and bird-lovers—oppose each other in a number of venues, from academic journals to public policy debates to on the ground activism. The discussions often turn heated and angry, as the most recent debates over *Cat Wars* have shown. The passions on both sides highlight the significance of the debates, which are important first because in many areas there are so many cats that they have an inevitable impact on natural as well as human communities—although the form and extent of this impact are subject to debate. The "cat wars" also shed light on larger issues, including the way moral debates are framed, the social role of science, the way humans understand and value nonhuman nature, and, not least, the challenges of making good public policy amidst ethical pluralism.

In this book, we seek to provide an accurate, even-handed discussion of the debate about outdoor cats, with an emphasis on the origins of the debate, the role of framing, risk perceptions and uncertainty, and the ways that attitudes, beliefs, and values between vocal stakeholder groups contribute to conflict and common ground. We also offer practical strategies to reduce conflict and contribute to solutions to the great cat debate.

Table 1. A partial list of organizations conducting TNR in Florida.

Organization	**City**	**Website**
No More Homeless Pets	Gainesville	www.nmhp.net
Operation Catnip	Gainesville	www.operationcatnip.org
Space Coast Feline Network	Cocoa	www.scfntnr.org
Florida Humane		
Feline Friends of Ft. Pierce	Deerfield Beach	
Stray Aid & Rescue	Fort Lauderdale	strayaid.org
Animal Birth Control	Hollywood	
Cats Exclusive	Margate	
Beyond Nine	Margate	
The Clydey Foundation	South Florida	theclydeyfoundation.org
Humanitarians of Florida	Crystal River	www.hofspha.org
Collier Spay Neuter Clinic	Naples	www.collierspayneuter.org
Animal Birth Control	Palm City	www.animalbc.org
First Coast No More Homeless Pets	Jacksonville	www.fcnmhp.org
River City Community Animal Hospital	Jacksonville	www.rccah.org
Wags & Whiskers Pet Rescue	St. Augustine	www.wwpetrescue.org
Jury Duty—The Fixx	Pensacola	www.jury-duty.org
Flagler Cats	Bunnell	www.flaglercats.org
Caloosa Humane Society	Labelle	www.caloosahumanesociety.org
North Florida PAWS	Jennings	www.northfloridapaws.org
Hardee Animal Clinic	Wauchula	www.hardeeanimalclinic.com
Pet Luv	Brooksville	www.petluv.org
Animal Coalition of Tampa	Tampa	www.actampa.org
SPOT	Pinellas Park	www.spotusa.org
SPAY-LEE	Fort Myers	www.spay-lee.com

Table 1 (continued).

Friends of Gypsy Feral Cat Rescue	Tallahassee	www.friendsofgypsy.org
Animal Rescue Coalition	Sarasota	www.animalrescuecoalition.org
The Cat Network	Miami	www.thecatnetwork.org
Helping Homeless Cats	Tavernier	
Care Feline Rescue	Winter Park	carefelinetnr.org
Spay the Strays	St. Cloud	spaythestrays.rescuegroups.org
Alleys to Eden	Boca Raton	www.alleystoeden.org /index.html
PBC Cats	Loxahatchee	www.pbccats.org
Palm Beach Co. Spay Shuttle	Palm Beach	
Paws 2 Help	W. Palm Beach	www.paws2help.com
PAWS	Port Richey	www.pawsfl.com
SPOT—Stop Pet Overpopulation Together	Pinellas Park	www.spotusa.org
Spay & Save	Oveido	www.spaynsave.org
St. Augustine Humane Society Spay Shuttle	St. Augustine	www.staugustinehumane society.org
Concerned Citizens for Animal Welfare	Daytona Beach	www.ccfaw.org

TRAP-NEUTER-RETURN

TNR lies at the heart of the conflict over outdoor cats. The debate over TNR, and thus about outdoor cats, is relatively recent, dating from its growing acceptance in the United States beginning in the early 1990s. The program was pioneered much earlier, however, starting with pilot efforts in England and Denmark as early as the 1960s (Berkeley, 2004). These early programs set the model still followed by most programs today. Individual volunteers set cat-sized humane traps (usually provided by a private animal welfare organization or sometimes a public shelter), baited and placed in areas of known outdoor cat colonies. When cats are caught in the traps, they are brought to a participating shelter, veterinary hospital, or humane

society to be spayed or neutered and, when possible, vaccinated against major feline diseases (especially rabies). The cats are then released, usually in the same location in which they were trapped—thus the "R" stands for "return." However, TNR is sometimes explained as "trap-neuter-release," since in some cases the neutered and vaccinated cats are released in areas other than the ones in which they were trapped. Sometimes this is because the original area would be considered too dangerous for the cats or for local wildlife.

While a few isolated programs started in the US in the 1970s, TNR was really launched in 1990 with the formation of Alley Cat Allies, the first formal network of outdoor cat advocates. At that time, the official position of the Humane Society of the United States (HSUS) and other animal welfare groups was to advocate euthanasia of "feral" cats who could not be adopted. This principle coincided with the common practice at most public shelters, which euthanized all cats labeled feral, usually meaning all adult cats trapped in the area of known feral colonies or even in other areas. Such animals often did not receive individual temperament evaluations that might have placed them in the "adoptable" section, but were automatically considered unadoptable and therefore euthanized.

This blanket policy led to the deaths of many cats who were not truly feral, since many outdoor cat colonies include former pets who are very friendly with humans. In addition, individuals sometimes trap outdoor cats and take them to shelters, saying they are feral, when in fact they may be owned or formerly owned cats. TNR programs often include individual temperament evaluations, so that friendly cats and most kittens can be placed for adoption if there is room. (Since shelters are often full, however, even many cats with the potential of being house pets are returned to outdoor colonies by most TNR programs.)

After about two decades of small and scattered efforts by volunteers all around the country, as well as more systematic advocacy by groups like Alley Cat Allies, TNR has become the favored approach of most animal welfare groups, including the American Society for the Prevention of Cruelty to Animals (ASPCA) and also the HSUS, as well as groups that specialize in helping outdoor cats. At the same time, these organizations recommend that owned cats be kept indoors at all times, on the grounds that this approach keeps both cats and their potential prey safer (ASPCA n.d.; HSUS n.d.).[2] The consensus among animal welfare advocates, in other words, sees outdoor life in general as far from ideal for

domestic cats. In addition to support from large animal welfare organizations, TNR has been accepted by a number of local animal control agencies and city or county governments, some of which have established their own programs or provided support for those already in effect. For these advocates, TNR appears to be a moderate and humane way to manage outdoor cat populations.[3]

Opponents of TNR do not see it as an effective way to control outdoor cat populations or reduce their impact on wild animals. They believe, rather, that it contributes to continued animal welfare problems for both cats and the wildlife they prey on, and that it is supported by cat-loving extremists who lack scientific bases for their position. Opponents of TNR portray any strategy that leaves outdoor cats in place as a disaster for native wildlife and a serious health concern. Leading the charge against TNR are ecological scientists, environmental organizations, and especially bird-lovers, who believe that feral cats (and perhaps all outdoor cats) should be subject to strict, sometimes lethal controls, because of their predation of songbirds and other native wildlife. (Interestingly, as we discuss in chapter 2, the influential animal rights group People for the Ethical Treatment of Animals [PETA] also opposes TNR, though on different grounds.) The American Bird Conservancy and the Audubon Society have been especially active in this debate, joined by a number of wildlife ecologists, ornithologists, and other scientists and professional organizations (e.g., The Wildlife Society [TWS]) as well as environmental activists. They view outdoor cats as invasive, non-native animals who do not belong in wild nature. Their proposed solution is, most often, to trap and adopt the cats that can be rehabilitated (to live as pets) and to euthanize those that are too wild for domestic life.

The state of the debate is well summarized by Wikipedia's entry on TNR, which, in its effort to be evenhanded, presents the hotly debated arguments on both sides.[4] TNR is opposed by wildlife advocacy organizations, PETA, and conservation scientists. TNR advocates claim that the procedure works by stopping the birth of new cats in the colony and letting the colony members live out their lifespan, approximately six years for outdoor cats, with their own group. Opponents claim that TNR is ineffective at reducing colony sizes and only subsidizes a non-native predator responsible for the deaths of more than fourteen billion birds, mammals, reptiles, and amphibians annually in the United States alone (Loss, Will, & Marra, 2013).

As Wikipedia makes clear, the debate over TNR seems to involve mutually exclusive options: either the cats are allowed to live outdoors or they are not. In practical terms, the passion and sometimes anger on both sides make it hard to identify common ground, much less to achieve solutions that will satisfy all parties. Moreover, governments are typically mute and unhelpful in defining or supporting practical policy strategies. However, when we look closely at the debates, we find that the two sides actually share a number of core values. They mostly agree, for example, that the population of cats living on their own should shrink if possible and certainly should not expand. Many people also agree that they do not want the cats (or anyone) to kill large numbers of songbirds, and, further, that the root cause of the problem is human irresponsibility, especially cat owners who abandon their pets and who fail to spay and neuter them. These significant agreements often are lost in the polarizing language of the debate. In addition, conservationists and cat advocates differ on the implications of scientific research on the ecological impact of outdoor cats. They disagree, for example, on whether or not outdoor cats kill large numbers of songbirds and other protected or endangered species, and also on the impact of TNR programs on outdoor cat populations. Without agreement on the data, or even the terms used, it is impossible to expect agreement on policy or management recommendations.

We believe that there are strong arguments on all sides of the issue, and that the best approaches will tailor policies and management strategies to local conditions. We base this conclusion, first, on the fact that outdoor cats do not pose the same threat to wildlife in all places. Particularly in urban and suburban areas that are already ecologically disturbed, and where cats are not killing endangered or threatened species, the worries about an environmental apocalypse may well be unfounded. In such circumstances, where ecologically negative effects are demonstrably minimal and where free-roaming cats can be kept heathy, closely monitored, and carefully managed, TNR programs, in combination with adoption and other efforts (e.g., prevention of abandonment), may help ensure that outdoor cat populations stay healthy and do not increase exponentially. In addition, while it is true that outdoor cats do not live as long as indoor pets, there are grounds for believing that their lives are often satisfying and valuable. Also, many communities do not prohibit owned cats from roaming outdoors, although some do apply leash laws to cats as to dogs.

The environmental, humane, and legal context suggests that in many urban and suburban areas euthanasia is not an appropriate blanket policy for free-roaming or unwanted cats. Moreover, when cat colonies are located close to wild or natural areas, the potential for negative environmental impacts on wildlife suggests that TNR is not an appropriate blanket policy for free-roaming or unowned cats. By searching for middle ground, we hope to identify a combination of approaches that can be crucial tools to avoid, on the one hand, a laissez-faire approach that would leave outdoor cats entirely alone, to reproduce and spread disease without any human intervention, and on the other hand, lethal control in which the cats are summarily eliminated, by being trapped and taken to a shelter to be euthanized or, more rarely, killed on site (usually by poison or shooting).

In addition to exploring the values underlying both sides of the cat debate and identifying new ways to engage stakeholders with strongly held beliefs about cats, this book also will provide an opportunity to highlight the voices of the many millions of people with views that are more nuanced than the ones typically presented in the debate over cats. Their perspectives and concerns are often drowned out by louder interests—represented broadly by TNR proponents and bird advocacy groups. By listening to these "middle voices," we expect to identify new and collaborative approaches to enhancing cat and wildlife safety, and tolerable conditions for residents concerned about cat-related nuisance behaviors. These voices contribute to a narrative that moves away from an emphasis on conflict, stalemate, and blame and toward common ground, shared values, and opportunities for collaboration.

FRAMING THE CAT DEBATE

As we see in other political campaigns, the language we use and the narratives in which we embed the issues all shape the ways we perceive an issue, what we think is at stake, and what we consider a successful resolution. The debate over TNR points to the importance of framing, a concept that social scientists use to analyze public debate about various issues. We return to this issue in more detail in later chapters, but because it is so central to our analysis of the cat debate, we offer a short introduction to the concept here.

Social scientists define framing as the narratives that are used, by individuals and the media, to structure the ways an issue, problem, or event

is received and interpreted. Through framing, people construct narratives that promote a "particular problem definition, causal interpretation, moral evaluation and/or treatment recommendation" (Entman, 1993, p. 52). By presenting, emphasizing, or excluding particular features, frames influence public perceptions of environmental issues (Tankard, 1991). Framing occurs all the time, sometimes explicitly and intentionally, as when media want to present an issue in a particular way or when policymakers seek to sway public opinions. However, subtle, sometimes unintentional framing also takes place when people choose particular words to describe an issue, highlight certain examples, or prioritize some values over others. In addition to traditional sources of media (e.g., news), social media, blog posts, and websites can present issues in the context of particular frames, shaping how people understand an issue and what they think is the right way to address it.

On environmental and scientific questions, including the ecological impact of outdoor cats, popular media are a particularly important source of information. On such issues, most people do not have detailed scientific knowledge or direct personal experience. While cats are the most popular domestic pet, and people regularly report seeing outdoor cats, relatively few people have witnessed cat predation directly or participated in a TNR event. Further, most people lack the resources to become well informed about the risks, uncertainty, and ambiguities involved in the cat debate. Thus, they rely on the media and other trusted (by them) sources of scientific information and expertise. This makes the media a potentially important source of information about the cat debate.

Media coverage may influence the debate about TNR in two specific ways. First, the amount of coverage and attention they provide could influence public perceptions of the importance of this issue. Increased media coverage could increase public awareness about this issue, making it appear relevant and even urgent for people who previously did not pay attention to the problems caused by outdoor cats or the fate of the cats themselves. The more the media focuses on the issue of outdoor cats, the more salient this issue may become.

Particularly in the light of the publication of *Cat Wars* in fall 2016, the issues of outdoor cats and cat management have received widespread attention in magazines, newspapers, on television, social media, and blogs. This media coverage may have highlighted the significance of this issue for people with a range of opinions.

The second way the media influences public debate about outdoor cats is by highlighting specific attributes of cats (for example, their predation of songbirds) or by emphasizing particular perspectives (or frames). When media reports associate cats with ecologically devastating predation, or describe cat owners as "crazy cat ladies," or characterize the debate as a "war," a "fight," or a "battlefield," they may influence the ways all perceive cats, birders, cat advocates, and the debate over TNR or lethal management.

In this case as on other issues, media reports and others use a wide array of frames to tell the "story" at hand. Some common types of frames include the human-interest frame, focused on an individual's story or personal experience; the economic frame, emphasizing the costs or financial benefits of an action or effort; and the morality frame, which highlights ethics, God, and other religious concepts. All of these are relevant to the outdoor cat controversy.

However, by emphasizing the conflict between birders and cat advocates, the media has overwhelmingly employed a conflict frame—focused on tension between opposing viewpoints—and underemphasized examples of TNR and conservation groups collaborating and working together to manage outdoor cats and protect birds. Emphasizing conflict appeals to reporters and other storytellers because it brings drama and suspense, attracting readers and attention. Conflict, novelty, timeliness, and proximity are a few of the characteristics that make news stories newsworthy and help media outlets sell their products. While the conflict frame is appealing, it may contribute to public perceptions that conflict over cat management is intractable. Stories about the conflict may make readers feel helpless and reduce motivation to engage in efforts to manage cats. A conflict frame may contribute to frustration or normative beliefs that encourage groups to continue focusing on past resentments and areas of disagreement. Ultimately, conflict and stories about conflict do nothing to help advocates think about or identify new solutions or techniques that could engender widespread support and humanely reduce the cat population.

OBJECTIVES AND THEMES: SCIENCE, VALUES, AND FUNCTIONAL POLICIES

No single book can discuss all the research, debates, and programs related to outdoor cats, and no single policy proposal could resolve the conflicts.

Our goals here are more modest. First and foremost, we hope to sort out both the values and the data involved in the conflicts over outdoor cats. We aim to sort through the heated rhetoric and confusing use of "facts" in order to gain a clearer sense, first, of what is really happening: how much damage do outdoor cats cause, and under what circumstances? There have been countless studies of outdoor cats' range, welfare, and impact on both ecological and human health, as well as on the results of TNR programs. However, to date there exists no balanced, accessible overview of the research on public perceptions of outdoor cats' ecological and social impacts. Nor is there guidance on what the data do and do not tell us about the actual ecological and social effects of outdoor cats. The science of cat-wildlife-human interactions, falling largely within the discipline of urban ecology, is complex and there are no simple take-home messages. Our scientific discussion pertains to work done in the most common "battlegrounds"—cities and towns in North America—because it is here that the science is insufficient to guide policy development. In stark contrast, on oceanic islands where cats and other domestic and exotic species (rats, dogs, goats, sheep, cows, snakes, and mosquitos) have been introduced, those locations have had well-documented and devastating effects (localized "mass extinctions") on the vulnerable island biodiversity (Medina et al., 2011; Vazquez-Dominguez, Ceballos & Cruzado, 2004). But continental wildlife species that live in human-dominated environments typically are much more tolerant of exotic predators and competitors. Continental extinctions and even local extirpations of native birds by cats are generally at the heart of the debate that plays out in North America. We evaluate the uses of current types of data, which in many ways are as yet unhelpful in moving toward a functional truce in the cat debate, and identify types of studies that are most needed to empower humane and ecologically sound collaborations leading to peaceful dissolution of the "war."

Second, we hope to clarify the values held by different groups, including advocates of both birds and cats and also the general public—the large majority of people who are not committed to either side but who nonetheless have strong feelings about birds, cats, and nature. Here common ground is evident: all parties to this debate (and indeed, most Americans in general) care about animals, including both cats and birds, as well as about nature in general.

Most Americans in general are opposed to the use of lethal management techniques for charismatic, domestic animals who are otherwise

healthy. And as recent furor over the killing of charismatic megafauna illustrates, public outcry extends to wild, captive, and domestic animals (Actman, 2016; Thornton, 2014; Cunha, 2016). The debate is not about a choice between caring or not caring for nature, in other words, but rather it is about how we define nature and what caring demands.

Third, we provide specific ideas about how communities could communicate or collaborate over the management of outdoor cats. We offer an overview of some of the most important areas for potential collaboration. In addition, we provide the best information available about the successes and failures of different engagement approaches. We believe that effective policy—on this or any issue—should rest on accurate readings of available research and also on attention to shared values. While it may not be possible to satisfy all groups, at least not in every situation, nuanced and thoughtful policymaking can result in less conflict and frustration, as well as better welfare for both birds and cats.

In sum, our aim is not to resolve the issues once and for all, but to support informed, sensitive, and productive conversations about outdoor cats. Such conversations are necessary, at every level, from local to national, if we are to develop and implement policies that support diverse interests of cats, birds, wild landscapes, and human communities.

Guiding Themes

In addition to contributing to practical and philosophical discussions about outdoor cats, we hope to use this issue as a lens for thinking about several broad issues. The first of these is the ways that polarized framing and inflammatory language make it hard to have constructive conversations about controversial issues, and even harder to develop programs that address the values and concerns of multiple sides. The discussions about cats' ecological impact underlines the power of language, and especially the ways that polarized language shapes the terms of debate as well as the positions that different people take on it. The passion and sometimes anger on both sides of this issue make it hard to identify common ground, much less to achieve solutions that will satisfy all parties. Even strategies based on sound science and sensitive to diverse human perspectives and values will fail in such a polarized setting. In order for dialogue and ultimately policy to succeed, we need to reshape the debate so that it can proceed in a more constructive way. This entails using different language, one that enables us to recognize the common ground shared by cats, birds, and people. We are

all enmeshed in overlapping, interactive social and ecological networks. We share communities, resources, and many goals. Community building and conversation about cats can help, in the end, build structures for addressing other dimensions of our complex and often conflicted relationship to the natural world.

Second, we explore the social role of scientific research and data. The ecological impact of outdoor cats is just one of many issues on which opposing sides have vastly different understandings both of what "science" says on a particular question and of the social role of science in general. At the heart of the debate is a question that appears simple: do cats kill large numbers of songbirds? It is a fact that cats kill birds, but the question of "large" numbers is not resolved because *large* is a relative term, and the standard for small and large has not been defined. Since we know that outdoor cats kill birds and there are "many"cats outdoors, then we can be sure that "many" birds are being killed by cats. But to determine whether the *many* is actually a relatively *large* number, we need to quit arguing over estimates of numbers of dead birds and ask "so what"? By reframing the question in a different way, we can focus on the things that will tell us whether millions or billions of cat-killed birds is indeed too many. People on both sides believe that they have data on their side, but in fact raw data is far from conclusive.

For example, if I told you, "I just found $1,000, but it is not enough money," many questions remain. Before evaluating my claim that it is "not enough," you will want to know the answers to questions such as these: What items do I need to buy and for what purpose? How much do they cost? How much do I have in savings and what other expenses do I have? What other resources could I put toward my goal? The judgment of "not enough" requires diverse evidence and a logical framework for you to assess its validity. In this case, as in other environmental issues such as climate change, the safety of using and consuming pesticides, and the impact of hydraulic fracturing, there is a great deal of data but even greater disagreements about what the data means, what we should do about it, and how much risk we are comfortable with. This uncertainty, combined with the values that influence our beliefs about these topics, complicate the debate not only about outdoor cats, but also on a number of other ethical and social issues. We will unpack the nature of the uncertainty inherent in simple body count data and identify productive scientific contributions

that can guide people out of the anxious mire created by the contentious "cat war" narrative.

Third, we use the discussion about cats and TNR to explore the ways that we define and value nonhuman nature and the appropriate place of nonhuman animals in it. Advocates on both sides of the cat debate care greatly about nonhuman creatures. What divides them is their understanding of natural processes, the role of humans and other animals in those processes, their support for the use of lethal management strategies, and the relative value of categories such as "wild" and "domestic." The differing definitions of nature in this debate underline the role of values, and especially the underlying moral claims that are rarely made explicit but that nonetheless have a powerful effect on the debate. These claims are based on deep-seated, not always scientifically supported attitudes about animals and nature, and about humans' relations to both. Both cat advocates and bird advocates love nature, love animals, and want to protect creatures they see as threatened. Advocates on all sides need to recognize these shared commitments, since agreement on foundational principles can help strengthen practical collaborations. Bringing values to the fore can help us understand just what is at stake in the great cat debate and will help shape future research and management strategies.

METHODOLOGY AND SOURCES

The ecological and social significance of outdoor cats is a complex issue, involving many perspectives and scholarly disciplines. In order to present as full and balanced a portrait as possible, we draw on a broad range of sources. These include primary published research in social sciences, mainly conducted by Dara Wald, as well as discussions from animal and environmental ethics, mainly written by Anna Peterson. The sections reviewing the ecological evidence of cat predation and TNR models was written with support from Katie Sieving. While Wald and Peterson each have been primarily responsible for specific parts of the book, we have collaborated throughout, and the arguments and conclusions presented here represent our collective position.

Social Scientific Research: Surveys and Interviews

Dara Wald and her research assistants, with support from her adviser, Susan Jacobson, conducted extensive research on stakeholder and public perceptions about TNR over the past several years. Wald began by identifying ten TNR organizations across four counties in North and South Florida. These groups were identified as the most active in Florida with large membership/volunteer lists and ongoing TNR efforts throughout each county. Wald identified active Audubon chapters across the same ten counties with large membership lists. The final four counties were Alachua, Duval, Broward, and Miami-Dade, selected because they included active stakeholder groups (both TNR and Audubon), represented both North and South Florida, and agreed to participate in this research.

Survey questions were developed in consultation with experts in the fields of wildlife ecology and animal welfare. Wald then conducted six focus groups with stakeholders across Florida to develop survey items addressing beliefs about outdoor cats, cat impacts, test survey terminology, and question wording. Finally, survey questions were tested through an in-person survey with undergraduate students at the University of Florida (Wald & Jacobson, 2013, 2014).

Briefly, from April 2012 to September 2012, Wald sent a mail-back questionnaire to randomly selected individuals belonging to two stakeholder groups: (1) members of organizations supporting and participating in TNR efforts (n = 800), (2) members of the Audubon Society (n = 796), and randomly selected residents across the aforementioned four counties.

Mailing addresses for the public were purchased from InfoGroup USA (n = 2,800). Wald followed the four-wave tailored design method. The first mailing was a pre-notice letter and the second mailing included a cover letter, survey, and postage-paid return envelope (Dillman, Smyth, & Christian, 2014). A reminder postcard was sent to nonrespondents two weeks later. The final mailing, sent two to three weeks after the reminder, included another full copy of the survey, envelope, and letter.

The 28-question survey measured experiences with cats, perceptions of the risks and benefits related to cats, general beliefs and attitudes about cats, TNR and lethal management, preference for cat management, general beliefs about cat-related impacts on wildlife and the environment, and environmental worldviews. The survey concluded with three demographic questions about gender, cat ownership, and cat feeding. In the survey, we use the neutral term *outdoor cats* to describe socialized or feral, free-roaming, owned, and unowned animals because this expression was

identified in focus groups as the most neutral and easily understood term that would engender the least amount of bias from survey participants. The survey specifically asked respondents to answer questions about outdoor cats not owned by them. The Institutional Review Board (IRB) for the University of Florida approved the survey methods and study design (UF-IRB-2010-U-0730).[5]

Ecological Science

In addition to our primary social scientific research regarding attitudes toward TNR and related issues, we draw on the vast and sometimes confusing scientific data regarding outdoor cats' predation and other ecological impact. We did not conduct our own primary research on this topic, but rather collected, analyzed, and evaluated some of the research that already exists. We paid particular attention to the setting in which research was done, the protocols employed, the perspectives and goals of the researchers, and the ways the research was presented and promulgated. This approach enabled us to make sense of some of the significant disparities between different accounts, particularly regarding the scope and scale of cat predation, effectiveness of TNR programs, and related issues. It also permitted us to identify and evaluate the different sources used by some of the parties to the "cat wars," and thus understand more deeply the ways that scientific work is framed and used in the public sphere.

Other Primary Sources

We also consider as primary sources the position statements of various organizations involved in the debate, including wildlife and bird groups as well as animal welfare and cat advocates. We have sought information from both national and regional or local organizations in order to identify themes that are broadly represented. We have read these carefully and analyzed them with particular attention to their reading and use of scientific data, and their explicit and implicit value claims.

Additional and Secondary Sources

We also draw on a diverse set of secondary sources. These include works in moral theory, sociology, and policy discussions, as well as a review of online news stories, blog posts, stakeholder websites, and special interest magazines conducted by Lynette McLeod. Using these sources, our exposition will extend beyond an evaluation of primary sources to explore the framing, discourse, and (often unstated) moral claims behind stakeholder perceptions and positions.

BOOK OUTLINE

Chapter 1: Introduction

The first chapter introduces the topic and the larger issues that we will discuss in relation to feral and outdoor cats. We begin with the perception of the conflict as between "cat people" and "bird people," and the polarized, often heated character of the current debate. We then discuss the ways we will pursue an alternative approach to this problem, emphasizing the need for sound science, incorporation of multiple voices, and attention to moral, ecological, and civic concerns. The introduction also lays out the organization of the remainder of the volume and explains our methods and sources.

Chapter 2: The Cat Problem

This chapter provides an overview and initial analysis of the "cat wars." We begin with the local-level discussions about management options, often focused on TNR programs. Even at this smallest scale, all the big issues arise: questions about outdoor cats' ecological impact; the effectiveness of TNR in controlling population growth; public health effects; and the intrinsic value of the cats, birds, and other creatures involved. The same questions arise when we turn to larger scales. Here we discuss public debate in more detail, focusing on different interpretations of the scientific research on cat predation. We look both at the readings that portray cats as major threats to native ecosystems and also at the approaches of scholars who do not believe that outdoor cats cause major ecological damage. We do not aim to resolve the disagreements, but we do show that the research is far from clear-cut, that local and methodological variability is high, and that different stakeholders read the evidence through the lenses of their own commitments.

After presenting the positions and arguments of the major players in the cat debate, we provide a larger scientific, sociological, and philosophical context for the conflict. In particular, we outline the intersections between wild and domestic animals, between animal welfare and ecology, and between native and invasive species. We also look at discussions of public health and community responses to coexisting with feral animals, including an overview of different policies and laws in representative settings. By the end of the chapter, readers will be familiar with the contours of the debate, including key players, issues, and perspectives. They also will

appreciate the considerable ambiguity involved in readings of the scientific data, on both cat predation and TNR programs. This information will provide a context for later chapters that analyze specific aspects of the cat debates in greater detail.

Chapter 3: The Science Problem and Framing

This chapter looks at how the science behind the "cat wars" is framed and how this framing relates to uncertainty about the effects, especially, of feral cats' predation of native wild animals such as songbirds. We look at the results of a wide range of studies conducted in different areas, asking not only who cats kill, but also about the broader effects of cat predation within different ecosystems. A strength of our review lies in weighing the relative impacts of cats versus other important urban-adapting predators on bird mortality, and we highlight various research approaches that are needed to understand fully the direct and indirect relationships between free-roaming cats and their prey. Indeed, the sum of scientific information available for understanding the effects of cats in urban ecosystems is biased—not willfully, but via omission, because proper ecological studies of this complex issue are difficult, expensive, slow, and not very sexy compared to "kitty cams" and billion-bird body counts.

