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# 1

## IMAGINING DOGS IN A WORLD WITHOUT HUMANS



A common source of amusement at dog parks, on social media, and in dog-related conversations is just how ridiculously un-wild our dogs can seem. Rufus takes off after a squirrel in the park, running full blast and with an expression of great determination. He reaches the tree well after the squirrel has scampered up the trunk to safety. Maya chases a rabbit; the rabbit pivots and runs left while Maya runs straight forward, oblivious to the rabbit's actual path. Bella barks ferociously at a metal statue of an elk. Poppy stalks a paper bag as it gets blown down the sidewalk by

the wind. Dickens refuses to go outside to pee because it is raining. Little Knut shivers uncontrollably when the temperature drops below sixty, despite his tartan sweater. Jethro runs home with his tail between his legs when he senses a wild animal near his mountain home. After antics of this sort, we may shake our heads and remind our dogs just how lucky they are that they have us. “Otherwise,” we tell them, “you surely wouldn’t survive.”

But putting jokes aside, is it true that dogs would be doomed without humans to fill their bowls with kibble, provide shelter from frosty nights or too-hot days, and make sure they don’t get themselves into serious trouble? Having both spent years living with dogs whose survival skills seem highly questionable, we have thought about this question off and on and have both spoken sternly to our own dogs about how much they need us. But neither of us had considered the “Would dogs survive without humans?” question in any serious way until chancing upon science journalist Alan Weisman’s futuristic eco-fantasy book, *The World without Us*. Weisman asks his readers, “Picture a world from which we all suddenly vanish. Tomorrow.”<sup>1</sup> Humans have gone extinct, but everything else—and everyone else—remains. What would happen to your house? To the city in which you bustle back and forth from work, to the grocery, to the gym, to the corner diner? To the ecosystems surrounding your city? To the entire planet, once relieved of the intense pressures of human occupation? And what, we both thought, about dogs?

Weisman’s book immediately sparked our curiosity about what life might be like for dogs on a humanless planet. The more we thought about it, the more we wondered whether we might have given our own dogs short shrift and the more certain we were that some or even many dogs would survive and perhaps even thrive in a world without humans. We looked at Weisman’s thought experiment of “worlds without humans” through dog-colored glasses,

and what we imagined was a world bustling with dog activity, as dogs became part of wild landscapes.

Dogs rarely appear in Weisman's futuristic scenario. This may simply be because his attention was focused elsewhere. But it may also be that he doesn't think their future is all that promising. In one of his few comments about domestic dogs, he proposes that in Manhattan, at least, "wild predators would finish off the descendants of pet dogs" (though "a wily population of feral house cats" will persist by feeding on starlings).<sup>2</sup> The take-away message seems to be that dogs could not and would not survive without us. But is the story of posthuman dogs really this simple and this tragic? We don't think so.

## DOGS WITHOUT US

As we began thinking about and researching this book, we started tuning in more carefully to "my dog would never survive without me" conversations and we started taking notes. We were surprised by how frequently people muse about their dog's prospects. We asked friends and strangers what they thought would happen not just to their own dog, but also to dogs in general, if humans were to disappear. Despite some tut-tutting about the hopelessly un-wild behavior of their particular dog, many people gave dogs in general a fighting chance. Here are some of the responses:

"Dogs would be totally screwed."

"Dogs would be fine. They don't really need us all that much."

"Border collies and German shepherds would do great, but Chihuahuas don't have a chance in hell."

"Small dogs would do better because they tend to be feistier and more tenacious than big dogs."

"Clearly large dogs would have the advantage because they will be able to protect themselves."

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“Dogs would eventually all be medium-sized.”

“Dogs would go back to being wolves.”

“Dogs would become like the dingoes in Australia.”

“Dogs with ‘wild’ skills would do better than totally pampered pets.”