We also look at the research that has been conducted about the effects of TNR programs on cats' ecological impact and explore the conclusions that scientists from both sides of the debate draw from the data arising from cat populations where TNR is applied. In listening to both sides, we find that TNR scientists are quite realistic about the limited potential of TNR for resolving the "cat" problem on its own. Yet, while they seek other alternatives too, TNR remains their preferred management strategy. We hope to bring into focus the specific kinds of conditions where TNR really can and cannot possibly be used to reduce cat numbers and ecosystem impacts. What we hear in listening to "bird" and "cat" scientists are different values, assumptions, and constraints on the work they can do but, collectively, they bring to bear sufficient intellectual and research tools needed to address the science of the problem, if only they could work side by side. We conclude the chapter with some clear and simple takeaway lessons about what current science tells us and where the critical gaps are, about the importance of knowing local conditions before actions are taken, and we give an optimistic view of current and future science needed to guide policy strategies.

Above all, we hope to shine a spotlight on the sources of confusion about outdoor cats' environmental impacts, so that the emphasis on conflict can be set aside in evaluating and planning different management approaches. This confusion and the resultant emotional intransigence hampers policy-making because it eliminates the possibility for open-ended, constructive discussions among stakeholders about shared values and opportunities for collaboration. Often productive discussions must be protracted and explorative to get anywhere when dealing with complex social-ecological issues like this one. Formulation of constructive and effective policies with management procedures that communities can accept requires lengthy discussion and collaborative problem-solving within legal, ethical, and socially sensitive frameworks based on factual truths. This chapter will highlight the characteristics of case studies where solutions were achieved, reveal how different situations may call for different approaches, and identify crucial scientific perspectives that need to be weighed.

Chapter 4: The Values Problem

The cat problem does not only involve debates about scientific research, ecological processes, and the effectiveness of management strategies. Underlying these discussions are worldviews and value commitments that shape how different individuals and groups interpret the science. This chapter examines the values that are in conflict in the debates about outdoor cats. We are especially interested in the sometimes explicit, often implicit moral claims that undergird the positions of both "cat people" and "bird people." We explore this issue in light of several different ethical discussions. One important dimension of the debate about cats is the presumed division between animal ethics, which focuses on the value of individual sentient creatures, and ecocentric environmental ethics, which values wild ecosystems. We explore different approaches to this debate, including efforts to bridge the divide between individual and collective, domesticated and wild, to think more broadly about the value of nonhuman nature and human obligations to it. In order to make sense of these conflicts, we also discuss broader issues in moral theory.

In particular, we ask whether particular ways of thinking about ethics have led to the present polarities. We also investigate alternative models that can open up possibilities for constructive dialogue and consensus. We are particularly interested in the ways pragmatism provides a resource for a pluralistic, empirically grounded, and open-ended approach to moral and

policy debates. With this discussion, we hope not only to shed light on the ethical dimensions of the "cat wars," but also to suggest constructive models for thinking about other instances in which science and nature have become the subjects of heated public debates.

Chapter 5: The Social Problem

This chapter focuses on the positions of different stakeholders. Drawing on our research with focus groups and surveys, we explore a wide range of positions, ranging from those that advocate killing all outdoor cats to those that advocate a completely hands-off approach. We explore assumptions about the factors driving social conflict over cats (e.g., cat-lovers don't know that cats kill birds, bird-lovers hate cats). Our results challenge whether the polarized views commonly expressed in the media really exhaust the debate over cats, and whether the outdoor cat controversy requires people to choose either animal welfare or ecological integrity. We highlight the importance of conducting research with multiple interest groups and avoiding the use of biased terms in surveys that can inadvertently influence survey responses and pressure respondents into providing a "desirable" response to a controversial issue. In this chapter, we discuss the benefits of including neutral questions and terminology in surveys about controversial environmental topics and explore the beliefs, attitudes, and potential areas of agreement we identified.

The final section of this chapter describes several broad areas of agreement among different parties involved in the debate, focused on their concern for nonhuman nature and their desire to protect animals. We suggest that a pragmatic, pluralist approach to cat management will be the most constructive and effective, and we discuss the failure of current messages aimed at reducing the outdoor cat population. To advance efforts to promote collaboration, we also provide concrete examples of why existing messages may backfire and suggest several message types that might be more effective. Finally, we include a number of ways that policymakers, animal advocates, and others who hope to reduce the conflict on this issue might turn the focus to common ground and shared interests, in order to encourage consensus and collaboration among opposing groups.

Chapter 6: Conclusions

In the conclusion, we summarize some of the main themes and arguments we have reiterated throughout the book. One of the most significant is the need for scientists and others to gather and also present data carefully, with attention to ambiguity, local variation, and uncertainty. Another central theme is the need to acknowledge and make explicit the moral commitments of all parties in the conflict and to pursue shared values and goals, rather than clinging to inflexible positions. An overarching premise, running through our discussions of both science and ethics, is the fact that the "cat wars"—like so many conflicts about nonhuman nature, animals, and conservation—is as much a social problem as it is an ecological one. Without addressing the perspectives, practices, and interests of the humans involved, we will never break through the intractable oppositions that characterize so many discussions about cats.

While we do not offer any definitive resolution to the debates regarding outdoor cats, we do suggest that potential solutions should be grounded on sound science and also capable of gaining support from diverse constituencies. One way to pursue such programs is to democratize the process of gathering and interpreting scientific data, through citizen science, public forums, and better communication by scientists and their allies. Consensus must also be based on explicit attention to the values and worldviews that shape not only public interpretation of scientific evidence but also the work of scientists.

CHAPTER 2

The Cat Problem

INTRODUCTION

The "cat wars" are fought on diverse and scattered battlegrounds, from specific neighborhoods to the national stage. In this chapter, we discuss these different sites and also the varied parties to the conflict, primarily humans, cats, and birds. Our aim is to provide an overview of the content, tone, and sources of public debates about outdoor cats' ecological impact and what, if anything, humans ought to do about it. We begin with an analysis of the recent book *Cat Wars* and its reception. This is a helpful starting place both because of the attention the book has received and because it represents a common way of framing the issue. Later in the chapter, we turn to different stages on which the cat debates are held, including community-level discussions about management plans and TNR programs as well as policies, scientific research, and other fora.

While different voices and values appear in various settings, we will see that common themes are repeated throughout. We will also see that even apparently theoretical discussions (e.g., about the value of domesticated cats and native wild birds) carry practical implications. Both reflect and influence popular opinion and policy decisions (by wildlife and animal welfare agencies as well as local governments) regarding the management of cats. By the end of this chapter, we will have set out the terms of the debate, the parties involved and their core perceptions, and the various

management strategies and policies applied. This background sets the stage for our more detailed discussions of the scientific, ethical, and social dimensions of the cat debates, which are the topic of chapters 3, 4, and 5.

"CAT WARS"

The common characterization of the outdoor cat issue as a division between bird- and cat-lovers greatly oversimplifies a complex issue. It also excludes a large number of individuals and groups who do not fall neatly into either camp. However, this shorthand is useful because it points to some key aspects of the public debate about outdoor cats. Most important, it underlines the fact that the conflict is between different perceptions of what is at stake: the lives of birds or of cats. The usual framing of this issue suggests that ultimately, we must choose between the animals who matter and the animals who are disposable.

We believe that the options are not usually as stark as this suggests. However, hard choices are sometimes required and often something must give. In order to minimize the suffering of both birds and cats, and also to satisfy various human communities, it is important to understand the variety of positions and the nuances within them, to listen to middle voices, to seek common ground and shared values, and to pursue policy alternatives that do not permanently favor one side or the other. First, however, we examine the debate itself, in order to understand more fully why outdoor cats have become such a controversial, and revealing, issue.

Ted Williams vs. the "Kat Krazies"

Before we turn to *Cat Wars*, we can set the stage by looking at an earlier controversy, this one regarding an opinion piece that Ted Williams published in the *Orlando Sentinel* in March 2013. Williams was well known as a columnist for *Audubon*, the magazine of the National Audubon Society (NAS). The NAS, founded in 1905, is one of the oldest, largest, and best-known conservation organizations in the United States. Its focus is on conserving birds and their habitats. Although the NAS has not taken an official position on TNR, Audubon members and local groups often appear in controversies regarding outdoor cats. A prime example was Williams's *Sentinel* column and its reception, which provide a microcosm of the larger debates about the ecological impact of outdoor cats. The conflict over

Williams's editorial "pitted cat lovers against bird lovers," as the *Minneapolis Star Tribune* put it. "It also underscored the raw emotions in a long-simmering debate over what should be done with an estimated 30 million to 80 million feral cats nationwide and the unknown percentage of the 80 million pet cats allowed to roam outside, where they can prey on wildlife" (Smith, 2013, para. 2). This passage offers a common view of the conflict as being between two distinct groups (cat-lovers and bird-lovers), and also points to both the relevance of and the confusion over scientific research for both sides. Right from the start, then, the Williams controversy gets to the heart of the great cat debate.

In his editorial, Williams provided a concise summary of the arguments against TNR (and outdoor cats in general) made by bird advocates and conservationists. He gave a tripartite summary of the case against TNR: it is "dangerous, cruel, and illegal." It is dangerous because "feral cats are reservoirs for disease." This claim hints at public health concerns, but Williams give these relatively little attention—and while there is some evidence that outdoor cats can pass diseases onto marine wildlife, there is more limited evidence that they pose a threat to humans or other pets. His second point is that TNR is cruel, because feral cats suffer from disease and injury.

This is the animal welfare argument, which again he does not discuss in detail, likely because it is hard to document the quality of life of individual outdoor cats and because the only alternative usually seems to be killing the cats. The welfare argument, even in Williams's brief mention, however, does raise larger questions about if and when humans ought to decide that a particular animal's life is worth living, an issue to which we return later in this chapter.

Williams's third point is by far the most frequently described by him and most other opponents of TNR: it is illegal, because "feral cats kill migratory birds and endangered species" (Williams, 2013). Williams's point is that by enabling outdoor cat populations to remain in place, TNR encourages cat predation of songbirds and other native species. There is not, in fact, a law prohibiting cats from killing native wild animals. However, there are two federal wildlife laws that could broadly apply to bird deaths caused by cats. The first is the Migratory Bird Treaty Act (MBTA) that makes it unlawful to "take, capture, kill, attempt to take, capture, or kill . . . any migratory bird, . . . nest, or egg of any such bird" (Migratory Bird Treaty Act of 1918, para. 1). In response to challenges to the MBTA, courts

have found that the intent of the law was to "make the unlawful killing of even one bird an offense" (Hatley & Ankersen, 2003, p. 19)—regardless of the cause of the death: intentional or unintentional, direct or indirect. Moreover, the MBTA applies to individuals, associations, corporations, or partnerships. If a court chooses to apply strict liability under the MBTA, and if the death of a migratory bird could be tied to a cat owner, colony manager, or TNR organization who understood that cats kill birds, it is feasible that these individuals or organizations could be convicted of violating this law. The second federal law that protects birds is the Endangered Species Act (ESA). This act prohibits any person from "taking" or "harming" threatened or endangered wild species. Thus, if endangered or threatened birds were killed or wounded by cats, the owner, colony manager, or TNR organization responsible for allowing the cat outdoors could find itself charged with violating the ESA.

What is particularly important about Williams's article, and the point that got the most attention, is that in a later section of this column, Williams proposes that bird advocates poison cats using Tylenol (acetaminophen; see Allen, 2003, for details about the effect of acetaminophen on cats). Williams's proposals, and the heated response from outdoor cat advocates, underline the conflict between different views and valuations of nonhuman animals and nature, which we believe are at the heart of the cat debates. On one side, "bird advocates" value all wild, native birds and view cats as invasive or "pest" animals who pose a profound threat to wild nature. On the other side are people who value every single cat, owned and unowned alike, and view most birds as plentiful and as natural sources of food for cats, who are predators with a legitimate place in nature. Williams's suggestion that cats should be killed to protect birds further illustrates the divergent perceptions of what is at stake: the lives of birds or of cats.

The claim that outdoor cats are invasive species or pests that devastate native wildlife lies at the heart of the case against TNR made by Williams and most other conservationists. It is a familiar argument to readers of Williams's *Audubon* column, and his 2013 piece in the *Orlando Sentinel* did not mark a shift in his basic position. However, the op-ed ignited a much larger controversy than his previous anti-TNR statements, for several reasons. One was the fact that the *Sentinel* is a general newspaper, without the self-selecting audience of *Audubon* magazine, whose readers are predisposed to favor birds. Another important factor was a changing political

landscape, in which "community cat" advocates have increasing clout, and TNR is accepted by a large number of animal welfare professionals and local governments. Finally, in the *Sentinel* piece, Williams moved from vague calls for "lethal control" or "euthanasia," to a more specific proposal to use Tylenol (acetaminophen) as a "cat-specific" poison.[1]

For all these reasons, Williams's editorial created an immediate and heated stir. On their website, Becky Robinson, president and cofounder of Alley Cat Allies wrote that "Killing a cat is a criminal offense in all 50 states and the District of Columbia. Ted Williams used a major media platform to call for cats to be illegally and torturously killed. Williams and others calling for the mass killing of cats have moved beyond distorting science and statistics" (Alley Cat Allies, 2013, para. 4). Robinson called for "the immediate dismissal of Ted Williams, editor-at-large for *Audubon* magazine, in response to his op-ed in the March 14 *Orlando Sentinel* recommending that feral cats should be poisoned with Tylenol" (2013, para. 1). Robinson used the incident to make a more sweeping critique of TNR opponents: "The extremist policy promoted by Audubon Society representatives like results would only result in the mass killing of tens of millions of cats every year" (2013, para. 5).

Eventually, Audubon's president, David Yarnold, felt compelled to dissociate the organization from Williams's piece. Yarnold asserted that "We absolutely reject the notion of individuals poisoning cats or treating cats in any inhumane way" and "suspended" Williams's column while reviewing the case (Yarnold, 2013, para. 2). Williams was soon reinstated (Haugney, 2013), but even his short suspension prompted his defenders to come out swinging. The advocacy group 10,0000 Birds claimed that the Audubon Society had "cav[ed] to the cat crazies" (10,000 birds, n.d.). Even the *Huffington Post* got into the tussle, with an article titled "Feral Kat Krazies Eat *Audubon* Star Reporter Ted Williams" (Petersen, 2013). A frequent question after Williams was suspended was "Has anyone seen Audubon's spine?" The question—like some of Williams's own arguments—suggests that cat advocates are so well-funded, well-organized, and influential that environmentalists and bird advocates are afraid of the political (and financial) consequences of defying them.[2]

There does not seem to be much room for conversation, let alone compromise, between groups who describe each other as "crazy" and "perverted." One of our goals in this book is to explore the possibilities, buried beneath the anger and drama, of greater mutual understanding and, if

not perfect agreement, at least some common values and collaboration on specific goals and policies. Williams's editorial and the responses to it underline both the reasons that the debate is so difficult and, more surprisingly, a potential path toward achieving common ground. This possibility lies, we believe, in analyzing the assumptions, perspectives, and concerns of the different sides in order to understand what is at stake for each. The conflict over Williams's article points to several themes that we use to make better sense of the cat debate, including the bigger controversies surrounding the publication of *Cat Wars* in 2016. These themes concern language, science, values, and practical responses.

LANGUAGE AND FRAMING: US AGAINST THEM

Our first theme concerns the framing of the problem—particularly the dualistic and often virulent language used by both sides. This is widespread in contemporary moral and political debates. Issues are commonly framed as a choice between two clear-cut and mutually exclusive positions, such as, for example, killing cats or killing birds. This approach can result both from the intensity of commitment of those already involved in the debate and their desire to claim the moral high ground by making it appear that the other side has no legitimacy. Articles in popular media also can contribute to the perception that there are two heated sides of a debate by highlighting conflict in the ways they frame the issue and by selecting quotes that use incendiary rhetoric. This black-and-white approach makes constructive conversation and mutual understanding appear impossible from the very beginning.

The debate about outdoor cats cannot and should not be reduced to one right side and one wrong side. There are, in fact, a variety of "in-between" positions as well as ambivalence, even in the stances of those on one side or the other. However, as the conflict between Williams's supporters and his critics reveals, ambivalence and ambiguity rarely are reflected in public debates. Instead, both sides characterize the other as "extremist" (if not "crazy" and "perverted") and insist on an all-or-nothing solution. In the case of Williams, TNR advocates demanded that *Audubon* fire him, while TNR opponents were equally single-minded. The prominent birding blog 10,000 Birds, for example, condemned *Audubon* for distancing itself from Williams and concluded: "Ted Williams is one of the few reasons I read

Audubon Magazine. I see very little reason to continue doing so if his writing no longer appears there" (10,000 birds, n.d., para. 6).

The response of another TNR opponent, *Outdoor News* columnist Rob Drieslein, was even more revealing. When *Audubon* reinstated Williams's Incite column, Drieslein wrote: "Would I have rather had a full mea culpa from *Audubon*? Sure, but bottom line, Ted Williams is writing for *Audubon* again. I can't imagine the feral cat people are happy about this, and that's good enough for me" (Drieslein, 2013, para. 5). For Drieslein, making "the feral cat people" unhappy is a goal in and of itself. Such confrontational approaches reflect the dominant views of both sides, neither of which see the other as having any moral or scientific legitimacy. The problem is that this sort of "winner takes all" attitude inhibits constructive conversation and mutual understanding.

In addition to the fact that polarized language makes constructive conversations difficult, "us vs. them" approaches do not begin to capture the diversity of views within both environmental and animal welfare groups. First, not all animal advocates support TNR. Notably, TNR is opposed by the largest animal rights group in the United States: People for the Ethical Treatment of Animals (PETA). PETA's leaders object to TNR not on ecological grounds, but because they believe that outdoor cats live short and difficult lives. The organization explains its position thus:

> Sadly, our experience with trap, spay-and-neuter, and release programs and "managed" feral cat colonies has led us to question whether or not these programs are truly in the cats' best interests. We receive countless reports of incidents in which cats—"managed" or not—suffer and die horrible deaths because they must fend for themselves outdoors. Having witnessed firsthand the gruesome things that can happen to feral cats, we cannot in good conscience advocate trapping and releasing as a humane way to deal with overpopulation. (PETA n.d.-a, para. 1)

When pressed for an alternative solution, however, PETA is less than clear. The group's website explains that "PETA's position has never been that all feral cats should be euthanized" (PETA n.d.-a, para. 4). This obviously leaves much room for interpretation, and the lack of clarity may reflect an effort to avoid alienating potential supporters. PETA's approach may thus represent an effort to have it both ways, or put more positively, a "big tent" model that can encompass both bird-lovers and cat-lovers.

In practice, PETA has appeared to support some TNR programs when conditions are right and the colonies are carefully monitored, while other times it advocates humane killing of trapped feral cats.

Similarly, within environmental groups and among environmentalists, the support for TNR is not as unequivocal or universal as oversimplified "cat vs. bird" descriptions imply. For example, a 2010 article in *Ecology and Society* offered a divided approach, presenting a model suggesting TNR for smaller colonies and "trap-euthanize" for colonies of over 50 cats (Loyd & DeVore, 2010).

A practical example of communities trying to find the middle ground is the collaboration between cat and bird advocates in Canada, where Nature Canada's new program, Keep Cats Safe and Save Bird Lives, involves diverse stakeholders in "one unified campaign that aims to educate the public and transform assumptions about how to approach cat and bird protection" (Cartwright & Fast, 2016, para. 8). According to Barbara Cartwright, the CEO of Canadian Federation of Humane Societies, and Eleanor Fast, the executive director of Nature Canada, this effort made sense because collaboration and kindness are "the Canadian way."

To date, the program has nearly 30 local, regional, and national partners, including everything from humane societies, bird observatories, and wildlife rescues to kids' nature organizations, cat population task forces, and homeless cat charities. According to Sarah Cooper, the coalition's project manager, while the bird and wildlife groups were easier to recruit, building trust with the cat care community was more difficult—and absolutely crucial to getting them on board with the coalition.[3]

Among the top barriers to the cats and birds coalition is the classic "us vs. them" approach and the highly polarized rhetoric in the United States. Extreme views on both the bird and cat sides of things create difficulty in reaching a point of collaboration, particularly when mixed with the intense feelings that often accompany these views. Initially, bringing people together and attempting to have discussion proved very challenging due to these heightened emotions. However, focusing on their common ground rather than their differences eventually moved individuals and organizations along on the path of collaboration. "By the end," Cooper explained, "we agreed not to argue about whether cats kill birds, or how many they kill, and we agreed that cats are not the villains in this drama, but rather it is cat owners' behavior that we seek to change."[4] Cooper emphasized that one sector cannot make decisions for another, which is why opening

lines of communication is so vital. Despite initial and ongoing barriers to the coalition, it has grown significantly and made great strides in bringing nature/bird groups together with the cat-care community.

Such nuanced approaches, taking into account local, ecological, and social conditions and the welfare of birds, cats, and humans, represent uncommon bright spots in an often tendentious conversation. Polarized accounts miss these possible compromises, just as they miss the common ground shared by both sides—including both a deep love for animals and a conviction that science supports their positions.

SCIENCE: UNCERTAINTY AND POLITICS

Our next major theme concerns the public role of science, and especially the problem of uncertainty—by which we mean the fact that sometimes scientific evidence on an important issue does not lead to any unambiguous, clear-cut management strategy. This problem emerges in many issues, but it is especially notable and relevant in the controversies about outdoor cats and what to do with them.

The 2010 *Ecology and Society* article mentioned previously justifies its moderate approach on the basis of scientific research that demonstrates different impacts of feral cat predation and different results of TNR programs, depending on the ecological and social circumstances. The role of science leads to the next theme that organizes our arguments here: significant disagreements about what scientific research concludes, first and foremost about the numbers of songbirds and other native wild animals killed by outdoor cats, but also about the total numbers of outdoor cats in the United States, the effectiveness of TNR programs, and several other questions. One reason the two sides are unable (or unwilling) to find common ground is because they diverge so sharply on their interpretation of scientific evidence. Bird and cat advocates have very different understandings of what science tells us about cats' impact on birds, cat-related bird mortality, how other predator or threats influence birds, outdoor cat health, TNR effectiveness, and more. From this perspective, the issue is not so much whether cats should kill large numbers of birds—almost everyone agrees that they should not—but rather about whether or not they actually cause population-level destruction. In sum, different parties disagree about the accuracy of scientific research and the appropriateness of particular studies and methods.

TNR opponents consistently portray outdoor cats as a significant threat to native wildlife, especially songbirds, but also to some endangered species of mammals and reptiles. This perspective also shapes an influential article that appeared in 2013, a few years before *Cat Wars* was published, by some of the same authors. Writing in the journal *Natural Communications*, Scott R. Loss, Tom Will, and Peter P. Marra offered what they described as an exhaustive review of the scientific research on cat predation. Their conclusions summarized the ecological case against outdoor cats: "We estimate that free-ranging domestic cats kill 1.4–3.7 billion birds and 6.9–20.7 billion mammals annually. Un-owned cats, as opposed to owned pets, cause the majority of this mortality. Our findings suggest that free-ranging cats cause substantially greater wildlife mortality than previously thought and are likely the single greatest source of anthropogenic mortality for U.S. birds and mammals" (Loss, Will, & Marra, 2013, p. 1). If cats are indeed the greatest single human-caused threat to native wildlife, surpassing even habitat destruction and climate change, then it is not unreasonable to call for more energetic efforts to reduce wildlife mortality by reducing outdoor cat populations.

Outdoor cat advocates argue that this is precisely what TNR programs achieve, but the authors of this article—and most critics of TNR—assert that in fact scientific evidence has not confirmed that such programs substantially reduce cat populations. The article by Loss, Will, and Marra asserts that "Projects to manage free-ranging cats, such as Trap-Neuter-Return (TNR) colonies, are potentially harmful to wildlife populations, but are implemented across the United States without widespread public knowledge, consideration of scientific evidence or the environmental review processes typically required for actions with harmful environmental consequences" (2013, p. 1). The authors of the review paper do not explicitly advocate lethal control of outdoor cats, but rather assert that "Structured decisions about actions to reduce wildlife mortality require a quantitative evidence base" (Loss et al., 2013, p. 5). They suggest that the evidence shows clearly that cats are a serious threat to native wildlife and that TNR is not adequate to address this threat; it is left to the reader to conclude that lethal control is, at least in some areas, the logical solution.

Opponents of TNR characterize supporters as unconcerned with scientific evidence. The title of a 2010 article in the *Wildlife Society News*—"Feral Cat Advocates Ignore Science, Tout TNR Again!"—is typical (Wildlife Society, 2010). TNR opponents often believe that the science

is unequivocally on their side, and that if the public and policymakers only understood the evidence more fully, they would reject the arguments of outdoor cat advocates. They view the spread of TNR programs as the result of poorly informed decisions, shaped by emotion rather than facts. For example, an article in *The Wildlife Professional* proclaimed the decision to enact a TNR program in Athens, Georgia "a resounding defeat for science—and for wildlife conservation" (Dauphiné & Cooper, 2011, p. 50). As the article explained, "This victory for TNR—and many others like it across the nation—marks in part the failure of scientists effectively to convey the threat that outdoor cats pose to native wildlife and habitats. If we're going to win the battle to save wildlife from cats, then we'll need to be smarter about how we communicate the science" (p. 50).[5] At issue is not what the facts say, in this view, but rather how well people understand the facts.

On the other side, TNR advocates do not express lack of concern for birds and other wildlife, but rather they insist that the ecological damage done by cats is overstated by the opponents of TNR. They frequently point to other threats to native wildlife. As a participant in the *Huffington Post* conversation asserted, "The problem IS humans—songbirds are being wiped out by habitat destruction and pollution (all that junk you spray on your lawn?) NOT cats . . ." (Underlining the sorry state of the debate, he adds "For the record, I am not a nutty little old lady. I'm a very ordinary married 42 year old man.")[6]

The opposing parties in the debate agree on two fundamental issues: the value of animals' lives and the relevance of science for public policy and moral decision making. However, they diverge on what the science says, both about cat predation and about the impact of TNR. This divergence is often the result of selective and value-based readings of the science and the consequence of a lack of consistency, rigor, and clarity in both the research and the way it is communicated to the public. The two issues are inexorably linked. When scientists and conservation groups engage the public about the risks associated with outdoor cats, as we will see later in our discussion about *Cat Wars*, they often do so using a science deficit approach, which is based on several problematic assumptions: (1) controversies about science are rooted in ignorance caused by a deficit of scientific knowledge; (2) the role of communication is to rectify this deficit by educating the public, thereby reducing the controversy; and (3) the best way to educate the public is through a one-way transmission of science from expert to public.

Adherence to this model, which is both simplistic and wrong (Scheufele, 2013), is a failure on the part of TNR opponents, and scientists in general, to recognize that there are divergent values and ethical beliefs that are driving this conflict and influencing stakeholders' interpretation of scientific evidence. Both critics and advocates have preconceived opinions, emotions, biases, and strongly held beliefs that influence their interpretation, selection, and acceptance of knowledge about cats, cat predation, and cat management. If you believe outdoor cats are valuable, you are more likely to agree that cats are beneficial to people than to agree that cats kill mice or birds; conversely, if you believe native birds are valuable and outdoor cats are invasive pests, you are more likely to agree that cats kill birds and mice than to agree that cats provide a benefit to people (Wald, Jacobson, & Levy, 2013). R. S. Nickerson (1998) called this phenomenon confirmation bias: where we reject ideas, data, evidence, and persuasive messages that challenge or contravene our strongly held beliefs. Scientific evidence alone will not change beliefs about cat management, because these beliefs are influenced by values, identities, and ideologies and because "Beliefs change slowly and are extraordinarily persistent in the face of contrary evidence" (Slovic, Fischhoff, & Lichtenstein, 1979, p. 37). We will return to this topic in chapter 5 and present several alternative approaches to the science deficit model. For now, we turn to the role of values and their role in social conflict over outdoor cats.

VALUE: CATS, BIRDS, AND NATURE

Our third major theme is the meaning and value of nature itself. As we have noted already, the conflicts about outdoor cats and TNR reflect the troubled relationship between environmentalism and animal welfare or rights. This relationship, in the end, is about how these groups define nature and what part of nature they value. The debate over outdoor cats illustrates the dramatic differences in the values and goals inherent in the animal rights movement and conservationists. The tensions between the two groups are summed up in the *Wildlife Society* Standing Position:

> Animal welfare philosophy, such as that endorsed by TWS, focuses on quality of life for a population or species of animals. It does not preclude management of animal populations or use of

> animals for food or other cultural uses, as long as the loss of life is justified, sustainable, and achieved through humane methods. In contrast, the animal rights view holds that it is wrong to take a sentient animal's life or cause it to suffer for virtually any reason, even to conserve species or ecosystems or to promote human welfare and safety. . . . The Wildlife Society is concerned that the foundational elements of the animals rights philosophy contradict the principles that have led to the recognized successes of wildlife management in North America. (*Wildlife Society*, n.d., para 3)

The Wildlife Society policy concludes with a rejection of the animal rights philosophy as "incompatible with science-based conservation and management of wildlife" (*Wildlife Society*, n.d., para 6).

Commenting on a 2007 case in which a bird advocate shot and killed outdoor cats who were threatening native birds, environmental philosopher J. Baird Callicott put the choice even more brutally: "From an animal-welfare perspective, confining cats and shooting the cat . . . is wrong. . . . [but] from an environmental-ethics perspective it's right, because a whole species is at stake" (Callicott, as quoted in Barcott, 2007, para. 23). Framed in this manner, the options are stark: kill individual sentient animals (who look just like many people's beloved pets) or risk the extinction of species and the destruction of ecosystems. Cats die, or birds die.

As in the use of science, the either-or framing obscures some fundamental agreements. Both sides value nonhuman animals and nature in general. However, they define and evaluate nature differently. For environmentalists, as Callicott summarizes, what matters is ecological wholes such as species, populations, or ecosystems. Endangered or rare species or ecosystems are more valuable than those that are more common, and native wild species are more valuable than domestic, non-native or feral ones. From this perspective, outdoor cats are domesticated and invasive species, thus less intrinsically valuable than wild native ones. One of the respondents to the *Huffington Post* article summarized the conservationist position against outdoor cats well: "Only wild, native species of animals or biological diversity create and preserve ecosystems, the very birds and animals the domestic cat is obliterating. This cat, unlike the bobcat, is not biological diversity, is not a strand in the web of all life."[7]

On the other side, animal welfare advocates, including many supporters of TNR, value individual sentient creatures regardless of whether they

are domestic or wild or whether their species is endangered or not. Many TNR advocates highlight the value of cats as individual animals and assert that their lives matter as much as those of birds. This argument depends on their related claims that outdoor cats do not in fact kill large numbers of birds, or at least not threatened or endangered birds, and that TNR programs effectively reduce feral cat populations.

We would argue that any approach that is exclusive and reductionistic will fail. More broadly, efforts to find workable, humane, scientifically grounded solutions to this (or any) problem will fall short as long as the people involved harden their positions into polarized opposites, use dismissive or insulting language, and insist that only one side has any legitimate claims.

However, if we take the time to understand and respect the perspectives, interests, and values of other people who care about the issues that are important to us, it is often possible to identify shared goals and values and possible areas of compromise. Open-ended and respectful discussions about what both groups value, and why, and how these values relate to other ways of seeing and appreciating nature could reduce conflicts between animal welfare and environmental advocates, the two major constituencies concerned with the well-being of nonhuman nature. Such conversations would have to address fundamental, philosophical, and ethical questions: What is the "nature" that we value? How do human relationships and preferences enter (sometimes unacknowledged) into evaluations of natural value? How do apparently neutral categories such as wild and domestic, exotic and native, create hierarchies of value? These questions are central not only to environmental and animal ethics, but also to emerging discussions in other scientific fields and in the intersections between the natural sciences, social sciences, and the humanities. They also help us place the moral issues raised in the natural sciences into discussions about social ethics: What is the character of a good community? How do human relationships with nonhuman nature affect this community?

Outdoor cats reveal the extent to which human values and preferences enter into ethical discussions and conflicts about nonhuman nature. The debates about feral cats show, in particular, that different individuals and social groups value animals and nature in diverse ways. There is no single "nature," no single kind of human relationship to it, and no single way to value it. Further, it is impossible (or at least inaccurate) to divide animals into mutually exclusive groups, such as wild and domestic or exotic and

native. Research in animal behavior does not distinguish sharply between the cognitive or social capacities of different kinds of animals (wild or domestic, exotic and native, free-roaming or captive) (see, for example, Bekoff & Jamieson, 1995; Houck & Drickamer, 1996). While different species have different capacities, domestication in and of itself does not create "stupidity" or other wholesale reductions in cognitive, social, and emotional complexity.

This means that the lines drawn between domesticated and wild species are largely the result of historical and cultural context rather than intrinsic qualities of the creatures involved. Occupying the blurry and shifting line between categories, "feral" animals reveal the permanent ambiguity of the labels that humans apply to the rest of the animal world. This ambiguity is lost in most discussions of outdoor cats, which presume that the cats' ecological and social roles are simple, easy to define, and unchanging. The positions of TNR opponents and advocates alike both overestimate the accuracy of our knowledge and underestimate the influence of human interventions and perceptions. On the one hand, "bird advocates" who deny the natural value of domestic species presume a radical separation between human society and nature, unintentionally reinforcing a dualism that most environmental thinkers reject, at least in principle. On the other hand, TNR advocates who insist on the right of cats to live anywhere define the cats as sentient individuals without always granting the same respect to the animals they hunt and kill. Constructive conversations between the opposing groups, based on efforts to understand their underlying moral and scientific claims, can help us make sense not only of the outdoor cat debate, but also larger questions concerning the human relationship to nonhuman animals and natural landscapes.

SOLUTIONS: LETHAL CONTROL AND THE DEBATE ABOUT EUTHANASIA

The split between cat and bird advocates involves a fundamental disagreement about the legitimacy of killing as an acceptable way to reduce the population of "excess" cats. This is the fourth and final theme we use to organize our discussion about concerns related to policy and management strategies for outdoor cats. Simply put, one side believes that there is no adequate justification for direct killing of unowned, outdoor cats, while the

other side believes that, at least in some cases, such killing is both justified and necessary. The debate about lethal control of outdoor cats is related to larger debates about killing in both animal welfare and environmental advocacy. In particular, it is relevant to the heated contemporary discussion about the use of euthanasia to reduce overpopulation in shelters.

On one side of this discussion is the fairly new, and rapidly growing, no-kill movement, which opposes shelter killing of healthy or treatable animals. This movement has expanded greatly in recent years and has launched harsh criticisms of animal welfare "traditionalists" who assert that large-scale euthanasia remains necessary to reduce overpopulation.[8] Like the conflicts surrounding outdoor cats, the debate about shelter euthanasia is characterized by dualistic language that conceals certain fundamental agreements. Both sides value the lives of individual dogs and cats and seek an end to the problem of homelessness.

However, no-kill activists believe that alternative solutions, such as more aggressive adoption marketing, widely accessible and low-cost spay/neuter programs, and active TNR programs, can reduce numbers adequately without the need to kill healthy or treatable animals in shelters.

On the other side, mainstream animal welfare advocates (including many who work or volunteer at public open-admission shelters) insist that such efforts, while necessary, are still not sufficient, and that, sadly, euthanasia remains necessary because there are not enough homes for them all. People on this side of the conflict often accuse the no-kill advocates of leaving the "dirty work" of necessary euthanasia of excess animals to them. They refer to no-kill shelters as "limited admission," because they have the "luxury" of turning away animals that are not easily adoptable. While both sides proclaim their sadness at shelter euthanasia, and both hope for a day in which no healthy or treatable animals are killed, they differ radically on the possibilities of the present situation.

The often heated discussions about shelter euthanasia are relevant to the outdoor cat debate in (at least) two ways. First, TNR programs are a centerpiece of the no-kill agenda, since in many areas stray cats labeled *feral* constitute a significant proportion of the animals euthanized, and all cats deemed feral are automatically killed in most areas without TNR programs. The expansion of TNR programs is one of the main reasons that shelter killings have declined significantly in the past decade or two. Without TNR, there would be more cats living outdoors and at risk of being taken to the shelter (due to higher population growth rates), and

there also would be no legal alternative to euthanasia of nonadoptable ("feral") cats. TNR makes it possible for large numbers of stray cats to stay out of the shelter system (or pass through it only briefly, for spay/neuter and vaccinations).

In addition to the practical consequences of TNR for shelter euthanasia rates, the TNR debate raises a philosophical question at the heart of debates about shelter euthanasia more broadly: whether or not humans are justified in killing animals who lack a clear or acceptable place in human society. Cats labeled *feral* make this point especially powerfully, because they are often not "tamable," and it is not easy, or even possible, to incorporate them into human households. (It is important to note that many unowned cats, including some who live in feral colonies, are sociable and friendly to humans, but a proportion are in fact truly unsocialized and cannot adapt to life as family pets.) The question, in a nutshell, is whether or not we are willing to allow animals who are neither truly wild nor truly domesticated to live on the margins of human society in relative peace. This is both a practical dilemma and also a profound philosophical question about the human place in nature and our relations with other species.

The feral cat debate also is related to an issue that divides many environmentalists: should they support lethal control of "invasive" animal species, including not only domestic and feral animals, but also non-native and sometimes native wild species? In a 2005 column in *Audubon* titled "Public Menace," Williams wrote: "There's only one way to protect yourself, your family, and native ecosystems from the most dangerous and destructive wild animal in North America, an animal responsible for maiming and killing hundreds of humans each year, an animal that wipes out whole forests along with most of their fauna. You have to kill it with guns" (p. 1). The animal he means is the white-tailed deer, which Williams describes as a serious threat to forest ecosystems, especially in the northeastern United States. As in the TNR debate, again Williams criticizes people who stand in the way of sound ecological management practices: "People referring to themselves as 'deer advocates' repeatedly call for contraception, which, despite the extravagant claims of the Humane Society of the United States, doesn't work. They call for trap-and-transfer, despite the facts that deer don't live through it and that no other community wants more deer" (Williams, 2005, p. 1). Again, we see common themes from the debate about outdoor cats, including polarizing language that demeans opponents and also claims to have legitimate scientific research clearly on one's side.

CAT WARS AND ITS RECEPTION

Having looked at the issues and parties involved in the controversy regarding Williams's *Orlando Sentinel* piece, we now turn to a much more prominent, and still unfolding, issue: the publication of the book *Cat Wars* and the varied responses to it. We organize our analysis of the book by using the guiding themes outlined above: framing, science, values, and solutions.

Language and Framing

The framing used in *Cat Wars* exemplifies the polarized terminology and moral perspective that is often used when discussing the debate about outdoor cats (Marra & Santella, 2015). For example, in chapter 3, the authors describe in detail the history of Roger Tory Peterson, the author and illustrator of the *Peterson Field Guides* series. According to the authors, the field guide genre "would democratize birding . . . and set the stage for the ecological awakening in the mid-twentieth century buttressed by the likes of Aldo Leopold and Rachel Carson" (p. 31). In this same chapter, they include a quote from a biography about Peterson's first experience with a northern flicker: "When I reached out to touch its back it exploded with life—a stunning sight, flying away with its golden underwings and the red crescent on its nape—I can see it now—the way it transformed from what we thought was death into intense life" (Carlson, 2007, as quoted in Marra & Santell, 2015, p. 30). This passage is indicative of the positive frames and effusive language used to describe birds and birding throughout this book.

In contrast, the authors select Grumpy Cat, the Internet feline star (named Tardar Sauce) who is famous for her perpetually frowning face and silly poses, as an example of Americans' "love and fascination for cats" (p. 32). Whereas birds are described as "remarkable voyagers" with "dazzling plumages" and "ethereal, musical songs," clips of Grumpy cat are described as evidence that YouTube is "the greatest place to waste time online" (p. 31). Unlike the worshipful language used to describe the northern flicker, the authors describe Tardar Sauce's mouth as "pulled forever downward, giving the animal its eponymous dour expression, which is actually believed to be the result of feline dwarfism and an underbite" (p. 31). This disdain for the appearance and, later in the same chapter, the actions of Tardar Sauce is indicative of the perspective the authors use for cats throughout the book—as is the final paragraph of the entire book:

"loose on the landscape, they [cats] are—by no fault of their own—unrelenting killers and cauldrons of disease" (p. 178).

The language used in *Cat Wars* describes cats as dirty, ugly, diseased, and lazy. In contrast, birds are beautiful, almost magical creatures. Such descriptions only intensify the gap between cat-lovers and bird-lovers, a division that became evident in both scholarly and popular responses to the book. The response to this book illustrates the problem with using incendiary language to discuss controversial topics; in particular, when conservationists and bird advocates use language that is insulting or alienating, they can hamper efforts to reduce the number of unowned, outdoor cats.

A quick scan of Amazon reveals that many of the positive reviews of *Cat Wars* are written by people who identify with conservation or environmental movements or people who were already concerned about outdoor cats. For these individuals, this book was "An honest and unflinching assessment of the damage outdoor cats are doing to our native wildlife, as well as the suffering these cats endure. A must-read for anyone who cares about animals, nature, and the future of our planet" (Wildlife Rehabilitator, 5 stars, September 14, 2016). Another reader praised the book's "provocative narrative, data driven, authoritative authors. The negative reviews are from folks who don't like the conclusions. It touches nerves. The authors did not write this for the purpose of making a fan club. They are asking hard questions, arguing, building a case. It's what good science does, and good scientists do" (Gregory K. Eaton, 5 stars, October 27, 2016). The appeal to "good science" underlines the significance of science in reinforcing strongly held values, in this case as well as others.

Most of the Amazon reviews of *Cat Wars* are positive (76% of the 156 reviews as of November 2019 gave it 5 stars), but those who reject the book are vocal. Many of these critics identify with animal welfare and TNR groups, who would be vital collaborators in any large-scale effort to manage outdoor cats (Peterson, Hartis, Rodriguez, Green, & Lepczyk, 2012). One reader calls it "Absolute garbage, written by biased cat hater Peter Marra, whose colleague was none other than fellow cat hater Nico Dauphiné, who was arrested and convicted for trying to kill cats. Marra has been trying to scapegoat cats for ages with his flawed and disproven studies" (Jen's Book Den, 1 star, August 31, 2016). Another reviewer dismissed Marra and his colleague as "Disgusting closed-minded authors with a villainous agenda . . . obviously cat haters—this is ridiculous. I hope no one wastes their money on this trash" (AlleyCat Advocat,

1 star, August 31, 2016). These responses reflect the "cat-lover" perspective, in which there is no value—scientific or moral—in the views of those who oppose TNR. Additional critiques came from scholars in animal ethics. For example, biologist Marc Bekoff, cofounder (with Jane Goodall) of Ethologists for the Ethical Treatment of Animals (EETA) criticized Princeton University Press for publishing the book and called it a "sensationalist, one-sided" piece lacking "scientific rigor" (Bekoff, 2016).

Just as the authors of *Cat Wars* reflect on and may contribute to the polarized state of the debate about outside cats, so do the reviews of the book. On Amazon, reader reviews of *Cat Wars* are mostly at one extreme or the other. Most readers consider the book either excellent (five stars) or terrible (one star), and many employ absolutist language: "The negative reviews are all from people who don't like the conclusions," on the one hand, and "He ignores evidence, so the book is worthless," on the other. Virtually no one gives it two or three stars, suggesting that few readers are in the middle or on the fence. The reader responses to the book suggest that people who are interested in this issue have, for the most part, already made up their minds about it and, further, have decided that the "other side" lacks legitimacy. The wide gap in responses to the book highlights two important points.

First, as we mentioned earlier, the interpretation, selection, and acceptance of knowledge is influenced by preconceived opinions, political, economic, cultural, and other social factors, emotions, and biases. Readers who agreed with the opinions and beliefs expressed by the authors of *Cat Wars* described the book as a "must-read," while readers who disagreed with the authors' beliefs or who were angered by the tone of the book or its conclusions described *Cat Wars* as "worthless" and "one-sided." Second, the reviews address an issue that has been hotly debated by scientists: the role of science in society and scientists as advocates for policy. Just as journalists are expected to conduct an open-minded search for truth and present their findings objectively, scientists are expected to accurately, honestly interpret scientific data and its meaning (Hafez, 2002; Zanna, Olson, & Herman, 1987). But scientists also are expected to engage the public in conversations about complex and controversial science. The question becomes: how can scientists contribute to public debate without compromising public perceptions of scientific credibility?

The responses to *Cat Wars* suggest that the authors' approach, and especially their negative language and disparaging comments about cats and cat caretakers, creates an impression of bias. It is clear that many readers,

some of whom already support TNR, believe that the book's language reflects a lack of scientific objectivity. The debate over *Cat Wars* thus raises larger questions about the public role of science. In polarized cases, such as the conflicts over TNR and outdoor cats, people on all sides of the issue, and many who are uncommitted, suspect that the scientific data is being manipulated by partisans seeking to bolster preexisting positions. Partisans on both sides of the cat debate insist that the evidence supports their position and can in fact cite studies that show that cats pose a dangerous threat to wildlife or that cats have only a negligible ecological impact. These claims cannot both be correct—at least not as blanket statements. Clearly, something is missing in the presentation and analysis of the scientific data that both sides employ in this debate.

Many people look to scientists and other experts for help deciding on the best approach to controversial issues. However, people approach the "evidence" from different positions. They are more likely to listen to sources they perceive as credible. The credibility of scientific sources can influence public attitudes toward scientific evidence (Gauchat, O'Brien, & Mirosa, 2017; Hovland & Weiss, 1951–52; Hunt & Wald, 2018; Pornpitakpan, 2004). When scientists use language that disparages other positions or suggests a policy position, they risk losing credibility and diminishing their ability to communicate with the public about important issues.

The authors of *Cat Wars* consistently delegitimize TNR supporters and cat-lovers, presenting them as the "wrong" side of the debate. On the other hand, they describe bird-watchers and conservation advocates as credible sources, whose voices should be valued and respected. The authors describe bird-watching as a valuable pastime and even a form of high culture, akin to classical music and appreciated by people with "good taste." They suggest that prominent scientists, such as Stanley Temple, Roger Tory Peterson, Aldo Leopold, and Rachel Carson, are part of their larger community. They lionize "pro-bird" scientists such as Temple, about whom they note that "few living scientists have such a resume" (p. 17). They present Peterson, the ornithologist and artist, as a larger-than-life character, with superior taste and impeccable training, who ushered birding into a new democratic era. The cumulative effect is to present bird advocates and conservationists as a unified force with the best research, values, and culture on their side.

The book casts cat-lovers in a very different light. While *Cat Wars* presents ornithologists and conservationists as heroic, rigorous, and sophisticated, they portray TNR advocates as well-meaning but misguided and driven by

sentiment rather than science. In contrast to the extensive discussions of bird advocates, *Cat Wars* mentions only one prominent cat-lover, Mark Twain, who is cited in a brief sentence describing the way Twain's cat, Lazy, would sit on his shoulders while he walked around town (p. 34). The book does include several quotes by cat colony caretakers, and the authors acknowledge that such advocates "give generously of their time (and often of their pocketbooks) to care for creatures that many of us have chosen to ignore or, at worse, have intentionally and callously cast aside" (p. 48). However, the section on the cat caretakers is followed by a telling passage: "Unfortunately, in their advocacy for outside cats, colony caretakers . . . fail to take into consideration the health of the overall ecosystem and the rights of wild animals" (p. 48). Cat advocates are thus praised, but in the same breath delegitimized as well-intentioned but wrong. Most important, according to *Cat Wars*, cat advocates fail to understand the real dangers posed by outdoor cats, either from naivete or from willful misreading of the evidence.

Both sides in the "cat wars" claim not only moral but also scientific high ground. Because they see the issue in dualistic terms, both groups dismiss the other side as completely illegitimate. This polarized discourse about outdoor cats is not only destructive but also based on a hierarchical, overly simplistic model of culture and values, in which scientific and ecological pursuits, such as birding, are clearly superior to animal welfare concerns, including TNR. We will return to this theme later in this chapter.

By describing cat-lovers as simpleminded individuals who fail to grasp the science, on the one hand, and bird-lovers as sophisticated consumers of fine art and democratic values, on the other, the authors of *Cat Wars* separate themselves, and conservation advocates in general, from ordinary people. "Othering" the public, as Jessica Pelland (2017) terms it, alienates the very people who could support scientists' efforts to control outdoor cats: cat caretakers and TNR advocates. "If you begin a conversation with, 'You're an idiot,'" as climate scientist Katharine Hayhoe explains, "that's the end of the conversation, too" (Schwartz, 2016, para. 10).

There is one positive portrayal of a TNR advocate in *Cat Wars*. The authors profile cat caretaker Sarah Smith, whom they portray as a compassionate animal-lover who did not plan to get involved with cats or TNR but did so in order to reduce their suffering. Smith is a sympathetic character, but she emerges after more than 100 pages of mostly negative and polarizing discussion. The negative reviews on Amazon suggest that the authors likely turned most cat-lovers and TNR supporters away within the first few chapters.

Unfortunately for both birds and cats, when scientists "other" TNR advocates, they reduce the chances for public policy based on sound science and collaborations that could result in innovative strategies for managing outdoor cats. As the authors of *Cat Wars* suggest, "cats are not easy to detect and count," in part because "people who maintain colonies of cats do not report their whereabouts and do not keep records of their numbers" (p. 67). Greater trust between the different groups involved would make possible cooperative efforts to document and monitor cat colonies. This is one of the many reasons why collaborations between ecologists and TNR advocates are necessary. If they could find common ground, TNR advocates and cat caretakers would be invaluable partners in a citizen science project aimed at documenting and reducing the number of unowned, outdoor cats. TNR advocates are a unique source of local knowledge and information, and they are already taking actions to manage cats. If bird-lovers treated them as respected partners in a common effort, TNR advocates would likely be more willing to help ecologists develop better strategies to reduce the negative impact of outdoor cats.

The authors of *Cat Wars* explain their lack of attention to cat advocates by asserting that "it is not easy to find cat caretakers who will speak about their endeavors or introduce outsiders to their colonies" (p. 3). However, our experience has been the opposite. Cat caretakers were very willing to participate in focus groups and surveys, and welcomed our team into their organizations, even allowing us to access their membership lists, sending our survey to their members. We did this by building partnerships with respected TNR advocates and scientists, promising not to reveal the whereabouts of any colonies we learned about. In addition, after our research was complete, we shared our results with this community by sending out letters, developing in-person and online presentations, and publishing our results and survey in an online, open access journal. This suggests that when addressed with respect and understanding, cat caretakers could be valuable partners in the effort to manage outdoor cats.

CONCLUSIONS

The conflict between cat-lovers and bird-lovers—or more accurately, advocates and opponents of TNR—may appear nearly impossible to resolve. If we read accounts like *Cat Wars* (and its reviews), we gain a picture of a fight

to the death between two sides who find nothing of value in the position of the other. The reality, we believe, is much less stark. We wanted to begin this book with an accurate picture of the current state of the debate, but in what follows we argue that the science is more uncertain, the values less mutually exclusive, and the policy prospects less impossible than the "cat wars" model suggests. Our cautious optimism on this point stems from our conviction that sound science, ethical analysis, communication, and public policy all support—and require—substantial middle ground. In the chapters that follow, we explore the prospects for that middle ground by developing some of the themes introduced in this chapter.

CHAPTER 3

The Science Problem and Framing

INTRODUCTION

Science is not conducted or interpreted in a vacuum. Values, experiences, perceptions, and group identity influence how people read scientific research and how they think it should apply to policy and other practical projects. Differences in values, beliefs, and perceptions of risk fuel the heated debate over the science of predation by outdoor cats and the efficacy of TNR. In order to understand this debate and to develop balanced, scientifically grounded, and pragmatic solutions, we need to understand how different people decide which research is relevant, how they interpret it, and why their conclusions about how to manage cats so often diverge.

Our approach to these debates relies in part on an understanding of framing, a method of selecting and highlighting information that helps to define an issue, identify its cause, ascribe value to it, and develop potential solutions (Entman, 1993). Framing is inherently subjective, since it emerges from the experiences and perspectives of different stakeholders. Thus, the same information can be presented and received in multiple ways (Scheufele, 2013). This subjectivity has led some scholars to conclude that "Facts have no intrinsic meaning. They take on their meaning by being embedded in a frame or story line that organizes them and gives them coherence, selecting certain ones to emphasize while ignoring others" (Gamson, 1989, p. 157).

While we do not advocate a completely relativist approach to scientific research, we do believe that frames are socially constructed, meaning they are created and debated through social interactions and norms. Thus, it is important to identify and understand diverse perspectives and to engage differences, in both the conduct and the interpretation of scientific research. Frames shape not only the conclusions people draw from research, but also the terms they choose to use and the information they highlight. This is true not just for policymakers and ordinary citizens, but also for scientists, who are not immune to the influence of social factors such as bias, culture, and worldviews. Scientists have distinctive perspectives and value commitments that influence their methodological choices and their choices about what to emphasize or exclude. Most individuals interested in the issue of outdoor cats have strongly held beliefs and attitudes about this topic, supported by a set of ethical and normative values (Wald et al., 2013; Wald & Jacobson, 2014). The frames used to describe outdoor cats interact with prior beliefs and values and group identification, influencing how messages are received and accepted.

These frames involve a number of tensions that also arise in other environmental, social, and scientific debates. In this chapter, we explore some of the most important of these: tensions between risk and benefits; questions about the uncertainty of research; debates about scientific objectivity; and conflicts between animal welfare and ecological preservation. These tensions arise in various aspects of the conflict over outdoor cats. Here, we focus on two of the most important issues: the scientific evidence documenting the ecological impact of cat predation and the effectiveness of cat management methods such as TNR. In order to understand how frames might shape these debates, we identify several prominent frames used in the presentation of scientific evidence of cat-related impacts and the effectiveness of management methods, providing specific examples of how these frames are employed in the peer-reviewed literature and online information targeting the general public. The conclusion of this chapter focuses on several possible reasons for divergent framing and identifies new opportunities for engagement tools that reduce conflict and promote collaboration.

WHAT IS FRAMING?

Just as photographers choose how to frame or crop a photo, writers must choose how to focus a story. Where and how photographers decide to

focus their lens changes the story that the picture tells, just as the frame a writer chooses will influence the direction and tone of a story. Frames are narrative tools that can help a writer focus on specific events. A frame provides context and imbues an object or situation with intrinsic value (positive or negative) (Mattis, 2014), helping readers make sense of news, ideas, and facts (Gamson, 1989).

Group identification can shape individuals' selection of frames, and often members of the same group use the same frames (Powell, 2007). The issues associated with outdoor cats often are explored by referring to the domains of environmental and public health, but the frames used vary by group. For example, conservation advocates often assert that cats pose risks to wildlife, through predation, competition, and the transmission of disease, and to human health and safety, as carriers of rabies and toxoplasmosis, a disease transmitted by parasites commonly found in cat feces. Animal welfare advocates also refer frequently to public and environmental health concerns, but they frame them very differently, minimizing the risks and describing cats as beneficial to people and society.

The use of different frames stems, in part, from the divergent values described in chapter 4, but it is also related to the ambiguity of cats as species that cross multiple categories and differences in how different stakeholders in this debate conceptualize risk. The framing of cats is complicated and often ambiguous because cats straddle several of the traditional categories normally used to define animals: wild/domestic, native/non-native, feral/tame, and aggressive/friendly. While we use the term *outdoor cats* for most of this book, a variety of alternative adjectives are used to describe these animals: wild, feral, free-roaming, community, homeless, abandoned, stray, dumpster, yard, colony, nuisance, invasive, non-native, domestic, and more. The ambiguity inherent in the categorization and naming of cats makes this subject particularly susceptible to framing effects. Framing effects—divergent interpretations of issues or objects that audiences use as shortcuts to make judgements—are particularly important for issues that are ambiguous (Scheufele, 2013; Tversky & Kahneman, 1981). Ambiguity creates room for framing, which serves as a shortcut for individuals to make decisions about objects, situations, and policy (Scheufele, 2013). Indeed, previous research has suggested evidence of framing effects in the cat debate (Wald et al., 2013; Wald, Lohr, Lepczyk, Jacobson, & Cox, 2016). Using focus groups (described in detail in chapter 5), a review of existing literature, and an audit of the content from a sample of online cat

management communications (see McLeod, Driver, Bengsen, & Hine, 2017) we identified at least five important frames: risks and benefits, uncertainty, scientific objectivity, animal welfare, and owner responsibility. While these do not exhaust the debate about outdoor cats, they offer a good way to understand the ways different readings of scientific research shape the current conflict.

RISKS AND BENEFITS

Conservation websites and peer-reviewed articles regularly categorize cats as non-native animals. This categorization may contribute to the use of negative frames about the risks cats pose to ecological systems, native species, and people. Risk frames can influence public perceptions of risk to wildlife and exposure to wildlife (Muter, Gore, & Riley, 2009). Risk frames are driven by both emotional (or affective) and cognitive responses to perceived hazards (Muter et al., 2009). Cognitive risk perceptions refer to an individual's awareness of the magnitude of the risk while affective risk is an emotional response or feeling to a perceived threat or risk event (Renn, 1998; Sjöberg, 1998). Affect can be positive (like) or negative (dislike); it can influence perceptions, judgment, and decision making (Zajonc, 1980).