“They’d learn to survive, even if conditions were bad. Look at the dogs living in the Chernobyl dead zone.”<sup>3</sup>

The answers were all over the board. But there were some recurring themes. Many people thought that size would be a major determinant of dogs’ success in a world without people, although exactly which size would be best was subject to considerable disagreement. People often mentioned prey drive and hunting skills such as stalking and chasing as determinants of potential survival. Past experiences, particularly time spent as a stray, were mentioned as possible benefits. A good number of people also mentioned a dog’s personality, with a confident and fearless dog being given better chances of success than a fearful, overly cautious, or anxious dog.

Would scientists and others who study dogs for a living have similarly diverse intuitions about what might happen to dogs in a world without us? For some clues, we can turn to a 2018 article in *Time* magazine called “How Dogs Would Fare Without Us.” Science writer Markham Heid took a stab at the hypothetical dogs-without-humans question, speculating what it would be like for a pampered family dog who suddenly had to survive on her own.<sup>4</sup> Although in Heid’s estimation cats are self-reliant and skilled enough to survive without people, many dogs appear “ill-equipped to outcompete other large mammals for food and resources.” Is it possible, he asks, that after millennia of domestication, “the entire species may have lost its ability to live independently?”<sup>5</sup>

Heid asked several experts to reflect on this question. Their responses offer some initial scientific speculations about whether

dogs would survive and preview some of the key themes we'll be exploring in this book. Most of the experts gave dogs a decent shot at posthuman survival, although they disagreed about the details of which types of dog would survive and which traits might be most adaptive.

For starters, Heid interviewed Alan Weisman, our *A World Without Humans* author. While Weisman was pessimistic about the future survival of dogs, he offered a more nuanced consideration of the future of dogs than he provided in his book. "Dogs aren't too good at fending for themselves," Weisman told Heid, "because we've bred the hunting instinct out of most of them." Most of them would probably not survive, Weisman believes, especially if pitted directly against wild animals such as wolves and coyotes. "The wild animal," declared Weisman, "always wins."<sup>6</sup>

In contrast, Mark Derr, author of *How the Dog Became the Dog*, told Heid that after an initial shakedown period dogs would do quite well. In addition to freely breeding with other dogs, they could also interbreed with wolves and coyotes, because "a horny wolf would not turn his back on a receptive dog."<sup>7</sup> Although small dogs might be more susceptible to predators, they would have certain advantages, such as requiring less food to survive and being able to get away from potential competitors and predators by hiding in small spaces. Small dogs can be incredibly scrappy, too. Derr mentioned the "ferocious" rat terrier who "might do really well hunting and feeding off of small game."<sup>8</sup> Early gangs of dogs would forge alliances to procure food, although these alliances might be less cohesive than wolf packs and more like the looser associations formed by coyotes. Because dogs are adept at forming alliances, they might be willing to cooperate with cats, perhaps even working together to run down and ensnare large game. That dogs are opportunistic feeders and have a broad definition of "edible" will also work in their favor. Natural selection would play a significant

role and produce, in time, “a houndy pit-bull type, an ‘ur-dog’ of around 50–70 pounds.”<sup>9</sup> Certain dog breeds would be doomed, by nature of their morphology (their physical form). Derr gives the example of bulldogs, who cannot give birth naturally because the puppies’ heads are too large for the mother’s birth canal—a result of human breeding practices. “Unless bulldogs learn to give each other cesarean sections, I can’t see how they’d make it.”<sup>10</sup>

Raymond Pierotti, coauthor with Brandy Fogg of *The First Domestication: How Wolves and Humans Coevolved* and interviewed by Heid, speculated that dogs who are outliers in size would struggle. The largest breeds, including mastiffs, Newfoundlands, and Saint Bernards, would “probably die off quickly because their organs are too small for their body mass.” Big dogs are also “too lumbering to be effective hunters,” while very small dogs might wind up being somebody’s dinner. Dogs with recent wolf ancestry, such as malamutes, huskies, and Akitas, “would probably do best.” The males of these wolf-like breeds may have retained some of the paternal caregiving behaviors that are natural to wolves, but which have largely been lost in pet dogs. Breeds such as border collies, Australian cattle dogs, and hounds that have held onto “ancestral hunting abilities” would also have an edge.<sup>11</sup>