Ecologists and members of the conservation community use risk as their primary frame in discussing outdoor cats. Scientists, including ecologists, often define risk as the probability that exposure to a hazard will lead to negative consequences (Susskind & Field, 1996). Thus, risk is something that is quantifiable, estimable, and verifiable (Andersen, Adams, Hope, & Powell, 2004). In most cases, scientists rely on logic, quantitative data, and experimental approaches to estimate risks. A recent article exploring the predation of free-ranging cats on wild vertebrate species illustrates the ways ecologists use the risk frame to estimate risks and highlight the negative ecological effects of outdoor cats (Loss & Marra, 2017).[1] The review begins by describing domestic cats as a harmful species that pose substantial risks to environmental health. Evidence of the risks that cats pose to environmental health is provided by focusing on quantitative estimates of wildlife predation, competition, fear-related population suppression, and the spread of disease. Risk assessments, especially for invasive species, focus on estimating exposure to the invasive animal, the susceptibility of the populations exposed, and the probability and severity of the public health

and environmental consequences of an exposure to the invasive animal. The authors suggest that cats have contributed to widespread extinctions of birds and mammals, and they cite evidence from review papers (Bellard, Genovesi, & Jeschke, 2016; Doherty, Glen, Nimmo, Ritchie, & Dickman, 2016; Medina et al., 2011; Nogales et al., 2004) and quantitative measures of cat predation (e.g., per capita wildlife kill rates) in combination with cat density estimates (how many cats indoor and outdoor probably exist in this area) (Blancher, 2013; Loss et al., 2013).

Once the risk has been assessed, the next step is to identify management strategies that will reduce or eliminate exposure to the risk. As such, the review by Loss and Marra (2017) ends with a section called "management and policy implications," suggesting that the potential impacts of cats warrant the development and application of "effective and humane approaches to reducing and eradicating mainland cat populations" (p. 508). Like other organisms classified as invasive species, cat control appears to be a normative goal among conservationists (Evans, Wilkie, & Burkhardt, 2008).

In addition to emphasizing the risks that cats pose to birds and other wildlife, many conservationists argue that supporting cats outdoors—through TNR initiatives and feeding colonies in particular—poses dangers to public and environmental health. They criticize the science of TNR studies for not highlighting these risks and supporting policies that reduce them. Conservationists generally assert that there is only "limited evidence that such [TNR] programs consistently reduce populations" (Loss & Marra, 2017, p. 503). However, recognizing that TNR has public support, the same authors have also called "for a substantial increase in rigor for monitoring and regulatory oversight" of TNR programs (p. 508).

While many of the conservation articles we analyzed focused primarily on a risk frame, we did find a few examples where ecologists addressed the benefits associated with outdoor cats and suggested that the impacts of outdoor cats on wildlife are distracting from more important causes of wildlife loss. One prominent example was an article by Fitzgerald (1990) who suggested that even if cats did kill wildlife, they likely kill "species whose populations few people will be concerned to see increased" (p. 168). Fitzgerald went on to describe several benefits associated with cats, including the predation of nuisance species like house sparrows, Norway rats, and ship rats, controlling the spread of diseases and reducing the predation of rats on birds.

Some evidence suggests that conservationists recognize the role of values, risk perceptions, and attitudes in social conflict over the

management of wildlife (Estévez, Anderson, Pizarro, & Burgman, 2015). While some in the scientific community recognize that decisions about how to manage the risks associated with invasive species "cannot be made on the basis of science alone" (National Research Council, 1996, as cited in Andersen et al., 2004, p. 790), many continue to prioritize risk assessments that ignore important social aspects of wildlife management decisions. Most risk assessments fail to measure public perceptions of species' risks and benefits, to identify key stakeholders, or to consider the drivers of public support for specific species or control measures (Pyšek & Richardson, 2010). Instead, many conservationists call for collaboration among prominent stakeholders in the cat debate with few specific examples about how to engage this community or encourage trust-building among publics who deeply disagree.

In recent years, the need to engage the public is being mentioned more frequently by scholars in the conservation community. Loss and Marra (2018) argue that conservationists should "engage early with TNR advocates, and include conservation professionals in policy discussions" (p. 265). Yet the social, experiential, and cognitive factors (e.g., values, attitudes) that could contribute to successful public engagement campaigns to reduce outdoor cats are still rarely considered (McLeod et al., 2017). These gaps are particularly important in the cat debate because cat caretakers and advocates are the ones with direct access to the cats and local knowledge of community resources, problems, and priorities. "If quantitative risk assessment is produced without the consideration of and input from those most affected by decisions" it is unlikely to acknowledge the "tangible evidence and embodied knowledge of the people" engaging with cats directly (Mattis, 2014, p. 76). Moreover, poor engagement efforts can result in public rejection of the message and the proposed management approach (Schenk, Hunziker, & Kienast, 2007). Communication will be more effective if messages and outreach campaigns are delivered by trusted sources (Wald, Nelson, Gawel, & Rogers, 2019). We address these issues further in subsequent sections.

In contrast to the conservationist emphasis on risk, the animal welfare supporters regularly emphasize benefits and minimize the negative ecological impact of cat predation. Articles published by prominent members of the animal welfare community often start by reminding readers that cats are loved by humans, both by owners and by caretakers who manage feral cats. Some scholars also argue that cats, even unowned or unsocialized

animals, have valuable relationships with human caretakers that enhance the quality of life of both the humans and the cats involved (Centonze & Levy, 2002). As noted by Patronek (1998), "The subject of free-roaming cats would be incomplete without mention of the potential impact of caring for these cats on the lives of their caretakers" (p. 223). Individuals in the animal community normalize TNR by describing it as something of a "common activity," though only 12% of the households included in a random phone survey of the general public reported feeding cats (Levy, Woods, Turick, & Etheridge, 2003).

Animal advocates may also begin with quantitative evidence that downplays risks to birds from cat predation and risks to public health. A good example of how cat-related risk is described can be seen in the discussion of rabies exposure: "The last case [of rabies] in a human associated with cats in the United States was reported in 1975" (Levy & Crawford, 2004, p. 1355). The authors continue by suggesting that the risks of rabies exposure from wildlife was much higher than cats, citing statistics from the CDC: "more than 90% of cases of rabies occur in wildlife." Other scholars have suggested that the "overall risk of infection [plague] in cats, and subsequent transmission to human beings" are minimal because there is not a direct pathway for exposure: "the sequence of events necessary to transmit disease is rarely encountered in managed cat colonies" (Patronek, 1998, p. 219). Patronek continues by suggesting that concerns about diseases spreading from cats to people "should not be a matter of undue concern" (p. 219). Animal welfare advocacy websites, such as those run by Alley Cat Rescue, Alley Cat Allies, and Pet Guardian Angels of America, frame the risks about cats and disease as "misconceptions" or "myths." According to Alley Cat Rescue, "anti-cat campaigns use the fear of zoonotic diseases to push for the eradication of feral cats"; instead of framing cats as a risk, animal welfare groups focus on "the important role cats have played in preventing the spread of disease," describing cats as predators that control mice and rats and suppress the spread of bubonic plague (Alley Cat Rescue, n.d., para. 3).

In the veterinary and animal welfare communities, discussion of the potential risks associated with cats often includes efforts to minimize them or to delegitimize them by criticizing the science of cat predation. "Pronouncements about cat-related wildlife mortality," according to Patronek (1998), have been "determined on the basis of tenuous assumptions, or on speculation" (p. 222). Some TNR advocates minimize the

risks by challenging the scientific evidence provided by the conservation community. For example, in 2013, Peter Wolf, a Cat Initiatives Analyst at Best Friends Animal Society and author of *Vox Felina*, an animal welfare and advocacy blog, wrote an open letter to the American Veterinary Medical Association criticizing its coverage of a paper published in the journal *Nature Communications*. The aforementioned paper by Loss, Will, and Marra (2013) estimates that free-ranging domestic cats kill 1.3–4.0 billion birds annually. According to Wolf (2013), "the implied impact [to birds] due to predation by cats is simply not supported by existing data" (para. 3). Just as the conservation community uses data to make their points about predation, Wolf begins his letter by presenting data to support his argument that many of the bird species identified in the Loss, Will, and Marra (2013) article are listed in the North American Breeding Bird Survey as stable or increasing. Wolf goes on to suggest that several flawed assumptions in the model and "errors" made by the authors contributed to inflated predation rates "by a factor of 10–20" (Wolf, 2013, para. 5). Alley Cat Allies (ACA), a prominent animal welfare organization, claiming 650,000 members and self-described as "national experts on cats" (ACA, n.d.-a) has an entire webpage devoted to "Cats and Wildlife," which includes a link encouraging members to "Share the Truth About Cats," who "have been wrongly portrayed as a major threat to wildlife, public health and more." The page goes on to suggest that "these myths have cost millions of cats their lives" and hope that by "setting the record straight" about "misinformation" or "myths that feral (community) cats suffer outside, that cats should be indoors-only, or that cats are responsible for wildlife depletion" they will protect cats. The page also provides information about the natural history of the cat, counterarguments about cats and wildlife (e.g., "Humans: The Number One Threat to Wildlife" and links "Debunking bogus studies blaming cats for wildlife depletion"), and arguments in favor of cats outdoors (e.g., "Feral Cat Health Analysis: Living Health Lives Outdoors") (ACA, n.d.-b).

Though some animal advocates provide counterarguments, many downplay the risks by not addressing them. An audit of the content from 32 organizations' websites (22 cat advocacy/welfare groups and 10 conservation) showed that while all the conservation organizations mentioned cat-related risks, only 3 (13%) of the cat advocacy organizations did so.[2] Instead, these advocacy organizations focused on messages about animal welfare and the benefits associated with cats.

UNCERTAINTY

One of the first steps in the process of assessing risk is the identification of "known" and "unknown" information; thus, the risk frame is often paired with the uncertainty frame (Powell, 2007). The uncertainty frame generally involves a description of the science related to an issue as uncertain, incomplete, inaccurate, or incorrect. The uncertainty frame used by both sides of the cat debate is generally employed by describing the challenges associated with establishing cause-and-effect relationships, the lack of clear empirical evidence or statistical patterns, and the lack of substantial evidence (e.g., "more research is needed"). Uncertainty related to cats revolves around a number of questions: Does cat predation pose a risk to wildlife or natural ecosystems? How severe is the risk? How do these risks compare to other sources of environmental harm (e.g., pollution, habitat loss, climate change)? What is the best way to address the problems associated with feral cats?

Uncertainty About Cat-Related Risks

Uncertainty is regularly acknowledged in the scientific literature about cats. Scholars in the ecological community regularly admit that there are inherent difficulties "linking cause to effect in population ecology" (Loss & Marra, 2017, p. 504). Specifically, the complexity of ecological systems makes it very hard to determine the exact cause of species decline or extinction (Doherty et al., 2016). Recent work by Stracey and Robinson (2012) highlights major gaps that still remain in our knowledge "of the role of predation in structuring urban bird communities" (p. 64). For example, few studies have experimentally estimated how species size interacts with their ability to defend themselves, find food, and nest successfully (Stracey & Robinson, 2012). It is very hard to pinpoint single causes of ecological problems, due both to the complexity of ecological systems and to the limitations of most research, which can provide only partial, short-term pictures of a given situation.

It is undeniable that cats kill wildlife. Focus group participants reported seeing cats kill birds and small rodents; researchers have documented cat predation using KittyCam and nest video cameras (Loyd, Hernandez, Carroll, Abernathy, & Marshall, 2013; Stracey, 2011; Stracey & Robinson, 2012), surveys of cat owners (Churcher & Lawton, 1987; Lepczyk, Mertig, & Liu, 2004; Levy et al., 2003), and the content of cat feces (Nogales

& Medina, 1996). The importance of cat-caused mortality to wildlife varies by location. The vast majority of extinct and near-extinct species historically or currently threatened by cat predation (among other factors) live(d) on oceanic islands (Medina et al., 2011; Vazquez-Dominguez et al., 2004), where lethal cat control is now regularly used as part of island bird conservation activities (Nogales et al., 2004). Island species lack defensive behaviors and many are poor flyers, making them both unique to global biodiversity and especially extinction-prone (Nogales et al., 2004). Most of the cat warring, in contrast, concerns mainland urban or suburban environs where few or no prey species are listed by international conservation agencies as vulnerable.

However, the threats cats pose to continental or noninsular species, and how this threat compares to other urban threats, such as window and car collisions (discussed below), is not established (Calver, Grayson, Lilith, & Dickman, 2011). This is an important gap in the data, since the majority of outdoor cats that have been identified as problems are in suburban, urban, or otherwise disturbed areas rather than coastal areas or wildlife refuges. That conservationists consistently cite island studies to highlight the risks of cats in urban areas is unhelpful given that mainland birds are not at risk of extinction from cats alone.

Several different kinds of uncertainty about the role of cats in bird deaths are becoming clear. First, uncertainty surrounds the "urban predator paradox." The paradox refers to the fact that despite the large numbers of predators in urban areas—including domestic cats—predation rates on urban prey are lower or the same as the predation rate in other areas (Chiron & Julliard, 2007; Fischer, Cleeton, Lyons, & Miller, 2012; Haskell, Knupp, & Schneider, 2001; Sorace, 2002). Researchers interested in this paradox have explored whether prey species compensate for cat predation by producing large numbers of offspring (van Heezik, Smyth, Adams, & Gordon, 2010). Some research suggests that this does occur for at least some species, particularly common urban and suburban birds such as northern cardinals or Carolina wrens, which means that cat predation may not be high enough to alter population growth (Stracey & Robinson, 2012). Alternatively, urban bird communities may self-sort to include only bird species that effectively avoid nest predation (Stracey, 2011; Stracey & Robinson, 2012). In a recent study, authors monitored nests in habitat areas ranging from parking lots, urban forests, pasture, and nonurban forests to observe differences in nesting success (e.g., the number of nests that

result in one fledgling—or a young bird that is learning to fly (Cornell Lab of Ornithology, n.d.)—across different habitat types. The results suggest that despite facing more predators in urban areas, including cats, urban birds are more successful when they are able to defend their nests, by mobbing the predator or placing the nest in a place the predator cannot access (Stracey, 2011). Also, urban mockingbird nests (found in parking lots and towns) had higher rates of survival than rural nests (in pastures and wildlife preserves) (Stracey & Robinson, 2012). While Stracey (2011) ends with the suggestion that house cats, the dominant predator in this study, be kept indoors at night, she also addresses the complexity of this topic and suggests several important gaps in knowledge related to urban bird characteristics that might minimize the potentially negative impacts of cat predation on urban prey species.

Second, despite the rigor of the studies mentioned above, they focus only on nest predation. The majority of existing studies exploring urban vs. rural bird predation and mortality focus on losses of chicks and eggs at nests, not adult deaths between areas with and without cats. This is an important source of uncertainty because studies of raptors (e.g., hawks) in urban areas shift from a focus on killing nestlings to preying on adult songbirds once they become urban-adapted. In urban areas, raptors such as Cooper's hawks appear to ignore nests and focus exclusively on adult birds (Malone, Powell, Hua, & Sieving, 2017). This is one likely explanation for the urban predator paradox (or why nest-based studies often find that urban nest success is higher or similar to nonurban data) (Stracey, 2011; Malone et al., 2017). Even with the addition of cats, the major urban nest predator in Stracey's studies, urban nest losses are not extreme. Therefore, more research is necessary to address current gaps in our knowledge about cat predation on adult songbirds in urban vs. rural areas.

Given this and the information from raptor diet studies, a third source of uncertainty is the lack of rigorous studies comparing adult songbird deaths, in urban and nonurban areas, due to cats, to native—often urban-specialized killers—and other important mortality factors (e.g., cars, window collisions) (Arnold & Zink, 2011; Klem, 1990). Previous attempts to single out the cat-related impacts on prey species have resulted in tenuous conclusions in both directions (e.g., Kays & DeWan, 2004; Moseby, Hill, & Read, 2009; Risbey, Calver, Short, Bradley, & Wright, 2000; van Heezik et al., 2010). Some researchers hypothesize cats may be killing primarily the old, sick, or weak individuals (compensatory predation on

the doomed surplus) (Baker, Molony, Stone, Cuthill, & Harris, 2008), or individuals that would otherwise have been killed by a different urban predator, such as hawks (Roth & Lima, 2003), but this has also not been adequately tested. Cats' mere presence may reduce the numbers of prey animals, change their behavior (Beckerman, Boots, & Gaston, 2007), or suppress reproduction in native birds (Bonnington, Gaston, & Evans, 2013), yet "virtually nothing is known" about the cumulative impacts of multiple sources of mortality for birds (Loss et al., 2013, p. 5).

Such data are indeed difficult to obtain, and enumeration of dead adult birds killed by cats (so-called "body count data") featured by ecologists in their arguments against cats is practically useless without death rates due to other factors to add up the total. The nest data tell us this uncertainty is real, and the killing power of native raptors that are now hyperabundant in urban areas should not be underestimated (Malone et al., 2017). Further research on this question would help parties on all sides assess the ecological threat that cats actually pose, and target both conservation and cat management programs.

The complexity of urban systems makes it difficult to say with certainty that cats are the most important driver of prey populations in urban locations. Loss and Marra (2017), who call cats the "most ubiquitous and environmentally damaging invasive predators on Earth" (p. 502), acknowledge that "linking cause to effect in population ecology is extremely difficult and fraught with uncertainty" (p. 504). Even while acknowledging the inherent uncertainty of the current research, scientists sometimes draw conclusions about the negative effects of cat predation based on research that is far from definitive: "Feral cats *Felis catus*, for example, are implicated in at least 14% of insular bird, mammal, and reptile extinctions" (p. 15) according to a review of cat predation on native island vertebrates (Doherty & Ritchie, 2016). "Implicated," of course, is a vague term, and review articles also are limited in their ability to provide evidence of a causal relationship, as Doherty and Ritchie (2016) suggest: "Given the difficulties in attributing causation in species declines and extinctions, most inferences regarding the impact of invasive predators were based on observational evidence, rather than experimental data" (p. 11264).

It is clear that the debate about outdoor cats is not immune to problematic claims, uncertainty, and limitations associated with existing scientific methods and techniques. Critics of conservationists' claims about cats have suggested that "the reputation of cats as predators was largely

based on casual observations, perpetuated rumor, and speculation and . . . most references to cat predation were unsupported by factual data" (Patronek, 1998, p. 221). While it is undeniable that cats kill birds, the research on cat predation and interpretations of these studies are all far from clear-cut. For example, a study conducted on Reunion Island in the Western Indian Ocean concluded that feral cats posed a critical threat to an endangered species of petrel and advocated that strict "control of cats at breeding colonies is urgently needed to save this species from extinction" (Faulquier, Fontaine, Vidal, Salamolard, & Le Corre, 2009, p. 330). The same research cited risks to the petrel population from light pollution and "light-induced" mortality, but the policy conclusions focused primarily on eliminating cats from the island. This is an example of the ways a particular framing of the question presupposes certain conclusions—in this case, the need to remove cats—even when the research itself suggests that petrels face multiple anthropogenic threats—including the cumulative effects of both light pollution and cat predation—and that conservation policies should logically address all of them.

The scientific efforts required to resolve these issues will need to be comprehensive and involve multiple measures of cat and bird activities and interactions—with each other, but also with other prey and predators in urban and suburban ecosystems, which are anything but static and simple. Similar complications shape the ways different groups interpret research about the effectiveness of TNR programs.

Uncertainty About Cat Management

A review of feral cat control techniques concluded TNR "is a viable, humane alternative to other methods" of cat management (Robertson, 2008, p. 372). Yet the review referenced only two programs that resulted in the stabilization or reduction of a local population of cats, previously described as the goal of the TNR programs (Robertson, 2008, p. 371).[3] The first program described was an intensive initiative conducted over 11 years (see Levy et al., 2003), including both TNR, euthanasia, and adoption efforts. This effort was successful because it documented a reduction of the number of cats in the colony, but it was not successful solely because of the TNR program (Levy et al., 2003). A second article was described as successful because it "reduced the population [of colony cats] by 26% within a year" (quoted in Robertson, 2008, p. 372, referencing Centonze & Levy, 2002). Yet the original article by Centonze and Levy (2002) suggests that

the numbers they reported "were estimates" and that they "should not be interpreted as precise data based on accurate record keeping" (p. 1633). This is another example of how framing can imply conclusions—in this case, that TNR is effective—that are broader, or more conclusive, than the research truly supports. While Robertson (2008) acknowledges that TNR may only work to control the feral cat population "under certain conditions" (p. 372), the author also suggests that "TNR programs and education are pivotal to successful reduction in [cat] numbers" (p. 373).

Some scholars, at least, are becoming hesitant to draw hard and fast conclusions about lethal management. For example, Doherty and Ritchie (2016) recently called on conservation scientists to stop "jumping the gun" by calling for lethal controls to manage invasive species, including cats, when "considerable uncertainty remains regarding the effectiveness of management approaches in different environmental contexts" (p. 15). They highlight the unintended consequences of lethal management by citing a culling program implemented in southeastern Australia (detailed in Lazenby, Mooney & Dickman, 2014). In this example, during the culling program, feral cat numbers increased "from 75% to 211%" in some areas (Lazenby, Mooney, & Dickman, 2014, p. 414), returning to precull levels after control efforts ceased. As Doherty and Ritchie (2016) suggest, the observed increase may have occurred because "culling removed dominant resident cats, which allowed younger and/or previously subordinate individuals from surrounding areas to invade the vacated territories (Lazenby et al., 2014)" (p. 17). Another unintended consequence of lethal cat control is "mesopredator release," which is the proliferation of smaller predators such as rats following the eradication of cats. The mesopredators often cause as much damage as the cats, or even more (Courchamp, Langlais, & Sugihara, 1999; Sutherland, Glen, & Paul, 2011).

These studies reinforce the uncertainty surrounding ecological research and suggest that care and even humility should accompany any conclusions drawn from individual cases. Some scholars concerned about existing uncertainty and current gaps in the literature have called for more additional research: "The only unequivocal way to address this question [effect of cats on wildlife populations] is by experimentally manipulating cat predation pressure, although this will be logistically difficult" (Baker et al., 2008, p. 97). Doherty and Ritchie (2016) argue for a more nuanced approach to invasive species management. "We do not prescribe strict management guidelines because it is not feasible or useful given the

complex social–ecological systems in which invasive predator management takes place," they wrote. "Rather, we propose that current uncertainty in invasive predator management can be addressed through a combination of adaptive management, expert elicitation, and cost-benefit analyses" (p. 16). Adaptive management is a more flexible, experimental, and participatory approach to natural resource management. Unlike traditional management strategies, adaptive initiatives start with the assumption that systems and natural resources are variable, unpredictable, and uncertain (Evans et al., 2008).

Scholars in the animal welfare community have also acknowledged uncertainty, or at least disagreement, among veterinarians and others in the animal protection community. There is debate, for example, "about whether TTVAR [trap-test-vaccinate-alter-and-release] should be discouraged, tolerated, or encouraged" (Patronek, 1998, p. 218). Just as the ecological impacts of cats are difficult to discern, the "ecological characteristics" of cat populations are complex because "cats can change from owned to unowned, and confined to free-roaming, during short periods" (Patronek, 1998, p. 218). Uncertainty about cats' characteristics can make it difficult to distinguish "the impacts of free-roaming, owned cats from those of unowned cats [on wildlife]" (Levy & Crawford, 2004, p. 1354). While encouraging TNR as a viable method of management, scholars in the animal welfare community have also acknowledged failures of TNR, including increased cat abandonment at visible colonies (Robertson, 2008) and the challenge of drawing concrete conclusions about the effect of spay/neuter activities on the number of animals in local shelters (Levy, Isaza, & Scott, 2014).

Like Doherty and Ritchie's nuanced approach, some scholars in the animal welfare community acknowledge that "no single solution is likely to be appropriate for all situations" (Levy & Crawford, 2004, p. 1359). Others have suggested that widespread advocacy for TTVAR programs "as a panacea for the problem of unwanted cats could undermine years of effort to foster responsible pet ownership among cat owners" (Patronek, 1998, p. 225).

While both cat and bird advocates acknowledge uncertainty in the scientific evidence, they ignore other gaps in their knowledge. Ecologists regularly mention the challenges associated with determining causation in population ecology, but they continue to rely on risk assessments and empirical data, which are substantially limited by important gaps in the

data that make quantitative estimates difficult, if not unreliable. Animal welfare scholars simultaneously cite studies that highlight the challenges, uncertainties, and complexities inherent in using TNR as a widespread management strategy while continuing to recommend it as the best available option for cat control. There is a tendency for some on both sides to leap from partial and uncertain data to hard and fast conclusions. However, there are encouraging signs suggesting that many individuals on both sides acknowledge the gaps in their data and the dangers of rushing to policy decisions.

Despite the inherent uncertainty in both the study of cats and TNR, multiple sources suggested that the challenges associated with studying cats and TNR do not justify inaction. Loss and Marra argue that uncertainty should not be conflated "with the conclusion that cats have no impacts on vertebrates and so cat management is unnecessary" (2017, p. 504). Indeed, one possible way to start to resolve debates about the science over cats and birds is by building strong collaborations between researchers from both of these communities.

THE SCIENTIFIC/OBJECTIVITY FRAME

Another important feature of debates about outdoor cats is the prioritization of scientific objectivity. Factual information is by far and away the most popular presentation style used in the debate about outdoor cats. This is true for scientific articles, but this approach also is used frequently on organizations' websites. In a recent audit of the content of 32 different organizations' websites, 96% of conservation organizations and 94% of the animal advocacy organizations used factual information instead of narratives to describe the cat issue on their websites (McLeod et al., 2017). This is likely related to a reliance on the science deficit model that we discussed in chapter 2, but it also related to a general reliance on "objective" data and facts to convey legitimacy in the debate about outdoor cats.

Both sides accuse the other of being irrational, relying on emotions, and permitting their biases to shape their interpretations of the data. According to Levy and Crawford (2004), "debate about the true impact of free-roaming cats on the environment, on feline welfare, and as a reservoir of feline

and zoonotic diseases is ongoing, often emotional, and fueled largely by a lack of sound scientific data on which to base credible conclusions" (p. 1355). Many of the articles published in veterinary or animal welfare journals encouraged efforts to recognize "the degree of public affection for feral cats" (p. 1357), suggesting that "engaging cat feeders in solutions for feral cats will undoubtedly be more productive and economical than warring against them" (p. 1360).

Conversely, scholars in the conservation community suggest that the "policies for management of free-ranging cat populations and regulation of pet ownership behaviors are dictated by animal welfare issues rather than ecological impacts," equating animal welfare and support for TNR with a "non-scientific" approach to decision making (Loss et al., 2013, p. 2). Among conservationists, public resistance to management was occasionally framed as an emotional issue related to the popularity of cats as pets (Loss & Marra, 2017) or discomfort with animal suffering and euthanasia (Lepcyzk et al., 2010). Conservation scholars have expressed concern that public attitudes about management "do not always align with evidence" and that efforts to manage cats should not depend "solely on public opinion without considering scientific evidence" (Loss & Marra 2017, p. 508). While we agree that knowledge and scientific evidence are important components of this debate, the continued reliance on facts and data as the primary tool to change beliefs about cats or opinions about cat management is problematic. This is true not only because the data itself is partial and ambiguous, but even more generally because the conflict over cats is not driven solely by data: "Ultimately, the issue of feral cats is a social problem" (Lepczyk et al., 2010, p. 2).

Like any heated social conflict, the cat debate is driven by differences in values and beliefs that influence how members of both communities interpret data and evidence. Effective persuasive communication techniques must go beyond the provision of facts and logical arguments. As Kahneman and Tversky, two influential scholars in behavioral psychology, put it: "No one ever made a decision because of a number" (as quoted in Adams, 2016, para. 2). People do not make decisions based solely on evidence and the logical consistency of arguments, but rather they choose to believe stories that best match their values and preexisting beliefs (Fisher, 1989). We discuss alternative approaches to this model at the end of this chapter and in chapter 5.

THE ANIMAL WELFARE FRAME

Animal welfare is clearly at the center of debates about outdoor cats, since the disagreement is about how one nonhuman species—domestic cats—are affecting other nonhuman species—especially birds but also other native wild animals. Here the conflicts often hinge on the relative value of different kinds of animals, particularly species that are domestic and "invasive," and those that are wild and native. As discussed in chapter 4, different groups place very different values and priorities on these categories, shaping their reading of the research and the policy options.

Conservation advocates sometimes try to appeal to the community of animal welfare advocates by highlighting the risks that outdoor or free-ranging behavior poses to cat health. This argument suggests that it is not in the cats' interest to range freely. Outdoor cats are more likely to suffer from disease and parasites and to die prematurely, in this view; as one author puts it, "Many feral cats live short, brutal lives" (Jessup, 2004, p. 1379). This approach has been taken not only by conservation advocates, but also by the animal rights organization People for the Ethical Treatment of Animals (PETA), which has called TNR "subsidized abandonment" and which asserts that "feral cats do not die of 'old age.' They are poisoned, shot, tortured by cruel people, attacked by other animals, or hit by cars, or they die of exposure, starvation, or . . . contagious diseases" (Hutchins, 2008, as quoted in Jessup, 2004, p. 1378).

Animal welfare articles regularly start with a focus on animals' lives. According to some scholars in this community, a primary concern in the debate over methods to control outdoor cats "is the welfare of the cats themselves" (Levy & Crawford, 2004, p. 1357). Most of the articles we reviewed in the veterinary and animal welfare literature described cats as pets or animals with an important connection to people. By focusing on cats as companion animals, the animal welfare community frames cats as a popular, loved, and valuable species that provide comfort, companionship, and health benefits to people. In the aforementioned audit of organizations' websites, not one of the cat advocacy/welfare websites referred to cats as an "invasive" or non-native species, even though these frames were common across all the conservation websites (McLeod et al., 2017). According to one study, free-roaming cats provide health benefits for "lonely elderly adults" by serving as "an outlet for affection" and a reason to get outside. For them, feeding and caring for outdoor cats

"helps prevent depression, reduces social isolation, and provides companionship" (Patronek, 1998, p. 223). Cat caretakers and many animal welfare advocates insist that outdoor cats can and often do live healthy, satisfying lives. Levy and Crawford (2004) suggest that "Although TNR may not meet the gold standard of care desired for pet cats, it appears that sterilized feral cats can enjoy an extended period of good quality of life while their population dwindles by adoption or natural attrition" (p. 1359).

OPPORTUNITIES FOR COMMON GROUND

The frames that we have explored in this chapter are not only used by these organizations to define the cat debate, but they are also used to justify their stance and recommendations about what action should be taken, and by whom. For example, the conservation community regularly uses the risk frame to justify their support for specific control actions; however, messages focused around this frame tend to backfire with the animal welfare community. The framing of persuasive communication campaigns must be designed carefully and thoughtfully to build trust and avoid creating backfire effects, reinforcing existing misperceptions and further alienating stakeholders who strongly disagree these risks exist. We believe a degree of reframing in this debate is warranted—that all parties need to recognize that their own view is not the only one possible, there may be other ways, and accept there may be relative merits for each perspective.

Robertson (2008) noted that "Any balanced and unbiased discussion must consider the public who considers them [cats] a nuisance" (p. 367). While the previous quote came from a veterinary source, similar quotes were found in the conservation community. Thus, all sides recognize the need to engage the diverse publics involved in this debate. Yet the science/objectivity frame, regularly observed in our review, often pits scientists against the public. This is problematic because it creates distance between the two groups and perpetuates the "othering" of the public, as we discussed in chapter 2. It also ignores the fact that the public may indeed understand that cats pose some risk to wildlife. "Most people understand very well that nothing is risk free and are able to 'live with' uncertainty and the lack of control that it entails" (Wynne, 2002b, as cited by Cook, Pieri, & Robbins, 2004, p. 438).

Collaborative efforts around outdoor cats might be more successful if scientists and conservationists engaged cat caretakers and TNR advocates in decisions about cat management, assuming that they not only understand risks but might have creative ideas about how to minimize the potential risks to wildlife and the cats they care for. Empowering the public to display their own knowledge, ideas, and concerns, and to share data and responsibility for complex and controversial scientific issues can enhance public trust in scientists (Goodwin & Dahlstrom, 2013). Trust and distrust are critical elements of effective natural resource management outcomes, especially regarding public support for management decisions (Stern, 2008; Stern & Baird, 2015; Stern & Coleman, 2015; Vaske, Absher, & Bright, 2007; Wald et al., 2019). Distrust of the government drove public opposition to the eradication of monk parakeets (Crowley, Hinchliffe, & McDonald, 2018) and contributed to delayed efforts to control gray squirrels in Italy (Bertolino & Genovesi, 2003). Efforts to encourage collaboration between stakeholders, particularly those with local knowledge and experience, could both enhance trust and provide new sources of information that could inform the current debate.

Scholars in the field of education reform suggest that educational initiatives can be more effective when they accept that "publics create meaning and contribute to knowledge production in various ways" (Berkowitz et al., 2005, as cited by Varner, 2014, p. 335). Cat caretakers and advocates might have knowledge about cat behavior and cat-wildlife interactions that is different from and complementary to the research being conducted by scientists interested in this issue. By including these groups in this conversation, we could identify new perspectives, ideas, and opportunities for collaboration. One possible approach to this would be to use the animal welfare and ownership responsibility frame to engage interested groups in a citizen science project focused on efforts to reduce the number of homeless pets or encourage responsible pet ownership. For example, a new citizen science initiative and app called CatTracker has been developed to help residents, cat owners, city managers, and shelters map the cat population in Syracuse, New York (Chalifoux, 2018). The data collected through this initiative could be paired with community meetings, decision-making tools, surveys, and data about wildlife to identify how key stakeholders can be engaged and how cats could be managed collaboratively across different areas of the city. However, any effort to engage in citizen science initiatives in this area must first consider ways to build trust and identify shared goals between potential stakeholders.

While we should not lose sight of the existence of deep-seated differences among parties that may delay collaborative initiatives, it is possible to identify a range of techniques that can help reframe messages that may encourage resolutions (e.g., Moore, 1996). One promising tactic is shifting from a specific interest to a more general one to allow each party to see how their particular concerns can be satisfied across a host of solutions that satisfy others' interests as well. Another option involves narrowing the issue and breaking it into smaller parts, for example, by focusing on particular local issues or identifying short-term goals that some stakeholders agree on (Jacobson, Wald, Haynes, & Sakurai, 2014). Finally, stories can engage audiences in a deeper way than standard scientific writing and can "connect diverse stakeholders," encourage imagination, and collective action (Moezzi, Janda, & Rotmann, 2017, p. 8). Thus, instead of focusing on efforts designed to "correct" existing misperceptions, public outreach efforts to promote collective action could be designed to encourage storytelling, perspective taking, and the cocreation of knowledge. It is unrealistic to expect complete agreement on all sides, but "agreeing to disagree" can be constructive as the acknowledgment and respect of each other's right to have opposite viewpoints can be a stepping stone to building trust and reducing tension (Gray, 2003, p. 34). "The goal of science communication is not agreement, but fewer, better disagreements," as Fischhoff (2013) puts it. "If that communication affords [scientists and the public] a shared understanding of the facts, then they can focus on value issues" (p. 14033). To encourage a more effective, humane, and, ultimately, successful approach to outdoor cat management, engagement efforts should focus on building a shared understanding of both the available facts and the current limitations in the data.

While different groups perceive risks and other issues related to outdoor cats in very different ways, all the people involved consider nonhuman nature—in some form—significant and worth protecting, and agree that proposed management solutions should be based on solid scientific research. The scientists, advocates, and managers involved in this debate all share an incredible passion and drive to address the outdoor cat issue. The passion to do something about the outdoor cat issue and the motivation to protect nonhuman nature could be points for possible collaboration between multiple sides in this debate. Unfortunately, previous negative experiences and a history of animosity between these groups has hampered these collaborative efforts. Occasionally, conflicts are so entrenched that

two groups cannot meet without fighting. We have heard the debate about outdoor cats described as such a conflict, but we believe the continued separation of these communities is ineffective and unnecessary. Actively excluding one perspective from the debate about outdoor cats or continuing to criticize or condemn opposing groups will contribute to further polarization and lack of trust between the diverse stakeholders concerned about cat management. Having explored this debate for several years and engaged with publics on many sides of this issue, we believe that "it should be possible both to believe deeply in the rightness of one's own cause and to hear out the other side. Civility is not a sign of weakness, but of civilization" (Kristof, 2018). In the following chapter, we further explore the contradictions inherent in the cat debate and highlight the possible areas for shared understanding and values. We hope this deeper understanding of underlying differences and similarities will help us uncover potential pathways for collaboration and growth.

CHAPTER 4

The Values Problem

INTRODUCTION

In this chapter, we look at the ethical dimensions of the cat debate. This reflects our conviction that while the debate is about science, it is not only about science. And while it is a conflict between different kinds of animals, it is also, perhaps most importantly, a conflict between different human communities with diverse experiences, locations, and interests. One of our main claims throughout this book is that social factors shape the ways people interpret their own experiences as well as scientific data: what questions they ask, where they look for answers, which authorities they find credible, and how they understand and use the information they receive. We explore these sociological aspects in depth in the next chapter. Here we delve into another aspect that is often left out of debates about outdoor cats: the role of philosophical convictions and deeply held moral commitments. These ideas shape the way people understand the conflict, think about the different actors involved, and evaluate different management options. It is thus impossible to understand the debates about outdoor cats, much less find constructive answers, without close attention to the ethical dimensions of these discussions.

In order to understand the moral dimensions of the conflict, we provide a short overview of relevant moral theories, with particular attention to the ways these different models frame the issues at stake, prioritize

values, and guide ethical decisions. This section provides the context for understanding the perspectives and issues at stake in the cat debate and, equally important, the prospects for achieving resolutions that are morally and scientifically sound as well as socially acceptable.

Following this background, the rest of this chapter focuses on the relationship between environmental ethics and animal ethics, the two fields that reflect ways of thinking about the moral dimensions of nonhuman nature. Because they define and value nature quite differently, they are often in conflict. Environmental ethicists usually prioritize wild nature and ecological wholes, such as species and ecosystems. Animal ethicists, on the other hand, usually assign primary value to individual sentient creatures, including domesticated ones. The differences between these two ways of understanding and valuing nature lie at the heart of the conflicts over outdoor cats.

ENVIRONMENTAL ETHICS

Core Values and Claims

Environmental ethics is concerned with the meaning and moral value of nonhuman nature and human obligations to it. Traditional ethical theories pay little if any attention to nature, and in particular they do not make the core claim of environmental ethics: that nature has moral value and that humans consequently have obligations toward nature. Thus environmental ethics is founded on a novel, even radical approach to moral theorizing that makes it difficult to adopt, wholesale, any established framework. Still, most environmental ethicists draw on themes and approaches from mainstream philosophical models, including arguments about the source and character of rights, the foundations of value claims, and the relations between intrinsic and instrumental value. Among environmental philosophers there are heated debates about issues such as what parts of nature have value, what kind of value they have, where that value originates, and what precisely humans should do.

The origins of environmental ethics are often traced to a single essay, Aldo Leopold's "The Land Ethic" (1949). Leopold was a forester, not a philosopher, and "The Land Ethic" is far from a comprehensive, systematic analysis. Nonetheless, it sets out the core moral claims that continue to define environmental ethics today. Ethics, according to Leopold, are

about social living—norms and guidelines for proper conduct in relations with others. Past ethics have addressed only relations between humans; now we need a "land ethic," which "simply enlarges the boundaries of the community to include soils, waters, plants, and animals, or collectively: the land" (Leopold, 1949, p. 239). When people understand their moral communities to include nonhuman nature as well as other people, they will no longer view nature purely in economic and instrumental terms or think of themselves as "conquerors" (p. 240).

The heart of Leopold's land ethic lies in his assertion that ecological wholes have value that is not reducible to the sum of their individual parts. As Callicott (1989) summarizes, the land ethic "not only has a holistic aspect; it is holistic with a vengeance" (p. 84). This holism means that the preservation of the whole can and often does justify harm to or even destruction of individuals within the community. This sets the land ethic apart from the dominant theoretical models in modern Western philosophical ethics. This holism is also the root cause of the conflict between environmental advocates and cat advocates in the cat debate.

Environmental philosophers ground their holism with appeals to ecological and evolutionary science. Ecosystems cannot survive and species cannot evolve without the premature deaths of many individual natural entities. To try to protect individuals at the cost of these larger natural processes is ultimately counterproductive. Again, these arguments are common in discussions about the ecological impact of outdoor cats and appropriate policy responses.

The land ethic's holism and its faith in science are shared by most other models in environmental ethics. They differ, however, on a number of issues, including which aspects of nonhuman nature have value, the basis of that value, and human obligations. These philosophical disagreements do not always have significant practical consequences, however, since even people who disagree about the ultimate source of natural value still find many areas of consensus on policy matters. This is true in regard to global issues, such as climate change, and also many local issues, such as habitat preservation or environmental justice. While there is never perfect unity, in general philosophically diverse approaches in environmental ethics agree that the unit of value in nonhuman nature is wild, native, and collective. Philosophically, this constitutes an ecocentric approach, in which ecosystems and other ecological wholes (such as native wild species or populations) have primary, sometimes exclusive value. This means that

when it is necessary to choose between the good of the whole and the welfare of individual creatures, environmental philosophers almost always prioritize the former.

The same value hierarchy shapes most environmental policy and activism. Even efforts to preserve a particular species are generally based on the ecological significance of that species, and often on arguments that protecting one species (especially large predators such as bears, wolves, or panthers) will have the practical effect of protecting habitat needed by many other native animals and plants. In general, then, the welfare of individual animals—their feelings, experiences, and capacities—does not enter into environmental arguments, theoretical or practical.

This helps us make sense of the debates about outdoor cats. This issue is sometimes discussed, in environmental philosophy and advocacy, as an example of the contradiction between concern for the individual and concern for the whole. Because ecocentric approaches always favor the latter, they support policies that preserve ecological processes, wild species, and the long-term good of the ecological community, even if that requires harm or destruction of individual creatures. This is true even in regard to native wild animals, such as white-tailed deer. Environmental thinkers and advocates generally accept deer hunting as ecologically acceptable, perhaps even desirable, in order to prevent population growth that might threaten forests and associated animal and plant species.

When domesticated species are the ones posing the threat, the environmentalist consensus is even stronger. Domesticated and feral animals cause damage in multiple ways, according to most ecocentric analyses: they kill native plants and animals directly, they compete with native species for food, and they often damage habitats in other ways as well. In addition, because domesticated species result from human intervention in nature, they lack the value possessed by wild and native species, according to many environmental philosophers. Some even describe domesticated animals as inferior or defective creatures. Rolston (1988), for example, explains that "A gazelle is pure wild grace, but a cow is a meat factory, pure and simple" (p. 83). From this perspective, cows, like chickens, pigs, dogs, and cats, are human artifices rather than natural entities, and like humans, they frequently threaten wild nature. This attitude lies behind the fights over outdoor cats, which is often cited as an example of the conflict between wild nature and domestic creatures. For most environmental advocates, the choice is clear: the former must be preserved, even if that requires harming or destroying the latter.

Practical and Policy Dimensions

These philosophical approaches and debates provide a context for thinking about the practical aspects of the "cat wars." Ecological holism guides most environmental organizations' positions regarding outdoor cats, thus providing a clear hierarchy of value: wild, native species and places must be protected from the threats posed by human creations like cats. This basic principle guides the concrete policies articulated by environmental advocacy organizations regarding TNR and other management strategies. The most explicit and detailed positions have been developed by bird-oriented groups such as the Audubon Society and the American Bird Conservancy. We detail these positions elsewhere in this book, but we will mention just one example here to illustrate the anti-TNR position: the approach of Chicago Wilderness (CW), a regional environmental group. CW's position on outdoor cats reflects both the content and tone adopted by many environmental, and especially bird, advocates in their positions on feral cats. The CW statement, which the American Bird Conservancy posts as a model, asserts that "feral cats, and domestic cats that are let outside unattended, kill hundreds of millions of birds and more than a billion small mammals in the United States each year" (Chicago Wilderness, n.d., para. 2). CW also cites various public health threats posed by outdoor cats, as well as asserting that most outdoor cats have short and sickly lives. They sum up their position thus: "Chicago Wilderness supports efforts to encourage responsible pet ownership, to keep domestic cats indoors or controlled on a leash, and to manage feral cat overpopulation by establishing alternatives to feral cat colonies" (para. 2). The statement is typical not only in content—its claims about the dangers posed by cats and the miserableness of their lives—but also in its tone. It never comes out directly in support of lethal control, but hints at it with the mention of "alternatives to feral cat colonies," which means alternatives to TNR. Since truly feral cats cannot be adopted, and even friendly, sociable cats are often euthanized in shelters, the "alternatives" are leaving the cats alone with no management, which CW and other conservationists strongly oppose, or killing them.

The arguments echo the issues raised in the Ted Williams controversy, *Cat Wars*, and other accounts discussed in this book's introduction. Even extreme versions, such as Williams's call for "selective poisoning," reflect core principles that motivate the opponents of TNR. First, they see natural value primarily and perhaps exclusively in ecological wholes, such as species and ecosystems. Second, they discount the value of domesticated species,

perceiving feral animals as out of their proper places and thus disposable. The Audubon Society sums it up thus: outdoor cat owners "seem set on putting their cats first and nature second" (Cudmore, 2015).

Outdoor cats are an important issue especially for bird advocates such as the Audubon Society and the Bird Conservancy, but even conservationists not focused on birds believe that outdoor cats are a serious ecological threat and oppose TNR. The nation's (and the world's) largest environmental advocacy organization, the Sierra Club, does not appear to have an explicit policy position on outdoor cats. However, local and state Sierra groups (which are affiliated with the national club) have supported removal of cats in numerous local situations. For example, several years ago the United States Fish and Wildlife Service (USFWS) announced a plan to trap and remove feral cats from the Florida Keys because they posed a threat to native wildlife. The USFWS acknowledged that many of the trapped cats would be considered unadoptable and euthanized. According to a news account, "Conservation groups including the Sierra Club, National Wildlife Federation and the American Bird Conservancy have voiced support for the plan, saying birds and local endangered species have few defenses against predatory cats that don't belong in Keys wild areas" (United Press International, 2013, para. 5).

The club's magazine, *Sierra*, also published a favorable interview with Peter Marra, one of the authors of *Cat Wars*. The interviewer's last question is "Why are you so passionate and outspoken about cats?" Marra responded, "We're in the middle of the sixth great extinction. The causes are very complex. Habitat loss and climate change are difficult to manage. But cats are something we can do something about. My eyes are wide open. I wouldn't be a responsible scientist if I said nothing" (Woolston, 2016, para. 15). Readers of *Sierra*, which is mailed to all of the club's two million members, receive a clear message: outdoor cats are unequivocally bad for nature, and responsible scientists—and responsible citizens—must work to ensure their removal from the environment.

In sum, environmentalists approach outdoor cats from an ecocentric position in which natural value inheres in wholes rather than individuals and in native wild species rather than domesticated ones. While few come out as explicitly in favor of lethal control as Williams, most oppose TNR and feral colonies while insisting that outdoor cat populations must decrease, which in practice means that cats must be caught and killed. This sets them squarely in opposition to animal welfare advocates who view

TNR as a moderate and balanced solution, which controls outdoor cat populations without requiring the direct killing of healthy cats. In order to understand the philosophical and ethical principles that undergird this position, we turn now to animal ethics.

ANIMAL ETHICS

Core Values and Claims

Like environmental philosophers, animal ethicists draw on traditional moral theories while also innovating in many ways. Two main philosophical models dominate discussions within animal ethics: rights-based (deontological) and utilitarian models. The two models generally are understood to be in conflict, since they represent fundamentally different approaches to the sources of value. For rights theories, individuals have absolute value, which cannot be violated in pursuit of collective or aggregate goods. On the other hand, utilitarians assert that value inheres in consequences, and moral decisions should be aimed at maximizing aggregate benefits: the greatest good for the greatest possible number. Despite their differences, these two models have both been fruitful sources of theorizing about the value of nonhuman animals for contemporary thinkers.

Utilitarianism has been especially important in animal ethics, beginning with Jeremy Bentham's assertion, nearly 250 years ago, that animal suffering was morally relevant:

> The French have already discovered that the blackness of the skin is no reason why a human being should be abandoned without redress to the caprice of a tormentor. It may come one day to be recognized, that the number of the legs, the villosity of the skin, or the termination of the os sacrum, are reasons equally insufficient for abandoning a sensitive being to the same fate. What else is it that should trace the insuperable line? Is it the faculty of reason, or, perhaps, the faculty of discourse? But a full-grown horse or dog is beyond comparison a more rational, as well as a more conversable animal, than an infant of a day, or a week, or even a month, old. But suppose the case were otherwise, what would it avail? The question is not, Can they reason? nor, Can they talk? but, Can they suffer? (1781, chapter XVII, section 1)

Bentham's initial foray into animal advocacy has been taken up by the Australian utilitarian Peter Singer, whose book *Animal Liberation* argued that "the ethical principle on which human equality rests requires us to extend equal consideration to animals too" (Singer, 1990, p. 1). Singer rejected "speciesism" as an arbitrary and unjustified form of discrimination, akin to racism or sexism. The guiding utilitarian principle—avoidance of pain and pursuit of pleasure—applies to all sentient beings, both Bentham and Singer asserted. Because humans and many other animal species are equally capable of feeling pain and pleasure, they have an equally relevant moral claim to avoid pain. Thus humans have an obligation not to cause pain to sentient nonhuman creatures, just as they have in regard to other humans.

The other major stream within animal ethics is deontological, and specifically rights-based. Rights approaches argue that individual creatures have intrinsic moral value, based on the possession of morally relevant qualities. These qualities vary according to different thinkers, but commonly include sentience, sociability, or intelligence. Because of these qualities, individuals who possess these qualities must never "be treated as if they exist as a resource for others," as Regan argues (2004, xvii). Regan's book *The Case for Animal Rights* is the fullest expression of animal rights theory. Regan cites extensive research on animal behavior to show that there is no scientific or philosophical justification for imposing a strong dividing line between humans and other species, at least in regard to the right to be treated with respect and not made to suffer in the pursuit of human goals or interests. The rigorous and detailed philosophical argument for a theory of moral rights, such as that articulated by Regan, reflects a different and much more narrow use of the term "animal rights" than the popular usage. "Animal rights" is commonly employed to describe organizations such as PETA as well as ideas, of all philosophical sorts, which generally advocate for better treatment of animals. Even Singer, a utilitarian who rejects the notion of moral or natural rights on philosophical grounds, is frequently called an "animal rights" advocate. In this book we will strive to distinguish between animal rights as a philosophical position and animal rights as a broad, theoretically pluralistic advocacy stance.

While utilitarian and rights theories are by far the most influential in Western philosophical ethics generally as well as animal ethics, a number of other theoretical models also are important for thinking about human obligations to other animals. In particular, a number of thinkers have applied feminist care ethics to animal issues. Care ethicists challenge the

rationalism and universalism of dominant philosophical approaches and instead assert that interpersonal relationships have important and perhaps primary moral value. Because of this, care ethicists often devote most of their attention to domesticated animals, which is also a common focus of animal ethicists more generally. When animal ethicists do pay attention to wild species, they often assert that humans' primary obligation is to leave them alone—as Regan puts it, in regard to wild animals, "what we ought in general to do is . . . nothing" (2004, p. xxxvii).

Despite their theoretical disagreements, most animal ethicists share several core principles. The most important is a rejection, at least in part, of what Singer calls *speciesism* and other thinkers term *human exceptionalism*: the notion that humans alone have moral value. Instead, animal ethicists and advocates propose versions of species egalitarianism, according to which at least some nonhuman species deserve moral consideration. In addition, animal ethicists assert that the intrinsic value of individual animals generates moral obligations on the part of people. Thus activism and policy are a major concern of most animal ethicists.

In these arenas, the philosophical divisions within animal ethics do not translate directly. Rather, the most important distinction is between what are usually termed *rights* and *welfare* perspectives. Rights-oriented groups and activists pursue "abolitionist" positions on many issues, meaning they seek the end of the instrumental use of animals in many institutions, ranging from agriculture to entertainment. Abolitionists often also reject pet keeping as innately exploitative, even beyond instances of individual cruelty to cats or dogs.

In contrast, "welfarists" generally aim not to end the human use of animals, but rather to regulate and reform this use to end cruelty, promote more humane conditions, and support positive relationships between humans and animals. For example, on the issue of animals in agriculture, welfarists seek to improve conditions while abolitionists often want to end animal agriculture altogether. On a number of issues, however, theoretical distinctions do not lead to clear policy differences, including many of the debates over outdoor cats.

Practical and Policy Dimensions

Major animal welfare organizations, including the two giants, the Humane Society of the United States (HSUS) and the American Society for the Prevention of Cruelty to Animals (ASPCA), strongly support TNR and

oppose lethal solutions such as poisoning or catch and kill. The HSUS prefers that cat owners keep their pets indoors, but also recognizes that there is a large outdoor cat population and we have not yet reached a time when "all cats live in loving homes." Until that time, the HSUS "supports and promotes humane management of outdoor cat populations," meaning, specifically, support for TNR programs at the local level and also "legislation that allows for and supports non-lethal population control, and coalition-based approaches that involve community leaders, citizens, and stakeholders to implement effective community cat management programs. Programs that attempt to use lethal control to eliminate cat populations are inhumane, ineffective, and wasteful of scarce resources" (HSUS, n.d., para. 11).

Similarly, the ASPCA cites scientific research that shows that alternatives to TNR programs, including lethal strategies, "have been shown to be impractical, ineffective, and often inhumane. With the exception of closed populations of cats on islands, attempts to eradicate cat colonies almost universally failed. Cats who are removed are replaced through reproduction, the movement of other cats into the territory and the addition of lost and abandoned animals who repopulate the vacated space" (ASPCA, n.d., para. 5). The ASPCA does note that in "ecologically sensitive" areas, trapping and relocating cats is a humane and ecologically sound policy. Both the ASPCA and the HSUS, along with cat-specific organizations such as Alley Cat Allies, strongly support TNR as the centerpiece of a multifaceted approach to reducing outdoor cat populations, avoiding the spread of disease in cats, avoiding public health risks to humans, and minimizing the ecological damage done by the cats.

Animal rights organizations are less certain about TNR. As noted earlier, PETA, the largest rights organization in the United States, "sadly" concludes that TNR is not in the cats' best interests. According to PETA's explanation of its position on TNR, cats who "must fend for themselves outdoors" often "suffer and die horrible deaths." This is the primary reason that PETA concludes that "we cannot in good conscience advocate trapping and releasing as a humane way to deal with overpopulation" (PETA, n.d.-a, para. 1). However, PETA argues against TNR programs on very different grounds than the Audubon Society and other bird or wilderness advocates. The organization notes that "Advocates argue that feral cats are just as deserving as other felines and that it is our responsibility to alleviate their suffering and assure their safety. We absolutely

agree. It is precisely because we would never encourage anyone to let their own cats outdoors to roam that we do not encourage the same for feral cats" (PETA, n.d.-a, para. 2). In this perspective, supporting TNR programs and otherwise managing feral cat colonies is the moral equivalent of abandoning personal pets.

While PETA diverges from welfarist organizations like the HSUS and APSCA by opposing TNR, it is possible to identify some common moral principles. In particular, PETA shares the welfarist insistence that individual animals, including members of domesticated species, have intrinsic value and interests that should be respected. Its opposition to TNR rest not on grounds of ecological holism, but on the interests of the cats themselves.[1] Here the ethical complexity of this issue becomes apparent. Welfarists share some fundamental values with rights advocates, particularly the conviction that policy solutions should consider the interests of the cats themselves. Despite these shared values, they end up supporting divergent policy options.

Unlike both welfarist and rights streams within animal ethics, most environmental activists do not attribute intrinsic value to individual creatures, especially members of domesticated species like cats. Their concern for native wild birds rests on fundamentally different philosophical grounds than animal advocates' concern for cats. Thus, birds and other native wild animals have value not as sentient individuals, but as aspects of larger ecological wholes.

Despite their divergent ethical claims, rights advocates like PETA find themselves on the same side of the TNR debate as ecocentric holists. This theoretical complexity is reflected at the practical level. Both philosophical disagreements and pragmatic coalitions emerge in relation to TNR programs, which have become the center of the debate about outdoor cats. One reason that TNR has become so important is because it shifts the discussion to management options rather than straightforward killing. Despite the sound and fury associated with the "cat wars," it is important to keep in mind that with few exceptions, neither animal rights advocates nor bird advocates can bring themselves to support killing cats as a general policy. Those who break with this reticence, such as Williams, face harsh and immediate rebuke from almost all sides. Given the fact that most people reject a blanket policy of rounding up and killing outdoor cats, we need to look elsewhere for humane, effective, and socially acceptable solutions.

ETHICS AND THE CAT DEBATE

While the cat debate is not only, or mainly, a philosophical debate, the positions of animal and environmental ethicists encompass the core of the perceived conflict between wild nature and individuals of a domesticated species. We have outlined these positions above in the sections on environmental and animal ethics. Here we want to subject these positions to an ethical analysis, to identify core differences and commonalities and, thus, better understand the prospects for philosophical and strategic agreements.