Marc Bekoff, co-author of this book, argued that breed might not be what ultimately matters to survival; more important might be an individual dog’s intelligence and skill set. “Some dogs are good hunters,” he noted, “while some are good foragers, and some are just really crafty and street-savvy.”<sup>12</sup> What would future dogs look like? No one knows, he said. It is unlikely that dogs would resemble their canine ancestors, or that they would become more wolf-like, because this would require more selective breeding than would occur. Nor will dogs become wolf-dog or wolf-coyote hybrids, because you “would need repeat breeding between dogs and wolves or dogs and coyotes for a prolonged period of time, and

I don't think you'd get that." What you would see, Bekoff concluded, is "new and more varieties of *Canis familiaris*."<sup>13</sup> Another change might be that dogs produce fewer offspring overall as they shift from having two reproductive cycles a year to having just one, like wolves and coyotes. After a few generations on their own, the social structure of dog societies might come to resemble the hierarchical and close-knit social structure of wolf packs: "I think dogs would live in groups and have higher- and lower-ranking animals."<sup>14</sup> And while dogs would hunt for prey, they might also scavenge and feed off animals killed by other large predators.

One of the most interesting aspects of Markham Heid's essay was the variety of responses and the range of possible factors that may influence future dog survival. Posthuman dogs are going to be on their own in more important ways than just not having kibble and vet care; they will have to navigate complex ecosystems with which they may be relatively unfamiliar and will have to form relationships with other dogs and other animals with whom they might coexist, cooperate, and compete.

Our own intuitions are in line with those of Markham Heid's experts. We think dogs would survive and even thrive in a post-human world. And here, in a nutshell, is why: dogs are behaviorally flexible, versatile, and opportunistic (a term used by biologists to mean that an organism can tolerate a wide variety of environmental conditions and will quickly take advantage of favorable conditions when they arise). Moreover, there is already good evidence that dogs can live on their own. Indeed, a relatively small percentage of the billion or so dogs currently living on the planet experience life as "pet" dogs. The majority of the world's dogs don't live within human homes or do so only irregularly. They live as independent individuals, perhaps using human waste as a source of food but not otherwise depending upon humans for social companionship, veterinary care, emotional support, or mental

stimulation. The idea that dogs need humans for support and care and that there could be no dogs without their attendant people may simply be wrong.

The most interesting question for us isn't about survival, per se, although who will survive and who won't and why is certainly worth consideration. The exciting question is who dogs will become on their own.

## AN EVOLUTIONARY THOUGHT EXPERIMENT

This book is a thought experiment about the survival and evolution of dogs in a humanless future. In embarking on a thought experiment about posthuman dogs, we are connecting with a broader line of inquiry called speculative biology in which scientists make predictions about the trajectory of evolution. The general form of such a thought experiment is “What would happen (or would have happened) *if* . . . ?” What, for example, would have happened *if* dinosaurs hadn't mostly been wiped out by a meteor striking the earth 65 million years ago? (Would humans even have evolved?) Our specific experiment is: “What would happen to dogs *if* humans disappeared?”

Imagine: After roughly 20,000 years of domestication the process abruptly stops, and dogs begin to rewild. What would dogs look like without direct human intervention into breeding? How rapidly would maladaptive traits such as foreshortened snouts be wiped out as natural selection replaced human “artificial” selection? What would dogs eat if bagged dog kibble and human garbage dumps were no longer available to them? Would dogs form groups, and would these be anything like wolf packs in size and social organization? How would dogs who have gone wild reshape the ecosystems within which they are living?

Here are some of our starting speculations about a posthuman dogs' world. Each of these will be examined in detail in later chapters.