In this approach, we adopt a broadly pragmatist perspective. Pragmatism rejects foundational moral claims and fixed goals, and instead prioritizes problem solving. It is a kind of "ethical empiricism" (Stevenson, 1961–62, p. 78) in which moral judgment is inseparable from empirical knowledge. Just as scientific knowledge emerges through experimentation and testing, so does knowledge about the right thing to do. As the early pragmatist John Dewey (1957) summarizes: "The hypothesis that works is the true one" (p. 156). The goal of pragmatist ethics is not to identify universal moral laws, but rather to resolve concrete problems on the basis of good data and multiple perspectives. This has made it appealing to some environmental philosophers who want to shift away from debates about foundational claims and toward opportunities for consensus on specific issues. Bryan Norton, a prominent environmental pragmatist, explains that "we need to go after better problems, more real problems, and that we need to go after them in an activist, problem-solving context, rather than in the context of metaphysical quandaries about who or what can own its own value" (1995, p. 358).

While we do not write from a specifically pragmatist perspective, we find pragmatism helpful as a way to identify and articulate the issues at stake in the conflicts about outdoor cats. This is because we share the pragmatist interest in defining manageable problems, using accurate data, incorporating multiple points of view, identifying shared values, and developing practical solutions even when theoretical agreement is impossible. Like pragmatists, we believe that the best approach to difficult moral dilemmas, such as the conflicts over outdoor cats, "arises from practical experience and takes shape as individuals—and communities—confront problems, learn about their (and others') values and beliefs, and adjust and progressively improve their natural and built environments" (Minteer, 2006, p. 6).

Shared Values

Although there are many differences, there are also a number of very important shared values, which we believe can provide grounds for conversation and consensus on at least some issues and strategies. One commonality is the claim that nonhuman nature and nonhuman animals—at least in certain forms and places—have moral value. Further, this value is, at least in part, intrinsic. Nonhuman nature has certain interests that do not depend merely on its usefulness to humans. This means that people cannot just do what they want or act in a purely instrumental way. We have certain obligations to certain aspects of nature, including at least some nonhuman animals.

In sum, both bird people and cat people care about at least some aspects of nonhuman nature and want to protect it. The moral complexity of the "cat wars" stems from the fact that even people who think we have obligations to some animals disagree on which animals matter and what specifically we ought to do for, or about, them. Both environmental and animal ethicists assert that people should take care of animals and leave wild nature alone, from various perspectives. However, the situation of outdoor cats reveals that this dualistic model cannot solve the problem, precisely because it is not possible to separate nature and culture so neatly. Feral cats are the boundary case that reveal the fragility of the hard and fast categories we have established to try to assign meaning, value, and territory to members of other species. They reveal the wildness that lurks in even our most intimate domesticated companions, and they also reveal the possibility of communication and care even with animals who reject close contact.

Finding Common Ground

Perhaps more important than the possibility of communicating with cats is the possibility of communicating and finding ground with other humans who care about these issues. Our discussion of values has explained some of the possible reasons that polarized frames, such as "cats against birds" or "cat people" against "bird people" have emerged, based on the ways different participants understand and value nature. We now turn to the prospects for bridging the gap between what appear to be two warring parties, for moving past entrenched oppositions to find shared values and common ground.

The framing of the conflict over outdoor cats as a choice between two opposed, mutually exclusive options reflects a common approach to many ethical problems. According to this approach, ethical problems are dilemmas in which there is no ambiguity and no middle ground or possibility for consensus, because the choices are mutually exclusive. Further, it appears that one side is completely wrong and the other completely right. All the good arguments, values, and evidence are stacked on one side, and the other one is wrong, both morally and factually (Weston, 1997). When debates about important issues are portrayed in this way, it is no wonder that the rhetoric becomes heated and the prospects for constructive, collegial conversations become vanishingly few.

Without denying that moral choices can indeed be stark, we do not believe that they are always, or even usually, as black-and-white as they are often painted. We believe, in fact, that in most cases—and certainly in the "cat wars"—both (all) parties are, at least in part, "right." More precisely, the different sides may each have legitimate claims and values. As Weston (2013) points out, many issues are in fact cases of "right versus right": "In nearly every serious moral conflict, each side has a point. Each side speaks for something worth considering. Each side is right about something." In such cases, we should "Ask not which side is right, but what each side is right about" (p. 312–313). This question can lead us to confront the polarized framing of the issue and the demonization of the "other side," which can lay the groundwork for constructive problem solving and the identification of shared values.

Weston (1997) gives the example of another heated issue, the debate about abortion rights. Weston suggests that it is possible to affirm both that fetal life can have value and that women's bodily autonomy is valuable. In the debates about outdoor cats, we can assert both that native wildlife and ecological processes matter, on the one hand, but that the lives and welfare of cats also matter. It is not logically or morally contradictory to affirm both these values, although in practice, it may be difficult to give both the same weight in all circumstances.

Another important truth that can help us identify and build on shared values is the fact that in most cases, even very controversial ones, extreme views are relatively rare. In the case of abortion, for example, few people oppose all abortions in all situations, even people who are strongly pro-life. This reluctance to be categorical stems from the fact that humans always hold multiple values, and in most real-life problems more than one of these

values is at stake. The issue may be not which side is right, but rather, as Weston argues, what is right about each side. We care both about preserving human communities and about protecting ancient species. We can acknowledge the value in conflicting opinions when we recognize that it is not a matter of one side being all right and the other all wrong. In fact, most ethical problems involve conflicts between real goods—that is why ethical questions arise (Weston, 1997). If moral choices were really as clear-cut as they are portrayed, they would not be dilemmas but in fact easy choices.

When we acknowledge that multiple values are involved and that all sides have at least some legitimate claims, it becomes possible to look for solutions that integrate important values from both sides. From this perspective, compromise is not a sign of weakness or lack of commitment, but rather an acknowledgment of the diversity of legitimate values at stake and an attempt to honor them all, at least in part. Difficult and heated conflicts, whether about abortion or outdoor cats, can be seen not as simple clashes between good and evil, but rather reminders that our values, like our societies, are diverse and complex (Weston, 1997).

This leads us to approach the "cat wars" not as an epic story of heroes and villains, but instead as a complicated set of conversations about many different things that we legitimately value and the prospects for honoring as many of these things as possible. Rather than pitting birds against cats, or bird people against cat people, we could affirm that there is value in birds and cats, in wild native ecosystems and human social collectives, and in the people who care about all of these things. This affirmation is an important starting point for conversation, although by itself, it does not take us very far along the path toward effective, practical solutions.

We will address the possibilities for such solutions later in this book, but we want to make a few more points about their ethical dimensions here. First, careful moral analysis can help us reframe problems in a way that makes them more amenable to constructive, widely accepted solutions. Too often we engage in what Weston (1997) calls "freezing the problem," by which he means we act as though all we can do is cope with the problem, accommodate ourselves to it, and react after it has happened. Instead, he suggests, we might ask whether the problem itself can be changed, made less serious, or even avoided entirely. One way to do this is to look carefully at the relevant empirical data to ask if, and to what extent, it supports the framing of the problem. Are there clear grounds for believing that we face a stark choice between two mutually exclusive alternatives? In real life, this is rarely the case.

In regard to outdoor cats, we must read the research on outdoor cat predation carefully to determine if cats are always, in all places, a grave threat to wild songbirds. Our reading of the scientific research reveals a threat that is more localized than some TNR opponents describe. This suggests that we can, in many cases, reframe the problem so that it is not a choice between killing all the cats, on the one hand, and letting the cats kill all the birds, on the other.

The second practical tip that we can offer, from the perspective of ethics, is to translate shared values into a common language. When we are sharply divided on important questions, Weston (2013) writes, ethics should not entrench us further, but rather "find ways to think and act together when we do have basic disagreements but must still work out some shared values to live by. The main way we do so is by finding shareable terms and arguments" (p. 61). One way to do this is to focus on interests, not positions. Portraying the conflicts surrounding TNR as a war between cat people and bird people emphasizes hardened positions, rather than the values or interests at stake. If we can reframe the debate as a conversation about how best to protect animals, ecosystems, and social communities, we can highlight the shared values and interests rather than entrenched ideological and emotional commitments. Everyone may have to compromise, but no one will have to give up everything that matters to them.

Finding Help in Pragmatism

Many of Weston's suggestions echo the approach of philosophical pragmatism. As we noted earlier, pragmatism rejects philosophical absolutes and focuses on finding common ground in order to solve concrete problems. It also emphasizes critical, careful, and impartial reading of scientific data. These traits make pragmatism especially useful in situations—such as the "cat wars"—when multiple values are at stake, multiple individuals and groups are involved, and broad philosophical agreement is elusive. Because of its focus on practical problem solving and consensus building, pragmatism has long been engaged in debates about public issues and possible solutions to them. Its origins, in fact, lie in the desire of Dewey and other founding thinkers to solve thorny problems by identifying and pursuing shared goals, rather than debating value claims. This approach has become appealing to a number of environmental philosophers who want to move ahead on common practical aims without waiting to achieve an elusive, perhaps impossible, theoretical agreement. Pragmatism rejects "the notion

that we should be searching for a final and universal ethical principle (or even a smaller set of ultimate principles) to govern all of our problematic environmental situations," as Ben Minteer (2006) explains, because this view "not only sweeps aside real moral diversity, it also fails to acknowledge that values can and do change in the context of public debate and deliberation over environmental problems and policies" (p. 7).

More recently some philosophers have explored pragmatism as a "pluralistic, fallibilistic, and flexible" model for thinking about people's moral obligations to nonhuman animals. They find pragmatism useful in the complex, often heated issues regarding human obligations to animals because of its adaptability "to changing circumstances and practices because it is not unalterably wedded to principles that are too often divorced from people's everyday lived experience" (McKenna & Light, 2004, p. 1). Because pragmatism rejects "either-or" dichotomies in favor of a "both-and" approach, it can be especially helpful in polarized conflicts such as the "cat wars" (p. 10).

The flexible, pluralistic, and problem-solving emphases of pragmatism are all important in our approach to the moral and policy debates about outdoor cats. We also want to highlight one additional factor, which is implied but not always emphasized by pragmatist thinkers: social and ecological context. Context is a problematic concept in ethics, since it is sometimes used to suggest an extreme moral relativism, in which there are no firm values or guidelines, merely "in the moment" responses to particular circumstances. This is not what we suggest, in relation to outdoor cats or any other environmental issue. We believe it is possible to identify moral goods that transcend shifting conditions, including democratic norms, scientific rigor, the continuation of ecological processes, and the rights of nonhuman animals to basic respect.

While we reject complete moral relativism, then, we believe that different goods may deserve more attention or priority in different settings. Morally different responses emerge not from a straightforward application of abstract values to concrete settings, but rather from careful consideration of various factors, including (but not limited to) personal and collective histories, relationships, available resources, scientific evidence, power dynamics, and likely consequences. Clare Palmer embodies this approach with her argument that we consider animals in terms of an "ethics in context," according to which we have different obligations to different animals depending on the histories and relationships (social and ecological) involved. Like many philosophers, Palmer asserts that we have distinctive

"duties of assistance" to domesticated animals that we do not have with "wild-living wild animals." However, unlike most other environmental and animal ethicists, Palmer (2010) also addresses a third category, animals in the "contact zone" between wild and domesticated. This includes animals in zoos and other institutional settings, wild animals living outside their native habitats ("exotics"), and also feral animals (p. 6).

Human commitments to domesticated and feral animals stem not only from responsibility for their immediate situations, but also for our role in creating them. Humans have special obligations to domesticated species, including animals living feral lives as well as those living with people. This is because we are responsible not only for their current situations, but also for their distinctive characters and capacities, and for their very existence (Palmer, 2010). Because she considers these biographical and historical factors, Palmer's relational approach can be especially helpful for animals in the contact zone, rather than the end of spectrum cases. She defines animals in the contact zone as those in our homes and gardens, animals displaced by urban sprawl, and animals scavenging around our settlements. These animals have been neglected in both animal and environmental ethics. They are often uncharismatic, and they are outside the zone of systematic harm that is associated with the meat industry and animal research, thus falling below the radar of most work in philosophical animal liberation. A strength of her relational approach, Palmer says, is that it provides a way "to think about feral and commensal relations . . . alongside the fully wild and domesticated" (p. 166).

Palmer (2010) elaborates her arguments in relation to a number of case studies, one of which involves outdoor cats and birds they hunt. In urban and suburban settings, she points out, both feral and domesticated species are all, in their own ways, "in the contact zone; there are back stories in each case that locate them in significant relations with human beings" (p. 153). For cats and birds, she describes these relations as "layered predation" (p. 152), a more nuanced and fluid concept than two-dimensional predator-prey relations. While both birds and cats exist in the contact zone and thus generate certain responsibilities on the part of humans, the cat's situation is distinctive because unlike the free-ranging wild birds, the cats' "very constitution is shaped by humans" (p. 154). The contextual approach suggests that, in relation to outdoor cats, we have particular responsibilities due to their history of domestication but, at the same time, our duties may vary in different situations. For example, we have certain obligations when cats threaten endangered wild bird species, as in some island or

coastal habitats, which we do not have when cats live in disturbed urban or suburban habitats and prey only on abundant, opportunistic species.

In thinking about these contextual differences, we also are guided by social ethicist Warren Copeland's emphasis on thinking about which values are most important in a given situation. Copeland argues, in relation to the US economy, that many goods are worth pursuing: liberty, solidarity, and equality, among others. In certain situations, however, one of those values may take precedence—for example, in a situation in which social equality is lacking, we might advocate for policies that generate greater equality rather than individual liberty. This does not mean that liberty and solidarity are not also important social goods, but it means that we need to evaluate the situation, identify which important goods are missing or overrepresented, and organize our ethical and political responses accordingly (Copeland, 1988).

In relation to outdoor cats, we can identify a number of guiding values, such as respect for sentient individual animals, preservation of ecological wholes, protection for endangered wild species, and appreciation for the emotional bonds between humans and cats. In some settings, we may need to support policies that emphasize one of these goods over the others. Thus we might, for example, support TNR programs in suburban settings in which cats do not prey on endangered species, in recognition of the cats' intrinsic value as individuals and their special relationships with humans. We also recognize the intrinsic value of the birds they prey on, but in a disturbed ecosystem, predation by cats may fall into the same moral category as predation by wild native species such as raccoons, owls, and hawks. In a more fragile ecosystem, such as the Florida Keys, other values may come to the fore. If free-roaming cats are threatening the survival of wild species and thus the integrity of the ecosystem as a whole, it may be necessary to consider lethal control in such settings. This, in turn, does not mean that we dismiss the intrinsic value of cats as sentient individuals, but here the intrinsic value of wild or native animals and the collective survival of these species and of the larger land community take precedence.

CONCLUSIONS

This chapter has outlined and analyzed the major ethical issues and approaches that are involved in the debates about outdoor cats and begun

to articulate the theoretical framework that we find most helpful. This framework emphasizes several themes.

First, ethical pluralism is a fact in every complex natural and social community. This means that different moral values are present and legitimate. These values sometimes conflict and sometimes reinforce each other, among a range of shifting relationships. The best way to resolve moral conflicts is not to oversimplify or polarize, but rather to understand the diverse values at stake and seek to honor as many of them as possible.

Second, science, like ethics, rarely speaks with one voice. This does not mean that anything goes, but it does mean that we should resist overgeneralizing. What is true in one setting may not be true in another, and we should do the hard work of gathering and analyzing data rather than leaping to conclusions. The best way to respect science is to treat it as a set of questions rather than a final answer, and the same may be true of many ethical claims as well.

Third, ethics is a process. It is not a set of firm rules or a choice between entrenched positions. Like science, ethics requires careful, sustained, and locally sensitive attention. More precisely, we understand ethics as a process of value identification, respectful and open discussion, and problem solving, in which there is no final correct solution that closes the case forever. This stance guides us in the remainder of this book as we consider and evaluate the best practical solutions to the cat debate.

CHAPTER 5

The Social Problem

For some in the wildlife/conservation community, the idea that cats are intrinsically valuable may be hard to accept, but just as a conservation advocate or birdwatcher derives pleasure from watching a bald eagle soar or a humming bird zoom across the sky, many TNR advocates derive the same pleasure from interacting with feral cats—even if "interacting" does not involve touching or holding the animal.

This appreciation for animals, including wild and domesticated beings, is just one of the many things that bird people and cat people share. Previous chapters have described the dualistic portrayal of the cat debate and the various communities that have a "stake" in the cat debate. Here, we will explore what these communities actually know, believe, and value; highlight important areas of agreement between and within groups, based on their concern for nonhuman nature and desire to protect animals; and challenge whether the polarized views typically emphasized in the media really exhaust the debate.

WHY STAKEHOLDERS MATTER

If we are going to find a solution that reduces that cat population and benefits wildlife, we have to understand and engage with all of the stakeholders—individuals interested in and concerned about outdoor cat welfare and management—involved in the cat debate. Implementing

TNR or lethal control on a large scale will require cooperation between these interested groups (Peterson et al., 2012), including those who are passionate about helping outdoor cats and those who are passionate about saving wild birds.

Countless TNR volunteers manage cat colonies. Some of these volunteers are so devoted to the task of feeding feral animals that they sacrifice their own time, money, and ability to travel. "It's a big responsibility managing outdoor cats," suggested one focus group participant. "You know, I haven't taken a vacation since I've had them. They're like children; you can't trust just anybody. I mean if they're [cats] not fed one day that would be so traumatizing to them."

The passion and commitment demonstrated by cat colony managers is matched in fervor by birdwatchers who travel the globe in search of rare species or bird enthusiasts who track birds daily using the eBird app, a "real-time, online checklist program" that allows birders to record bird sightings, keep track of bird lists, and share sightings with others in the birding community (eBird, n.d.). Passionate eBirders describe this program as "addictive" and "can't imagine how" they lived without it (Team eBird, 2017a). Ken Burton, who won the May 2017 eBird Challenge, said, "I'm on eBird virtually every day for one reason or another and usually submit about four complete checklists a week" (Team eBird, 2017b, para. 2).

If we could find a solution that engages both of these communities, we would have a ready-made citizen group to mobilize and implement the agreed-upon management strategy. Unfortunately, as the response to *Cat Wars* illustrates (see chapter 2), there currently aren't many examples of collaboration around the issue of outdoor cats. While the conservation community has done a good job of asking important questions about cat distribution, the spread of zoonotic diseases, and cat-related predation of birds and mammals on islands, it has done a poor job of reaching out to the diverse stakeholders that are necessary for the successful management of outdoor cats. In particular, the conservation community has focused more on communicating with others focused on the risks that cats pose to wildlife than with TNR groups who could be important allies and partners in the effort to reduce the number of unowned, outdoor cats. Because of this lack of communication, members of the two groups are not able to acknowledge each other's perspective. This makes civil dialogue impossible and hampers the development of collaborative solutions that respect the values and goals of all parties.

Whether you are talking about the management of controversial animals or decisions about where to site a nuclear waste facility, communication between communities affected by these decisions should include all stakeholders' perspectives, even those that make us uncomfortable. Despite the hundreds of TNR and bird advocacy groups across the United States, we are aware of only one prominently described example of collaboration between an Audubon Society group and a feral cat advocacy organization (Lisnik, 2015). It is very possible that other examples of collaboration exist, but the fact that they are not being covered by the national media, or discussed within the animal welfare and wildlife communities that the authors engage in, highlights the divisive nature of this conflict, the overwhelming focus by news media and stakeholder organizations on the conflict surrounding this issue, and the current gap in efforts to promote collaboration.

PERSPECTIVE TAKING AND DEEP LISTENING

Collaborative outcomes, including animal management initiatives, are more likely when participatory processes build trust and shared understanding among key stakeholders and when participants are able to take the perspective of others within the collaborative process (Ansell & Gash, 2008). Pragmatic solutions to the currently unsustainable stray, feral, and outdoor cat population are more likely to be found by engaging both conservation advocates and animal advocacy groups in dialogue and participatory efforts, which require an understanding of common goals and shared understanding between interest groups. To date, the conversation about outdoor cats has focused primarily on conflict, with little to no emphasis on the areas of agreement that could contribute to collaborative or cooperative initiatives. To begin to identify potential avenues for establishing common ground between key stakeholders, this chapter presents data collected by Dara Wald during six focus groups with TNR groups and Audubon Society members in Florida, surveys distributed to undergraduate students at the University of Florida, as well as surveys with randomly selected TNR supporters, Audubon Society members, and the public in Florida (see Wald, 2012, for details about focus groups and surveys).

Unlike previous studies about the topic, our research is based on interviews and focus groups with key stakeholders, who, compared to the general public, hold significantly different perspectives about the management of

outdoor cats, are more interested, knowledgeable, and concerned about this issue, and are more likely to influence policies about outdoor cats (Wald et al., 2013). Surveys included questions about environmental values, beliefs about outdoor cats, perceived cat-related risks, attitudes toward management methods, affection for cats, and preferences for lethal management (Wald & Jacobson, 2013). Unlike previous research, these surveys used neutral terminology about cats (e.g., *outdoor cats* instead of *feral cats*) so that biased survey words would not influence survey responses, change attitudes, or pressure respondents into providing the "correct" response to this controversial issue.

This chapter focuses on what we have learned by listening and taking the perspective of both cat- and bird-lovers. The first section of this chapter explores the relationship between affection for cats and opinions about cat management. While affection for animals is certainly an important component of concern about cat management, we find that the relationship between affection and management support is more complicated than the one typically described in media coverage of this debate. Next, we explore the role of knowledge in the cat debate. As we described in chapter 2, scientists often attribute public conflicts over science to ignorance caused by a deficit of knowledge. The science deficit model often leads to the design of educational campaigns focused on increasing public awareness about an issue, with the assumption that awareness will change behavior. We will explore what TNR supporters know, or do not know, about cat predation and cat-related risks to wildlife from cats, and review what this tells us about the relationship between knowledge, affection, beliefs, and stakeholder preferences for cat management. The results of our study both enrich and challenge what had previously been known—and believed—about the cat debate. In addition to summarizing some of these findings, we address the implications of these results for communication efforts designed to engage with stakeholders concerned about outdoor cats. Finally, we discuss areas of common concern and shared interests between stakeholders that might provide a pathway to encourage consensus, collaboration, or cooperation between these groups.

SOME WE LOVE, SOME WE HATE

TNR volunteers and cat caretakers express affection for outdoor cats (Centonze & Levy, 2002) and commit time and money to their care.

Affection is a critical factor in human cognition and behavior and has been cited as a factor predicting support for animal management techniques and protection efforts (Fulton, Skerl, Shank, & Lime, 2004; Tarrant, Bright, & Cordell, 1997; Vaske & Donnelly, 1999; Vaske & Needham, 2007).

In the following section, we take a look at the relationship between affection for cats and birds and TNR support or opposition. While love appears to be related to TNR support, it may not be the only thing that matters; there may be other attitudes, beliefs, or values that also influence TNR advocates' support for nonlethal management strategies. Identifying these other factors and how they influence TNR advocates' behavior will help stakeholders interested in working with TNR communities identify messages that appeal to this community. In addition to exploring affection for cats among TNR supporters, we also explore feelings about cats among conservation group members.

Based on the portrayal of the conflict in the media, we expected conservation group members to express very little affection for cats, especially outdoor cats; however, conservation group members often expressed positive feelings for cats during focus group meetings and described outdoor cats as "pretty" and "beautiful." "I have a very dear place in my heart for cats," asserted one focus group participant and member of the Audubon Society. "We had cats my whole life and I love cats, and we brought strays in all the time, we had kittens in our neighborhood that I grew up in, and we'd bring them in and raise them." Several other participants in the conservation group reported both affection for cats and mixed feelings about letting cats roam outside. One participant acknowledged feeling guilty for letting her cats outdoors because of the "risk to wildlife." Despite these feelings, she still likes to watch cats: "I mean, it's just a thing I enjoy. They're beautiful to watch." Another long-time Audubon Society member suggested that because of affection for his own cats, he could "get kind of swayed easily by either side" of the cat debate. Instead of finding anger and hostility toward cats among conservation group members, focus group results revealed many members of the conservation community who liked cats, acknowledged both the pros and cons of letting cats roam outdoors, and, in several cases, sheepishly admitted letting their own animals outdoors. Since focus group participants were not randomly selected, it is possible that the respondents quoted here were more interested in this question and more positive about cats than the rest of the Audubon Society membership.

To explore this question further, we also asked about affection for cats in a mail survey that was randomly distributed to a representative sample of Audubon Society members. The survey included a question about feelings toward outdoor cats (1 = unfavorable feeling, 7 = favorable feeling) and a question about feelings toward domestic cats in general (1 = hate, 7 = love). In what follows, we look at the results of both of these questions separately.

TNR supporters express significantly more affection for outdoor cats than conservation group members or the general public (approximately two points higher) and greater affection for domestic cats (approximately one point higher) than the public. However, there was no difference in affection for outdoor cats among conservation advocates and public respondents. Thus, while conservation advocates are less enthusiastic about outdoor cats than TNR advocates, they are no less enthusiastic than the general public. The dominant narrative in the media and among stakeholder groups often describes cat-lovers and bird-lovers in conflict and implies that these two groups are mutually exclusive. Our results challenge this narrative and suggest that it is possible for people to love birds and cats. Moreover, while TNR advocates expressed greater affection for cats, the bird-lovers we engaged with do not appear, in general, to dislike outdoor cats any more than the general public.

Previous research has suggested that affection, or feelings, can influence perceptions of animals, judgement, and decision making. Thus, we also explored the relationship between affection and preference for lethal and nonlethal management. We asked participants to indicate their preferred management action for outdoor cats (e.g., trap-neuter-return; placement in a long-term, no-kill sanctuary; trap and euthanize; poisoned baits; shooting; providing cats with food or other assistance; and no management) and measured attitudes about the humaneness of lethal management by asking respondents to tell us if they thought lethal strategies such as euthanasia, poisoning, or shooting were inhumane or very humane (1 = not humane, 7 = very humane).

Our initial results suggest that love for cats is strongly related to support for TNR (see Wald & Jacobson, 2013). Affection for outdoor cats is associated with increased support for TNR programs and perceptions of TNR effectiveness. Affection is also related to increased perceptions of lethal methods, including euthanasia by a veterinarian, as inhumane. Positive feelings about cats is related to increased tolerance for outdoor animals and decreased support for government control of outdoor cats and

the confinement of cats indoors. As love for domestic cats increases, so does affection for outdoor cats, and we observed similar relationships between support for TNR and affection for domestic cats. While affection was associated with support for TNR among TNR advocates, several members of the conservation group suggested that feelings for cats were not driving their opposition to TNR. As one participant suggested, "I'm perfectly fine with cats; I just don't like them outdoors." To which another respondent added, "They're fine if they're leashed." While affection for cats was higher among animal welfare advocates, comments captured in focus groups suggest that support for cat management among conservation group members may not be driven by negative feelings about cats—whether they are indoor or outdoor. In what follows, we will explore several other factors that may influence conservation group members' preferences for cat management.

Regardless of affection for cats, we observed widespread discomfort with the idea of poisoning cats, even among people who don't particularly like cats. As one Audubon Society member suggested, "Poisoning is a pretty rough way to go. I mean I'm not a great cat lover, but I'm not necessarily looking to cause any great physical impact." Respondents generally preferred nonlethal management methods and euthanasia, either by a veterinarian or in an animal shelter, over shooting or poisoning outdoor cats. Respondents in both stakeholder groups also objected to shooting cats. Calling shooting an "extreme solution," one respondent from the Audubon Society said, "If they're [cats] just eating mockingbirds, I don't think I would shoot a cat." Both conservation group members and members of the TNR community suggested in focus groups that their rejection of shooting and poisoning was related to concerns about it not being a "humane" or "fair" approach to management. Indeed, concerns about the humaneness of cat management methods appeared to be an important factor influencing stakeholders' support for cat management. As one member of the conservation group said, "Getting rid of them [cats] humanely would be the primary objective because I have nothing against cats. I don't dislike cats, and the cats are not evil; they're just in the wrong place."

These results suggest that in addition to affection, the perceived humaneness of management strategies might also influence opinions about management strategies. To explore this idea, we ran a series of models to better understand the relationship between affection for cats, perceived humaneness of management strategies, and support for specific management approaches (lethal vs. nonlethal). We found an important relationship

between beliefs about the humaneness of lethal strategies and support for TNR. While support for lethal management was generally low, people who perceived lethal efforts as humane were more likely to support these methods and less likely to support TNR. Moreover, attitudes about lethal management predicted attitudes toward TNR and intention to support other nonlethal interventions.

Affection for cats influenced opinions about management, with affection increasing support for TNR and decreasing support for lethal management. However, when we compared affection for cats and attitudes about humaneness as predictors of support for management, we found that perceptions of humaneness had a much larger effect on support for TNR than affection. In addition, while positive beliefs about cat-related impacts (e.g., that cats provide companionship or reduce the spread of disease) increased affection for cats, it was not associated with support for lethal management. Instead, negative beliefs about the risks cats pose to wildlife and people (e.g., spread rabies, kill wildlife) increased positive attitudes toward lethal management. These findings suggest that stakeholders, especially conservation group members, support lethal management methods if they perceive big risks to wildlife and people from cats and if they perceive lethal methods of management as humane. TNR group members also support nonlethal management methods because they believe these methods are humane. However, TNR members appear to be motivated by affection for cats, positive attitudes toward TNR, and positive beliefs about cats and the benefits they provide to humans.

Our results challenge the idea that support for management is driven only by love of cats or love of birds; instead, they suggest that many members of the conservation community care about cats, own cats, and appreciate their beauty but also support lethal management methods. At the same time, these results suggest that TNR supporters are opposed to lethal management and supportive of TNR because of positive feelings about outdoor cats and concerns about the humaneness of lethal management. Participants who were more concerned about the potential risks cats pose to wildlife were more supportive of lethal management strategies. Participants who were more certain of the benefits cats provide to them or to society (i.e., through pest management) were more supportive of TNR. Thus, support for lethal management and support for TNR appear to be influenced by very different factors, concerns, and beliefs. We believe that framing this debate as one between cat-lovers and bird-lovers

overemphasizes the effect of affection on management support and ignores the critical role of ethical values and risk-related beliefs underlying stakeholders' attitudes about the humaneness of lethal management strategies (Gorman, 2003; Hatley & Ankersen, 2003; Rosenthal, 2011). We continue to explore the role of stakeholder values, beliefs, and perceptions of risks and benefits in the following section.

THE SCIENCE DEFICIT PROBLEM

One common refrain heard during focus group meetings with Audubon Society members and conversations with friends in the wildlife and ecological community is that TNR advocates favor TNR because they just do not know, or understand, that cats—even neutered animals—kill birds. This supposed disregard among the TNR community for mounting evidence that cats kill birds frustrates many members of the wildlife community and has contributed to the publication of op-ed pieces, such as a 2014 article published in the *New York Times* by Richard Conniff, a regular contributor to the *Times*, *Smithsonian*, and *National Geographic* magazines. Conniff tackles the knowledge "deficit" (or assumption that TNR advocates do not understand that cats kill birds) by providing a primer on the science of cat predation: "researchers recently estimated that free-ranging cats killed about 2.4 billion birds annually in the Lower 48 states" (para. 9). Conniff continues with a focus on cat-related risks, "cats are the primary hosts of toxoplasmosis" (para. 16). This article attempts to correct what the author sees as a lack of knowledge, on the part of the TNR community, about the potential risks cats pose to people and the environment. This approach assumes that greater knowledge about the science will change TNR advocates' beliefs and behavior.

Unfortunately, increased knowledge does not automatically alter people's values or practices. The headline of an article in *Slate* makes this point: "Scientists, Stop Thinking Explaining Science Will Fix Things. It Won't" (Requarth, 2017). There are several reasons why more information about the science of cat predation and cat-related risks is not, by itself, likely to change TNR advocates' beliefs and behaviors. In the following section, we explore these reasons, focusing on what TNR supporters know and believe about cat predation and cat-related risks. We also explain why messages focused on risks and cat predation are likely to backfire with TNR groups and explore alternative pathways for effectively engaging this community.

WHAT WE LEARNED FROM LISTENING TO CAT PEOPLE

Cat owners and TNR advocates know that cats kill animals. Focus group participants regularly mentioned cat predation on birds, snakes, mice, and "other little animals." Several respondents who owned cats and let them roam outdoors acknowledged that their pets bring dead animals back to their houses to "let you know what they [the cat] did." Another cat owner recalled an incident when her own cat ate one of her pet birds—valued at $150.

TNR group members acknowledged that cats were predators, but suggested that predation and hunting was part of a cat's nature: "You can't take that out of them, whether they're tame or not. Even my cats, will bring in baby snakes—or a bird last week—and it's just because anything that wiggles, they're going for it." While acknowledging that cats prey on wildlife, one participant also understood that cat predation was a source of frustration for some people: "I have a neighbor who was very upset because the cats go after birds." At the same time, other respondents acknowledged that seeing cats kill wild animals was not enjoyable because they do not want "to see anything hurt or dead or suffer."

Survey results provided further evidence that TNR group members understand that cats kill wildlife. When stakeholders were asked whether "cats kill mice and pests," a majority of the TNR group members (87%) agreed with this statement. In fact, TNR group members were more likely than the conservation group members (78%) and public respondents (83%) to agree that cats kill mice and pests (Wald, Jacobson, & Levy, 2013). However, TNR group members were more willing to acknowledge that cats kill "mice and pests" than they were to acknowledge that "cats kill wildlife." When we asked stakeholders whether "cats kill wildlife," the number of TNR respondents agreeing with this statement dropped to 54%. While this is still the majority of the stakeholder group, it is far below the 87% of conservationists who agreed that "cats kill mice and pests." This inconsistency suggests that "knowledge" about predation is not the same thing as understanding the magnitude of the risk to wildlife or a willingness to acknowledge these risks. Moreover, this finding is consistent with other examples of controversial scientific and environmental topics, like climate change, where people may understand the scientific data and evidence but continue to reject it or criticize it (Kahan, Peters, Dawson, & Slovic, 2017).

If, as our research suggests, TNR supporters know that cats kill wildlife, why don't they accept that cat predation poses a risk to the environment? Our results indicate that when people believe cats are beneficial to them, they are less likely to acknowledge the risks associated with outdoor cats. This finding suggests another possible reason that messages based on risk will likely backfire: TNR advocates perceive direct benefits from cats, and some TNR group members view cat predation as beneficial to them because cats control undesirable animals. As one focus group member put it: "In terms of rats, snakes, and mice, where I live, um, we are surrounded on three sides by water. . . . So we should be overloaded with rats, and snakes, and mice, and we aren't. I mean there just aren't any out there." This particular respondent viewed a habitat without snakes, rats, and mice as "clean and healthy," and he suggested that he was glad that outdoor cats were around to help keep his community "clean."

There were several other ways in which focus group respondents, especially members of the TNR community, viewed cats as beneficial to people. Previously, we discussed the positive feelings stakeholders expressed about seeing cats outdoors, but respondents also suggested that participating in TNR activities provided TNR advocates with positive feelings: "I just feel warm and fuzzy taking care of them. This was the first litters that I've actually watched the babies grow up and have litters of their own; and now I've had to do something because I've realized they grow rapidly, so I needed to bring them in and have them fixed so it doesn't happen. So I can let them have a healthier, better life, and then I feel warm and fuzzy knowing that I did something for them." These positive sentiments about taking care of cats are not that different from some of the motivations that drive conservation efforts. As Drew Lanham, professor of ecology and conservation at Clemson University, said in a recent interview with *Audubon* magazine, "conservation can be broken down into simple components: care and love" (Saha, 2017, para. 5). Just as concern for cat welfare appears to motivate TNR advocates, concerns about bird welfare motivates bird feeding (Cox & Gaston, 2016).

Imagine for a moment trying to convince active bird feeders that they should stop feeding birds because birds carry salmonella, avian pox, and other diseases that can negatively affect humans (CDC, n.d.; *Mass Audubon*, n.d.). When confronted with this point, bird feeders are likely to minimize the risks that birds pose to people and cite the steps that can be used to reduce the spread of disease at feeders: clean feeders, add

feeders to reduce congestion, store seed in airtight containers to reduce spoilage (*Mass Audubon*, n.d.). This response mirrors reactions from TNR advocates when they are confronted with the potential risks associated with outdoor cats.

When people perceive something as beneficial, they are less likely to acknowledge the potential risks associated with it. The more an individual perceives benefits associated with a potential source of risk, the less they believe, or are willing to acknowledge, the associated risks (Alhakami & Slovic, 1994). This same pattern holds for cats. Cats are less likely to be perceived as a risk to wildlife and the environment by people who perceive cats as beneficial to them (Peterson et al., 2012; Wald & Jacobson, 2014). Indeed, during focus groups with TNR members, it was clear that many respondents were skeptical that cats are a source of risk. As one TNR supporter suggested, cats may kill "a squirrel, a bird, a rat even, but the ratio of how many cats there are to how many wild animals they kill isn't very many." The belief that the magnitude of the risk from cats to wildlife is really small was reinforced by another participant who suggested that while "feral cats probably do kill some [songbirds]," cat predation is probably not detrimental to bird populations or species as a whole. One TNR supporter was frustrated with conservation groups' concerns about TNR because the purpose of doing TNR was to "reduce or manage" cat predation and "keep it on an even level," suggesting that conservation communities should support TNR because reducing the cat population will "give the wildlife a better chance."

Participants who believe outdoor cats provide them with companionship and improve their quality of life are more likely to agree that cats kill mice and pests and benefit people. Participants who believe that these benefits make cats intrinsically valuable are less likely to agree with a statement that suggests that cats pose risks to wildlife and the environment.

Compared to members of the conservation community, members of the TNR community were significantly more likely to agree that "outdoor cats provide me with companionship, outdoor cats improve my quality of life, and by killing pests, outdoor cats reduce the spread of disease." While we did hear positive comments about outdoor cats by conservation group members, TNR group members were much more likely to describe cats as "beautiful" and "natural," and to describe outdoor cats as contributing to the natural environment or providing a benefit for people. The relationship between risks and benefits goes the other way, too. The more

risks you perceive from an animal or technology, the less likely you are to acknowledge the benefits associated with it.

Unlike respondents in the TNR community, conservation group members are very concerned about the risks cats pose to wildlife and the environment. These stakeholders perceive cats as exotic animals who pose unacceptable levels of risk to wildlife; thus, fewer of them were willing to agree with a statement framing cat behaviors as beneficial (cats kill mice and pests). The model we mentioned earlier reinforces this idea and provides evidence to suggest that perceived cat-related risks promote support for lethal management while perceived cat-related benefits are associated with greater support for TNR. Moreover, these results suggest that ethical concerns about lethal management may have a larger effect on stakeholder preferences for management than positive attitudes toward cats (Wald & Jacobson, 2013). In the next section, we address these factors further and discuss the implications of our findings for educational campaigns aimed at reducing the population of unowned, outdoor cats.

COMMUNICATION CHALLENGES

At presentations of this information at academic conferences, one of the most common questions we are asked is: if TNR advocates don't believe the risks that cats pose to wildlife, why don't we just educate them and give them the scientific information about cat predation? It is appealing to think that when scientists or "experts" convey simple and vivid messages to the public, the public will receive the communication and change their beliefs or behavior. As we mentioned above, the science deficit theory is commonly adopted by many environmental scientists and conservation groups concerned about outdoor cats. Unfortunately, this model of communication—also called the *transmission model* or the *loading dock approach* (Cash, Borck, & Patt, 2006)—has been widely criticized. The science deficit model has failed, in part, because it overlooks the deeply divergent values and ethical beliefs that guide disagreements over science, such as the debate over how to manage outdoor cats. Just as increasing scientific literacy by explaining the science of climate change to individuals skeptical of climate science is not likely to change beliefs about climate change (Requarth, 2017), attempts to explain cat-related risks to wildlife and people are not likely to change minds among people who are skeptical that cats pose a risk to wildlife and people.

While information is an important first step, knowledge alone is not enough to change strongly held beliefs about cats or ethical opposition to lethal management. What we know—as well as how we interpret that knowledge—is subject to preexisting biases and beliefs. Our aforementioned results highlight one of the reasons the debate over cat management feels intractable: strongly held and conflicting beliefs and values. As Susskind and Field (1996) explain, "When values collide, all sides tend to wrap themselves in the rhetoric of moral right and moral outrage. The other side is portrayed as ignorant at best and as inhuman at worst. Each side views itself as righteous, and, above all, as eminently reasonable" (p. 153). Our research exposes a complicated mix of values and beliefs about the humaneness of lethal management methods that are related to stakeholders' preferences about TNR and other management options.

Beliefs are slow to change and "extraordinarily persistent in the face of contrary evidence" (Slovic et al., 1979, p. 37). Persuasive messaging aimed at changing beliefs can be met with misinterpretation and attempts to discredit the messenger or provide counterevidence that contradicts the persuasive message (Hart & Nisbet, 2012; Nyhan & Reifler, 2010). Attempts to change strongly held beliefs can result in "backfire effects," in which individuals confronted with persuasive messages that contradict a strongly held belief become more committed to their original beliefs and opinions (Nyhan & Reifler, 2010). Backfire effects have been observed in campaigns aimed at increasing energy efficiency and promoting antismoking initiatives (Grandpre, Alvaro, Burgoon, Miller, & Hall, 2003; Shen, 2011). A strategic communication campaign designed to try to persuade cat advocates that lethal management is appropriate to reduce the risks associated with cat predation on wildlife is likely to fail because cat advocates do not believe that cat predation poses widespread risks to wildlife, and because TNR advocates perceive enormous benefits from cats, leading them to suppress concerns about cat-related risks. Persuasive messages encouraging lethal cat management also are likely to backfire with TNR advocates, whose beliefs are both strongly held and grounded in ethical concerns about the humaneness of lethal animal control. When presented with new information that conflicts with their existing perceptions, individuals with strongly held perceptions and beliefs are less likely to change their beliefs (Festinger, 1962; Koehler, 1993; Nickerson, 1998). The more active and involved an individual is in a particular issue, the less willing

the individual will be to accept evidence contradicting strongly held beliefs (Johnson & Eagly, 1989).

When it comes to controversial social topics, conflict and group identity can disable the tools that people use to interpret scientific information. The shared values, moral understandings, and identities that connect stakeholders together in an in-group community can also lead in-group members to reject contrary beliefs and perspectives, especially when these messages come from individuals or organizations not included in the group (out-group). In-group members are more likely to reject out-group sources as less trustworthy or knowledgeable than in-group sources (Kahan, Braman, Gastil, Slovic, & Mertz, 2007). Individuals who have a large stake in the TNR community, or who feel that their personal well-being is connected to their animal welfare identity, may be more willing to reject information that challenges the values or core beliefs of the animal welfare community. They may reject this information in an effort to protect a part of their own identity as a member in the group (Kahan et al., 2007).

Given the conflict surrounding the debate over outdoor cats and the large commitment of time and money often invested in birding and TNR activities, it is possible that group identity is associated with the skewed the interpretation of scientific evidence regarding cat predation and the effectiveness of TNR initiatives. For an example of how identity, strongly held beliefs, and risk perceptions might influence the interpretation of evidence, we can revisit the Amazon reviews of *Cat Wars*, discussed in chapter 2. Reviews from self-identified wildlife advocates consider the book to be an excellent read (five stars) for calling attention to the "damage outdoor cats are doing to our native wildlife," while self-identified animal advocates describe the book in negative terms, giving it one star because it "ignores evidence."

The tendency to reject information from out-group sources has clear implications for people who want to change the nature of the debate about outdoor cats by targeting stakeholders who already have strongly held beliefs about TNR and cat management. Knowledge about cat-related risks to wildlife and the environment can raise awareness about the issues associated with outdoor cats, but based on our findings, knowledge alone is not likely to change the perceptions, beliefs, or behaviors of TNR advocates. Moreover, a focus on information about cat-related risks may further alienate stakeholders who strongly disagree that these risks exist, contributing to the continued rejection of scientific information about cat-related

risks (as we saw in the response to *Cat Wars*). To engender public support, animal welfare organizations and conservation groups must develop compelling and effective communication campaigns that persuade recipients to change their beliefs or behaviors. The challenge is that beliefs are extremely resistant to persuasive messages, especially from out-group sources. In a debate that regularly features perspectives from cat-lovers who disagree with bird-lovers, finding a neutral source of information will be challenging. Risk communication involves the transmission of messages designed to persuade recipients to change their attitudes or behavior toward a risk item (Breakwell, 1997). Trust is a critical component of risk communication and public engagement. The debate between cat advocates and the wildlife community has become so heated (as we described in chapter 2) that scientists, and especially conservation scientists, may not be perceived by certain groups as trusted sources of information about cat predation.

Lack of trust between bird and cat communities is particularly problematic because large-scale cat management efforts will require both public and stakeholder collaboration and participation in activities that control the cat population. Collaborative outcomes, including prosocial behaviors, are more likely when participatory processes build trust and shared understanding among key stakeholders and when participants are able to take the perspective of others within the collaborative process.[1] Before stakeholders can work together for a shared goal, they must understand and respect the values and beliefs of stakeholders on all sides of this debate. The current focus on conflict, continued reliance on messages rooted in the deficit model, and lack of understanding of potential areas for collaboration is delaying efforts to build partnerships between conservation advocates and animal advocacy groups. In light of these challenges and the urgency of this problem, we believe a new approach, focused on potential areas of collaboration, is necessary. In the following section, we present stakeholders' shared concerns and discuss how they could provide the basis for collaborative efforts to reduce the unowned, outdoor cat population.

WHAT DO STAKEHOLDERS AGREE ON?

On the surface, our findings appear to support the claim that TNR supporters and Audubon Society members have different values, beliefs, and attitudes, which in turn drive their management preferences.

Compared to Audubon Society members, TNR supporters expressed more positive attitudes toward cats, believed cats provide more benefits to people and fewer risks to wildlife, and preferred nonlethal management methods. On the other hand, Audubon Society members expressed more strongly held environmental values than TNR supporters. They were more likely to make statements such as "We are approaching the limit of the number of people the earth can support" or that "Plants and animals have as much right as humans to exist." Audubon Society groups were more supportive of trapping and impounding cats and euthanasia than TNR supporters. None of these findings are surprising, and they support previous research on this issue. However, emphasizing only these disagreements makes it difficult, if not impossible, to have constructive conversations about these issues. Communication between stakeholder groups often breaks down because discussions focus on areas of disagreement (Fisher & Ury, 1991).

Finding areas of agreement does not mean solving the problems immediately; in fact, we recommend against starting a collaborative conversation focused on the pros and cons of lethal cat management, which is at the heart of the conflict over outdoor cat management. Rather, in *Dealing with an Angry Public*, Lawrence Susskind and Patrick Field (1996) suggest starting small. They cite a case of conflict between the public and the Environmental Protection Agency over a plan to incinerate toxic chemicals in and around the New Bedford Harbor, within three miles of a working-class community. The conflict was heated and resulted in opposition groups filing a lawsuit against the city of New Bedford. Negotiators might have been tempted to start that first public meeting with a conversation about alternative approaches for cleaning the harbor, but instead, they started by negotiating an agreement that the EPA would not do anything in the harbor for 30 days and the community would delay their lawsuit for the same period. This agreement didn't address the primary reason for public outrage, but it started a conversation between the groups, it encouraged commitment to the process of collaboration, and it built trust and respect between stakeholders so that future meetings could address more controversial topics (Susskind & Field, 1996). In the next section, we identify several potential areas of compromise and agreement between stakeholder groups that might be used as building blocks for future collaboration between cat advocates and conservation group members.

AREAS FOR COLLABORATION

The first area of agreement between stakeholders was a desire to control or manage the outdoor cat population. Several respondents in both the TNR and Audubon Society groups suggested that people should be responsible for taking care of cats and dogs because they need human intervention to be "healthier and happier." In addition, all of the groups participating in the focus groups and the surveys agreed that the outdoor cat population should not increase. No one wants more unowned cats. As one focus group respondent suggested, TNR is an opportunity to reduce the outdoor cat population: "Honestly, I do hope that they eventually will disappear. 'Cause hopefully what that number means, is it's becoming more under controlled. . . . You know, that's the whole reason I think why we all do this [TNR]. 'Cause hopefully that number will be way, way, way down." There was very little support for "no management," and stakeholders were generally supportive of programs that reduce outdoor cats, especially those that relied on nonlethal management methods. One focus group participant explained that he participated in TNR efforts because he did not think that living outdoors was a good way for cats to have to go through life. He further suggested that it was the responsibility of people to help cats and "keep them from overpopulating."

Environmental campaigns and management efforts will fail if they cannot generate public interest and support. Environmental managers and outreach coordinators can spend an enormous amount of time trying to figure out ways to get stakeholders to come to focus groups or community meetings, to participate in cleanup campaigns, or to adopt a new behavior. The outdoor cat debate is unique because there is immense interest in the topic from stakeholders who are already committing time, money, and effort to managing cats and feeding birds. In addition, stakeholders on various sides of the cat debate share a desire to reduce the cat population. A shared agenda—to reduce the cat population—and passion for this issue are only two of the areas of agreement that could motivate collaboration.

When asked to choose between management types, there was widespread support for nonlethal methods among all of the stakeholder groups. Other studies have reported that nonlethal methods are generally perceived as more humane than lethal control (Reiter, Brunson, & Schmidt, 1999). This was true in our study as well. Members of all three of the groups we studied preferred nonlethal management, including TNR and

placement in a long-term or no-kill cat sanctuary, over approaches that involved killing outdoor cats. We found concrete agreement over the importance of management, with support for mandatory rabies vaccination, owner-provided identification, and TNR as a "good management strategy." While support for TNR is lower among conservation advocates than TNR members, it is still generally positive. In fact, we found generally positive support across all stakeholder groups for TNR as a management strategy. Compared to the other possible management strategies, TNR was the strategy that most stakeholders supported.

Although one focus group respondent suggested that due to the increasing need to find a solution to the growing population of outdoor cats in the community, it was only "necessity" that contributed to "sort of permitting or promoting" TNR. Both TNR advocates and conservation group members expressed frustration with cat owners who abandoned cats or shirked responsibility for their animals. As one respondent indicated, "I think it would be great if someone would bring them indoors or to take their outdoor animal that they own and just make it an indoor animal, you know that would bring the numbers down and that would be a great solution. That would be the preferred solution. Someone takes responsibility for it, the cats being cared for life is good." Other respondents expressed a desire for people to become "more responsible for their pets," so that there would be fewer animals in "the shelters and less going in the streets." One focus group participant suggested that owners should be punished for not taking care of their own cats: "If you can't be responsible . . . I think it is a problem, and you shouldn't be allowed to keep it [the cat]."

According to this respondent, responsible ownership included meeting cats' basic needs, like food and water, and preventing animals from posing a danger to other animals or to the ecosystem. If owners couldn't meet this level of responsibility, the respondent suggested that the owner should "suffer penalties for that." To some TNR members the number of outdoor cats is not as important as the number of animals with responsible owners and caregivers: "It doesn't matter if there were 100 of them [outdoor cats], if they were taken care of and I knew they were taken care of and they were fixed and healthy." While most TNR members were not happy that cats were outdoors, they suggested that this was just the reality and often blamed irresponsible pet owners for this problem. Both groups expressed frustration for owners who are not taking ownership or responsibility for managing and caring for outdoor cats.

Referring to a specific neighbor, one Audubon Society participant explained:

> In my situation, I feel like she doesn't own the cats . . . she has a hole in the attic where they live and procreate, and the house is just in shambles. She has a dog she leaves inside and is not there frequently enough to give this dog a happy life. So, I don't feel like she's an owner of these cats. But in other situations where you have these people that own the cats, that feed them, that take care of them, that allow them to be outside and wander into other people's homes and properties, then it's acceptable.

Our data also suggest that there are, in fact, critical areas of agreement between groups, focused on their concern for nonhuman nature and desire to protect animals. The environmental values scale used in our surveys was designed to measure individual environmental concern (Dunlap, Van Liere, Mertig, & Jones, 2000). Scores in this study, for both active stakeholder groups, were extremely high. In fact, these scores were higher than previously reported scores for farmers, birdwatchers, fishers, and hunters.[2] This seems to suggest that, regardless of group membership, stakeholders support the rights of plants and animals to coexist with people. This suggests framing the conversation about outdoor cats not as a conflict between bird-lovers and cat-lovers (or between cat-haters and bird-haters), but, more constructively, as a spectrum in which even the people with the strongest feelings share some common core values: they care about nonhuman nature, they agree that the population of outdoor cats should not grow, and they want to find ways to control that population that minimize harm and death to animals of all sorts.

FROM CONFLICT TO COLLABORATION

Understanding the problems raised by outdoor domestic cats presents a challenge for public policy and for advocacy groups seeking collaboration. Conflict and uncertainty exist about a number of issues, including the definition of the cat problem (are cats in urban areas contributing to species decline?), as well as how to describe and name these animals (e.g., as native, invasive, exotic, domestic, feral, outdoor, community, stray, or

free-roaming). These are not merely semantic issues, for the ways we define these animals and the potential risks or benefits they pose influences responses to questions about management support. Previous studies have suggested there is public support for euthanasia as a method to manage feral cats (Lord, 2008; Loyd & Miller, 2010b). However, our research used the term *outdoor cats* and found much less public and stakeholder support for lethal management methods. In focus groups, participants suggested that their perceptions of feral cats differed from their perceptions of outdoor cats. In addition, the use of different terms to describe lethal management—such as *euthanasia* rather than *killing*, *culling*, or *eradication*—also has the potential to influence self-reported levels of support for different options.

Developing clear, agreed-upon, and uncontroversial terminology is one step that will help build common ground between stakeholders. This is necessary to create a shared vision between stakeholders and to develop management strategies with broad support. A variety of negotiation methods can promote dialogue among stakeholders, improve decision making, and resolve controversial issues. It can help to develop clear goals: "no more homeless pets" is a very different goal than "keep cats indoors." The goals will differ depending on whether the objective is to reduce cat predation on wildlife or to reduce the current population of outdoor cats. Identifying goals that all stakeholders agree on can be the first step to developing management methods with broad stakeholder support.

Collaborative or cooperative intiatives often start with a fluid process where the group's core values and mission shift and adapt to the arrival and departure of new members (Imperial et al., 2016). An important first step in this process is to decide who is invited and who is excluded, and whether the group will invite a facilitative leader. This could include targeted recruitment of groups representing a diversity of environmental groups and animal welfare groups with different moral or value-based beliefs about TNR (described in chapter 4). Moreover, early decisions about the frequency, duration, and location of meetings can determine who participates and has discursive legitimacy—the ability to have a voice—throughout the decision-making process.

Decision-making processes are more likely to be perceived as fair when they include (1) consistent decisions across people and time, (2) reduced bias and influence among powerful decision makers, (3) clear standards about ethical norms and practices, and (4) are based on accurate

information. Initial conversations about goals or collaboration could be designed to leverage traditions from principled negotiation, including separating people from the problem, focusing on interests rather than positions, establishing shared criteria for decision making, and looking for win-win solutions (Fisher & Ury, 1991). Thus, early discussions among participants should include efforts to determine rules for communicating throughout the collaborative process and address participants' expectations about the type of interactions that might occur. These basic decisions can lay the foundation for a strong working relationship with all of the parties involved in the conflict.

The current debate about outdoor cats usually revolves around only two options: TNR or euthanasia. We believe this narrow focus contributes to the current conflict between stakeholders, and we would encourage researchers, stakeholders, and others interested in this issue to begin identifying creative new and humane ways to manage outdoor cats. It is futile to try to convince the TNR community that cats are not valuable, just as it would be futile to try to convince a member of the conservation community that a bald eagle is worthless. No persuasive message will ever be effective enough to convince a TNR advocate that widespread shooting or poisoning is an appropriate management strategy for cats.

If the driving factor for management support, as suggested by our model, is perceptions of the humaneness of existing management strategies, then it is important to identify innovative management techniques that are perceived as more humane and effective than current methods. This will require stakeholders, managers, and researchers to think creatively rather than relying on existing options. Developing a large list of possible outcomes or methods also makes it easier to identify areas of shared interest between groups. As one focus group participant said, "All of you guys have proposed things that I may not have thought about before coming here, so now I can leave here thinking about things you guys have proposed and saying, 'Hmm now I can apply that to my everyday situation.' So, you gain knowledge from every individual, or every organization that you talk to." Only broad conversations, incorporating people with clear disagreements, as well as those who have already identified common values and goals, will lead to policies and practices that can garner broad public support and achieve the goals of both conservation and animal welfare advocates.

Occasionally conflicts are so polarized that two groups cannot be in the same room together without a fight. We have heard the debate about outdoor cats described as such a conflict. However, our results suggest several potential areas of agreement that could provide the foundation for collaboration and shared goals. Pragmatic solutions to the cat debate will not be possible without a concentrated effort to build trust with diverse stakeholders. Actively excluding one or another perspective from the debate about outdoor cats, or continuing to criticize or condemn opposing groups, will contribute to further polarization and distrust between the diverse stakeholders concerned about cat management. We believe the only way to promote a more effective, humane, and ultimately successful approach to outdoor cat management is to engage all sides of this debate in open, face-to-face communication about cats and cat management.

CHAPTER 6

Conclusions

INTRODUCTION

The debate about outdoor cats matters in a number of ways. It is important for "bird-lovers" and "cat-lovers," and for people concerned about nonhuman animals and wild nature. While the cat debate is especially significant for these groups, outdoor cats and the arguments over their fate have far-reaching implications. At stake are not only human obligations to nonhuman animals and nature but also the public role of science and the ways in which engaged citizens can shape public policy. In this final chapter, we reflect on what we have learned about these issues and how we can best move forward to resolve the conflicts about outdoor cats. We begin by returning to the main themes that we have discussed throughout the book.

The first and perhaps most pervasive of these themes is the ways that selective readings of data and heated, polarizing language have influenced both the public and scientific discussions about outdoor cats, especially regarding their effect on native wildlife and management options. Our second major theme is the complex public role of science, including divergent understandings of the evidence on this issue and, more generally, the appropriate place of science in public discussions. Third, the cat debate, and especially the conflicts between "bird-lovers" and "cat-lovers," illuminate the complex ways people value nonhuman nature, and in particular the reasons that stakeholders with different perspectives prioritize

either individual animals or ecological processes. These three themes are interconnected in many ways, and both separately and together they run throughout our discussions in the previous chapters. We use these points to tie the different threads of this book together and also to propose practical steps that scientists, cat advocates, conservationists, and local communities can take to address the issues in a constructive and effective way.

FRAMING AND COMMUNICATION

The different issues regarding outdoor cats are interconnected, so it is difficult to separate the various threads. In particular, the ways we frame and communicate about issues influence and are influenced by our thinking about all the other issues, including the public role of science and the value of different aspects of nonhuman nature. Thus we begin our effort to tie together the book's major arguments with the concept of framing, which also will enter into the subsequent sections.

As we noted earlier, the concept of framing is ubiquitous in the social sciences. Simply put, framing describes the ways that the media and other sources of information focus attention on specific topics or events and describe these topics or events to others—the "others" in this examples are often identified in communication theories as the "audience" or "receiver" of the message or frame. Framing can help audiences sort through multiple messages to decide how to process, organize, and prioritize information. Because frames are socially constructed, they are driven by the goals, agendas, and biases of the people who create them and promote them. In addition, frames can intersect with the audience's own biases. Audience bias can contribute to the rejection of or selective interpretation of evidence or information that contradicts their own opinions and views.

We believe, as philosopher of science Donna Haraway (1991) puts it, that all knowledge is "situated," meaning that we can only know from our particular situation and experiences. This means that framing is inevitable, because there is no "view from nowhere." While framing is a fact of life for embodied, limited beings, that does not mean that we should give up efforts to pursue what Haraway calls "better accounts of the world, that is, 'science'" (p. 196). Scientists, ethicists, and citizens can all seek better knowledge, particularly through critical, constructive discussions that engage as many positions and perspectives as possible. We return to this theme in subsequent sections.

Here, in relation to the issue of framing, we want to emphasize a two-fold argument. First, we have to acknowledge that all the parties involved in the cat debates are reading the data and building their arguments with the help of distinctive frames, which are not shared with, and sometimes are diametrically opposed to, other readings of the situation and the available evidence. The perspectives of both bird advocates and cat advocates are situated, partial, and subject to what social scientists term *confirmation bias*. Confirmation bias occurs when we read and evaluate data in ways that support our previously held convictions. We see many examples of this in the cat debates. For example, wildlife managers and conservation scientists sometimes seem to read all the evidence through the lens of their prior conviction that cats are ecologically damaging and must be removed. In chapter 3, we mentioned research conducted on Reunion Island as an example of the way framing may shape the ways that readers interpret and use science, but also the ways that scientists present it and make recommendations about conservation action. An article about the research asserts that cats are a significant threat to endangered petrels and that there is an "immediate need to establish conservation procedures to reduce the feral cat population and so limit their harmful effects on petrels." According to the authors, such "conservation procedures" should include "permanent poison baiting and trapping" (Faulquier et al., 2009, p. 334). Although the article concludes with a call for lethal control of cats, careful reading shows that, according to the authors' own research, petrel populations face additional threats, including light-induced mortality of fledglings. The emphasis on cats and the attenuation of other sources of harm to petrels is an example of confirmation bias contributing to selective framing that supports the authors' previously held convictions about cats.

Framing and confirmation bias can, perhaps unconsciously, shape the ways that scientists conduct and interpret research. This kind of framing can be problematic logically if conclusions do not appear to follow directly from the evidence. It also is problematic practically, because it can lead to counterproductive management strategies if lethal cat control is implemented without addressing other problems. Thus, selective framing also could prompt further criticism from cat advocates who claim that environmental managers and wildlife advocates are focused on cat impacts without acknowledging other sources of environmental risk.

The authors of the study on Reunion Island also note feral cats on the island consume large numbers of non-native rodents, who are also a

threat to petrels, and that eradication of cats could trigger "mesopredator release," with possibly dire consequences (Faulquier et al., 2009, p. 335). *Mesopredator release* refers to population explosions in animals such as rats, lizards, or snakes that serve as both prey and predator. Cats often consume mesopredators, some of which are non-native and ecologically destructive. A study of the "mesopredator release effect" in island ecosystems found that "although counter-intuitive, eradication of introduced superpredators, such as feral domestic cats, is not always the best solution to protect endemic prey when introduced mesopredators, such as rats, are also present" (Courchamp et al., 1999, p. 282). Another article echoed this point: "non-indigenous predators and mesopredators can become important components of island food webs—so important that their subsequent removal can have repercussions felt throughout the entire food web" (Cadotte, 2009, p. 259). For logistical and practical reasons, it is important that scientists and policymakers consider all the possible consequences of lethal cat management, including public resistance to this approach, mesopredator release, or explosions in populations of destructive, non-native prey animals (e.g., rabbits in Australia) (Sutherland et al., 2011). While it is never possible to know all the effects of a given program, it is important to take the foreseeable ones into account and shape policy on the basis of a holistic understanding of both ecological and social factors, rather than treating any single one in isolation.

Our point in citing these complications is not to suggest that outdoor cats cause no ecological damage. There is clear evidence that in certain cases, they do. However, other issues are almost always involved in the decline of any native species, and ecological science should not fixate on a single factor. Even when cats do prey on endangered native species, they are almost never the only threat. A study of endangered woodrats in Key Largo, for example, found that the most important variable influencing woodrat population was the availability of natural and artificial nest materials. The next most significant variable was the density of predators, including cats and also raccoons, a native species whose population was strongly correlated with human food sources (Winchester, Castleberry, & Mengak, 2009). In a situation like this, it would be counterproductive to conclude that the woodrats will be protected if we merely eliminate feral cats in the area. Even if there were no humanitarian reasons to care about the fate of the cats, lethal cat control is not a panacea for complex ecological problems.

We do not want to give the impression that framing and confirmation bias are problems only for bird advocates and conservation biologists. To the contrary, cat advocates are just as prone to interpret the data through their own lens. Most insist that cats simply do not kill enough birds and other native animals to pose a serious ecological threat and that whatever threat exists can be fully addressed through TNR. As the ASPCA puts it, "even if the presence of cats is shown to impact wildlife, community cat programs, which have as their goal a humane reduction in cat population, remain a desirable solution to minimizing any actual (rather than perceived) threats to other species" (ASPCA Position Statement, n.d., para. 20). While this is probably true for certain settings, especially disturbed urban or suburban settings, there is abundant evidence that in more fragile ecosystems, especially on islands or coastal areas, cats are significant threats to endangered species.

Evidence about cat predation is not the only data that matters in the "cat wars." Another debate rages over different management options, and especially about the effectiveness of TNR programs in reducing the population of free-roaming cats. Some research suggests that TNR programs are not successful in reducing cat populations or the expansion of cats' territories in ecologically sensitive areas (Guttilla & Stapp, 2010; Levy & Crawford, 2004). In some cases, however, TNR programs do appear effective in this regard, especially when combined with efforts to adopt out colony cats who are friendly to humans (Levy & Crawford, 2004). However, other research shows that TNR programs are, at best, ways to stabilize outdoor cat populations, not tools for radically diminishing them. This may not be a problem in already disturbed settings, where cats do not necessarily prey on endangered species. In other locations, however, maintaining a stable cat population is a recipe for extinction.

The different parties involved in the debate over outdoor cats not only interpret the evidence in different ways but, even more basically, they begin with different questions and different criteria. TNR advocates, on the one hand, may define a successful program as one that stabilizes the population of outdoor cats and prevents outbreaks of communicable diseases. For bird conservation advocates, on the other hand, a successful program would lead to a radical reduction or even the complete elimination of outdoor cat populations. With such divergent measures, it is no wonder that the two sides do not agree on what the data says.

Both sides in the cat debate insist that empirical evidence should shape ethical and policy positions. And both claim that the science supports them in a polarized, all-or-nothing battle. Just as the Audubon Society insists that science is on their side, so Alley Cat Allies assert that their position is driven by a "science-based approach" (Alley Cat Allies, n.d.-c). This apparent paradox is the result of beginning with predetermined positions on crucial moral questions such as who has value and what counts as success. Both sides already know what they prioritize, and they read the science from that perspective. If birds and other native wild animals have primary value, then it is not hard to find evidence that cats cause them harm. If cats have primary value, on the other hand, it is equally easy to find evidence that cats are often a negligible factor in ecological decline. Both sides, in short, can find support for their positions from the wide-ranging, far from systematized research on cat predation and TNR.

Given the reliance on divergent frames and disagreement about what the data says, or even what the problem is, it is no wonder stakeholders involved in the debate about outdoor cats cannot agree on the best practical programs to implement. These theoretical disagreements are not the only problem delaying pragmatic solutions to the cat debate, however. Divergent readings of the data and confirmation bias polarize the debate further when they employ the kind of heated rhetoric that we have discussed throughout this book.

The fact that the sides seem so entrenched and so divided raises the question of whether it is possible for partisans in the cat debate to be persuaded, by any method or approach, to change their minds about the issue. The possibility that their positions are so entrenched that they cannot be changed is troubling, both because it reduces the chances for achieving a consensus in support of sound policies on this problem and, more broadly, because it points to internal contradictions in the positions of all parties involved. On the one hand, they both claim that they have developed their positions on the basis of sound empirical evidence and that their management proposals (TNR or lethal control) logically follow from this evidence. On the other hand, both dismiss "scientifically based" arguments that contradict their own. It is tempting to say that they cannot both be right about having science on their side, but we believe that it is more complicated. Both do have science on their side, to some extent. By this we mean that there is reputable (peer-reviewed, rigorously conducted) research that shows that outdoor cats kill native wildlife. There is also legitimate research

that shows that TNR programs help stabilize populations of outdoor cats, on the one hand, and that such programs do not substantially reduce the numbers of cats, on the other.

One possible interpretation of these divergences is that the research on outdoor cats cannot lead to generalizations, because it has been conducted in different locations, with different methodologies and interpretive frameworks. If that is the case, then the only scientifically sound solution seems to be locally based programs, depending on the distinctive circumstances of each setting. In places where research shows that cats have little impact on native wildlife, for example, TNR programs may be a good option. In other locations, where research shows that cats are preying on native songbirds or endangered wildlife, then communities may want to consider more drastic solutions, such as intensive relocation or humane euthanasia. We return to these discussions later in this chapter, when we focus on practical policy solutions.

While it is true that the research varies in part because cat predation varies widely, this is only part of the story. Other factors also enter into the contradictory conclusions of "science-based" interpretations on both sides of the argument. It is not just that the evidence varies from place to place, but also that the evidence looks different depending on who is interpreting it. In the cat debate, as in countless other controversies, many people on both sides seek and interpret evidence through the lens of their predetermined opinions. While no one can escape confirmation bias entirely, it is possible to actively seek to minimize its influence in settings such as the outdoor cat debate.

One crucial step toward minimizing confirmation bias and pursuing consensus is to listen to the other side. Again, this sounds far simpler than it is. It requires setting aside certainty about our own convictions, for a start, which can be especially hard for scientists and other professionals who have devoted much time and energy to studying a particular problem. Listening also demands that we stop viewing our adversaries as stupid, ignorant, or badly intentioned. In short, listening requires framing the conflict not as a fight between good and evil, but rather as a disagreement between people with good intentions, all of whom sincerely believe that their positions are well-supported by science, morally sound, and practically effective.

It sounds as though we have suggested that reframing requires reframing—and to some extent, this is true. What we mean is that in order to move beyond the polarized, stagnant state of the current debate, we need

to see the "other side" differently. We have to reframe the people, in other words, so that we can talk—and listen—to each other, and only then can we reframe the cat debate into a manageable problem. This reframing of the debate hinges in large part on the ways we think about science, including its role in public policy and also the ways scientific research is conducted—by whom, in what circumstances, and for what ends.

SCIENCE IN THE PUBLIC SPHERE

The role of scientific data is both critical and complicated in many contemporary issues, from climate change to health care. It is critical because almost everyone involved in the issue believes that scientific research and evidence are relevant to moral judgment and policy decisions. It is complicated because, as we noted above, partisans on all sides claim that the evidence supports their position and, at the same time, frequently discredit the evidence cited by their opponents as biased, inaccurate, or irrelevant. Selective framing and confirmation bias would thus appear to doom the place of science to a supporting role, not something that people use to develop their arguments, but rather something sought after the fact, to bolster predetermined positions. The debate about outdoor cats is an excellent case study for thinking further about these issues, including the hazards of using science in public debates as well as the prospects for more constructive approaches.

In the cat debate, as we have discussed throughout this book, there are two primary issues on which people disagree about the data: first, cat predation, and second, the effectiveness of management options (TNR or lethal control). On both these issues, people on each side claim to have the weight of evidence on their side. Bird advocates and environmental scientists who oppose TNR assert that cats are "the single greatest source of anthropogenic mortality for US birds and mammals," (Loss et al, 2013, p. 1). This dire conclusion is based on estimates of "the magnitude of bird and mammal mortality caused by all cats across the contiguous United States" (Loss et al., 2013, p. 2). However, these estimates make big assumptions about community-level variables, as well as cat and bird behavior across urban and rural contexts. This approach is related to the problems of framing and confirmation bias. On this issue, as on so many, people's prior values and worldviews shape not only their reading of the data, but

the questions they ask, the data they seek out, the people they talk to, and the standards they use to evaluate "good" arguments and conclusions.

Bird-lovers, of course, are not the only ones who choose and interpret scientific evidence selectively. Animal welfare and cat advocates often ignore or minimize the evidence that, in some settings, cats do prey on native wildlife, sometimes to a dangerous extent. At best, they describe the literature as inconclusive. For example, the ASPCA (n.d.) position statement on community cats asserts that "scientifically-based knowledge of the success of cat or other predator removal is incomplete" (para. 21). Most discussions of wildlife by cat advocates shift the focus from cat predation to the fact that humans are the primary threat to wildlife, suggesting that "community cats are, at times, erroneously singled out as a convenient target" (ASPCA, n.d., para. 19). Alley Cat Allies puts it more strongly, asserting that despite scientific evidence that other anthropogenic threats are more significant, "we still see—in the press, in non-peer-reviewed publications, and in public policy—people blaming wildlife decline on cats. Sidestepping the issue of human destruction to focus on trivial but sensational issues, such as the so-called 'cat versus bird' debate, only diverts attention away from the enormous and far more dangerous impact of humans" (Alley Cat Allies, n.d.-c, para. 3).

These examples suggest, to a cynic, that "science" is not that different from the Bible, insofar as people can find in it evidence to support whatever position they want to advocate. But is science really that subjective and fickle? We do not think it is. Some accounts of the world—and of birds, cats, and humans—are better than others. The questions we need to answer are how these better accounts are produced and how we can identify and evaluate them. While there is no hard and fast rule, we suggest five principles that can assist in evaluating competing accounts and also in developing pragmatic policies.

First, science is evidence-based. This phrase, which is central to discussions about the role of science in public policy today, raises almost as many questions as it answers. Which evidence? Produced by whom? For what reasons? Answering these questions is important for the credibility of scientists, for the improvement of public debates, and also for achieving effective solutions that can garner widespread community support. We believe that there is a need for greater transparency in scientific communication and research about outdoor cats, including constructive discussions with people and groups affected by the issues at hand.

Second, science must be holistic. By this we mean that it should look at the big picture, not just focus on one angle, or one perspective, or one piece of the problem. A good example of holistic thinking would be taking into account the challenges of mesopredator release as a consequence of eradicating larger predators such as cats. Not all research or every publication can look at all aspects of a problem, but scientists and policymakers alike can draw on a wide range of data and interpretations with the goal of producing the best possible picture of the problem. To focus narrowly on a single piece, such as cat predation, does not acknowledge the complexity of ecological systems or lead to policies that can adequately address this complexity.

Third, we believe science should be inclusive and democratic. This does not mean that scientific validity should be subject to popular vote, but it does mean that the people who care about and are affected by an issue ought not only to have a role in the development of policy proposals, but also, where possible, to participate in the collection and analysis of scientific data. This proposal is supported by a number of organizations and researchers (Cooper, Loyd, Murante, Savoca, & Dickinson, 2012; HSUS, 2012).

Fourth, science should be aware of the dangers of confirmation bias and strive to avoid it, to the extent possible. As we noted in the previous section, this process can begin by listening to opposing viewpoints. Such conversations not only provide important information, but also humanize the adversary. We may never achieve an ideal of rational, transparent public debate, but we can certainly do better than the current state of name-calling and dismissal.

Fifth and last, science can inform policy by identifying pragmatic and problem-solving solutions to polarized debates. Attacking the findings and motives of other scholars does not contribute to effective solutions, nor does framing research in such a way that it inevitably reinforces the researchers' prior convictions. Holistic, democratic, and transparent research practices and communication have the best chance of informing policy that can attain widespread support and address problems in effective ways.

NATURAL VALUES

The debate about cats is about science and policy, but it is also about ethics. More precisely, it is about how we value nature and animals, the reasons we value them, and the ways we prioritize and choose between competing

claims. As we discussed in chapter 3, the conflicts over outdoor cats raise some of the important issues at stake in environmental and animal ethics today. These include (but are not limited to) the relative value of individual sentient creatures and larger ecological wholes, such as ecosystems and species; the complicated boundaries between categories such as wild and domestic or native and invasive; the moral implications of killing healthy animals for a greater good; and even the relationship between political democracy and environmental protection. For these reasons, we believe that examining the moral dimensions of the debate can shine light, more generally, on the ways we think about nature and animals, the reasons we find them valuable, and the practical implications of these ideas.

First, both sides—all sides—in the cat debate care about nonhuman animals and nature. The shorthand "cat-lovers" and "bird-lovers" greatly oversimplifies the issue, but it does point to this important truth. This is also evident in the attempts of major animal welfare organizations, including the Humane Society of the United States and the ASPCA, to walk the delicate line between wildlife and cat advocates, acknowledging the legitimate concerns of both even while supporting TNR as the best solution in most circumstances. The reason that people who share a deep commitment to protecting nature and animals can disagree so vehemently is that nature has many different meanings. Thus the divisions between outdoor cat advocates and their critics is not, simply, over the question of whether nature has value. They agree on that, but they diverge wildly on a host of smaller issues, such as how to define nature, what aspects of it are most significant and valuable, the reasons these have value, and the obligations of humans.

As we have noted, among the most important features of the conflict are the questions of scale—individuals or collectives—and the place of domestic animals. To oversimplify, again, "bird-lovers" tend to place primary value in ecological wholes such as species, populations, or ecosystems. They also tend to define natural value in relation to wild, native species and the ecosystems in which they live. Domesticated and non-native species, including outdoor cats, are "invaders" who threaten these ecosystems and their constituent species.

In contrast, "cat-lovers" tend to value individual animals, based not on their parts in or contributions to a larger whole, but rather on their intrinsic qualities, such as sentience, sociability, intelligence, or beauty. From this perspective, the distinctions between wild and domestic or between

native and non-native are less significant than the qualities that give individual creatures value. Because both cats and birds (and rodents, reptiles, and other prey animals) all have value, it is not morally justifiable to kill members of one species in order to protect others. Many cat advocates, further, do not only believe that the various species involved all have value, but prioritize cats based on their history of relationships with humans, their intelligence or beauty, or other qualities that are not related to their place in larger ecosystems. This strengthens their conviction that lethal control is not a morally acceptable way to solve the problems, whatever they are, created by outdoor cats.

A number of environmental philosophers believe that the two positions may be impossible to unite—or that such efforts will lead to what Mark Sagoff (1984) termed a "bad marriage" and "quick divorce." From their perspective, it is impossible to balance concern for individual creatures and ecological wholes without ultimately choosing one at the expense of the other. Sagoff and most environmental philosophers believe that whenever there is a conflict, and they see many, it is necessary to prioritize ecological wholes. This leads to positions in support of lethal control of feral animals who appear to threaten native species, from goats destroying rare wildflowers to cats killing songbirds (rare or not). Because their underlying values are fundamentally opposed, any "marriage" between animal and environmental advocates will inevitably end in discord.

We acknowledge the deep disagreements between the parties involved in the debates about outdoor cats, and we do not envision any simple or easy reconciliation. In fact, no final reconciliation, in a philosophical sense, may be possible. We do, however, believe that the two sides share some common values and interests, and that on the basis of these, it is possible to find common ground. The commonalities can be identified only if we set aside polarizing language and adopt a pragmatic approach that seeks to solve problems despite foundational philosophical differences.

CONCLUSIONS AND LOOKING AHEAD

While we do not believe there is any single definitive resolution to the debates regarding outdoor cats, we do believe that better conversations and better policies are possible. Such constructive solutions must be, first and foremost, supported by evidence-based science. However, this is not

a transparent term—while it is used frequently, it means different things to different people. Evidence-based science does not imply science that is value-free or unambiguous, which is not possible. However, evidence-based science does have some basic requirements. First, it must be peer-reviewed. Second, it must attend to local variations and uncertainties. Third, it must acknowledge the biases and positions of the researchers. Scientists, like philosophers and activists, are prone to the same limitations and errors as all humans, and we will not find common ground if one side believes that only their adversaries are fallible. Nor will we advance toward effective policies that have widespread support if one side calls the other names like "crazy" or "perverted." Both cat advocates and bird advocates, and their allies, have been guilty of this behavior, even though it is obviously counterproductive.

A much more productive approach is to use evidence-based, transparent science as a necessary grounding for effective programs that can, in turn, gain widespread support from diverse constituencies. One way to pursue such programs is to democratize the process of gathering and interpreting scientific data, through citizen science, public forums, and better communication by scientists and their allies. Consensus must also be based on explicit attention to the values, worldviews, and contexts (such as a history or conflict and distrust) that shape not only public reception, but also the work of professional scientists.

Just as we look for philosophical and moral common ground, we can look for some practical common ground. While much work remains to be done, we can already identify some practical programs that should receive widespread support from all parties involved in the cat debates. These include, first, better research, using consistent methods so that we can assess crucial issues such as the kind and number of animals killed by outdoor cats, cats' roles in complex ecosystems (e.g., in relation to mesopredators), the effectiveness of TNR at reducing or at least stabilizing cat populations, and the differences in cats' roles in divergent settings (e.g., fragile island preserves vs. city neighborhoods). We also need better data about the consequences of eradication programs where they have been done. In order to collect and evaluate this data, both bird and cat advocates can and should participate.

In the end, we do not envision a "one-size-fits-all" answer to this problem. Each community may need to find its own particular path, with the guidance of evidence-based science and a commitment to open-ended, compassionate, and transparent conversations. However, we do believe

that the principles we have outlined for better policy debates, better public conversations, and holistic, democratic science can contribute to effective solutions to the cat debate and other polarized environmental conflicts.

Notes

Chapter 1: Introduction

1. The term *feral* is widely used to describe free-roaming cats, although many of these cats are former pets who are tame and sociable with people. Advocates often prefer terms such as *community cats*. We use these interchangeably, and we also refer sometimes to *outdoor* cats generally, since many of the issues surrounding feral cats also arise with owned cats who are allowed outdoors.
2. "Trap-Neuter-Return," Wikipedia. http://en.wikipedia.org/wiki/Trap-neuter-return
3. Although TNR is increasingly supported by animal services agencies in many parts of the country, the support is far from universal. Some public shelters oppose TNR for a variety of reasons, ranging from ecological concerns to resources. In the case of the Amarillo, Texas, animal control board, worries about disease and public health seemed to be at the forefront of a 2012 decision to oppose a proposed TNR program: http://www.connectamarillo.com/news/story.aspx?id=760182#.UcSd_pywVFU
4. "Trap-Neuter-Return," Wikipedia. http://en.wikipedia.org/wiki/Trap-neuter-return
5. Survey research was supported by funding from the Morris Animal Foundation (grant ID D12FE-016) to Susan Jacobson and D.M.W. and the National Science Foundation: DDIG in Decision Risk and Management Sciences (grant 1123710) to Susan Jacobson and D.M.W.

Chapter 2: The Cat Problem

1. Acetaminophen is actually toxic to dogs as well as cats, but cats are much more susceptible.

2. See, for example, http://wickershamsconscience.wordpress.com/2013/03/20/cat-fight-in-the-bird-house-or-has-anyone-seen-audubons-spine and http://www.outdoornews.com/March-2013/Feral-cats-and-a-spineless-decision-from-the-Audubon-Society.
3. Personal communication with I. Woolery.
4. Personal communication with I. Woolery.
5. Lead author Dauphiné was found guilty of animal cruelty in November 2011.
6. Response to Petersen, 2013.
7. Response to Petersen, 2013.
8. The "bible" of the no-kill movement is Nathan Winograd's *Redemption: The Myth of Pet Overpopulation and the No Kill Revolution in America* (Almaden Books, 2007).

Chapter 3: The Science Problem and Framing

1. While this a starting point for our discussion, this article did not employ a systematic approach to article identification. A systematic review is a rigorous process that makes the selection of papers open to scrutiny and detection of bias. By not providing detailed information about the methods used to identify the papers referenced in this review, this article is limited.
2. L. McLeod, personal communication, 2018.
3. They mentioned a third publication about a successful report in the United Kingdom (Neville & Remfry, 1984), but did not provide specific information about the results of this program. Neville and Remfry reported the results of an extensive TNR and adoption initiative implemented in Regent's Park, a large recreational park and green space in London. Due to immigration at the site, the number of adults in the colonies did not change, but no new litters had been observed at the time of publication and reports about predation on local waterfowl decreased.

Chapter 4: The Values Problem

1. A similar argument shapes PETA's approach to another "problem" animal: pit bulls. PETA opposes the adoption of pit bulls in shelters and believes they should be euthanized "for their own good," because so many people treat them badly (PETA, n.d.-b).

Chapter 5: The Social Problem

1. The full questionnaire and the question scales are available in (Wald et al., 2013; Wald, Lohr, Lepczyk, Jacobson, & Cox, 2016). Briefly, responses provided on a 7-point scale from -3 = strongly disagree to 3 = strongly agree). For simplicity, we condensed the categories of strongly agree, agree, and mildly agree, and report them all here as agree.
2. Previous NEP scores ranged from 4.70 to 4.86 (Glowinski & Moore, 2014; Liu, Ouyang, & Miao, 2010; Peterson, Hull, Mertig, & Liu, 2008) After adjusting our scores to the same scale as the previously reported NEP scores, Audubon members reported a score of 5.56 and TNR advocates 5.33. While it is possible that this difference in NEP score is due to a general increase in environmental values since the Peterson study was conducted in 2008 and the Liu study in 2010, the final study referenced was conducted in 2014, three years after we conducted our survey, which fails to provide evidence for a national increase in environmental values.

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Dara M. Wald is an assistant professor of environmental communication in the Greenlee School of Journalism and Communication at Iowa State University. Her research explores the causes and consequences of conflict and public debate over water, wildlife, and land. Her work has been published in scholarly journals (e.g., *Frontiers in Ecology and the Environment, Conservation Biology, Biological Conservation*, *Journal of Environmental Management, Human Dimensions of Wildlife*) and supported by grants from the Morris Animal Foundation, the USDA, and the National Science Foundation. She is an organizer of the Science Communication Project at Iowa State University, a cross-institutional team of scholars from journalism, communication, design, philosophy, and rhetoric with extensive experience conducting transdisciplinary research and training students in the use of media, design, and argumentation techniques to engage the public.

Anna L. Peterson is a professor of religion at the University of Florida. She has published widely on social, environmental, and animal ethics. Her single-author books include *Being Human: Ethics, Environment, and Our Place in the World* (California, 2001) and *Everyday Ethics and Social Change: The Education of Desire* (Columbia, 2009), among others, as well as collaborative volumes, including *Working Toward Sustainability: Ethical Decision Making in a Technological World* (John Wiley, 2011) and *Religion and Ecological Crisis* (Routledge, 2016), among others. She has an ongoing interest in the place of animals in environmental thought, the subject of her book, *Being Animal: Beasts and Boundaries in Nature Ethics* (Columbia, 2013). She has published in numerous scholarly journals and received grants from the Rockefeller Foundation, Pew Charitable Trusts, and the National Science Foundation. She is currently completing a book about the place of material practice in ethical theory.