- As dogs become whoever they are going to become, it is unlikely that they are going to go back to being wolves. The disappearance of humans would not result in a kind of reverse engineering, where the domestication process rewinds and dogs de-evolve back to who they were before the first wolves tentatively reached out to human beings and vice versa. Posthuman dogs are going to become something entirely, or at least largely, new. The ecological niches that dogs inhabit will be vastly different from the niches that their progenitors filled. The main and most consequential difference is that they will not have human food resources, which may have been one of the key ecological drivers of dog evolution.
- Dogs have been bred for certain physical traits, including the shape and position of ears, the length of tails, and growth patterns and coloration of fur, as well as certain behavioral traits, including a general propensity for friendliness and malleability and breed-specific functional skills such as pointing, fetching, herding, and guarding. Selection for these traits has been driven by an interest in the physical appearance of dogs and by the usefulness of the traits in relation to human pursuits. Taken outside the context of human-canine relations, some of these physical and behavioral traits may serve dogs well. Other traits will likely be downright maladaptive.
- Body size will matter, but one size won't necessarily be better than another. Optimal body size will depend on

what food resources are available, where the dogs live, with whom they share space, and other local conditions.

- Dogs may revert to one reproductive cycle a year, rather than two.
- Some dogs will hybridize with wolves or coyotes.
- Maladaptive phenotypes like short snouts will disappear quickly.
- Dogs will need to solve novel problems related to finding food and staying safe; innovation will be a key driver of success.
- The behavior of current free-ranging dogs is reasonably predictive of how posthuman dogs will behave, at least in the beginning.
- Dogs will be able to adapt to a wide variety of ecosystems.

Speculative biology is an exploration of what *might* be, using out-of-the-box thinking and imagination. But it is grounded in evolutionary theory and existing data and adheres, as much as it can, to scientifically realistic scenarios. In making our predictions about posthuman dogs, we have delved into research on the behavior and biology of canids and, more generally, social carnivores. More than anything, though, we have relied on the growing scientific database on the biology and behavior of dogs, especially the millions of free-ranging and feral dogs who are already living on their own around the world.

The scientific understanding of dogs has grown by leaps and bounds over the past five decades. Yet most of what is known about dog behavior comes from controlled studies of captive dogs in laboratories. Without a doubt, these studies are useful

and have helped ground our work. But some of the most intriguing insights—particularly for us in relation to our thought experiment—have come from the scattering of people around the globe who are studying the behavior and social ecology of free-ranging dogs.

Conducting research on free-ranging dogs is challenging; the dogs often have large home ranges, come and go, suffer high mortality (typically human-related), and are often busy at dusk, dawn, and in the dark, when it is hard to see what they are doing. The research can be thankless, too, as free-ranging dogs often are written off as being “feral” rabies-infested pests, neither wild animal (interesting biologically) nor companion (interesting because we love them) but some liminal creature existing in the netherworld between wild and domestic. Research often gets criticized because it is “merely” observational and isn’t controlled in the same way as laboratory studies. One field worker told us that he has been ridiculed at scientific meetings because all he does is observe free-ranging dogs and his studies are too uncontrolled to be of any value.

Yet research on free-ranging dogs can help us understand who dogs are and how they make their way in life and will sometimes reveal more than studies of dogs who live in captivity. To take one example, male dogs in captivity are rarely observed playing a role in parenting. But we cannot jump to the conclusion that posthuman male dogs won’t be good fathers or won’t participate in raising their children. They very well might. As Stephen Spotte remarks in his comprehensive review of free-ranging dog behavior, *Societies of Wolves and Free-ranging Dogs*, “The mere absence of a social phenotypic expression in captivity is not evidence of its extinction, which is why free-ranging dogs make such interesting subjects.”<sup>15</sup> Where should we be looking for answers to the questions we’re posing about reproductive patterns and other types of

behavior in dogs? Not in places where large numbers of dogs have been reproductively neutralized, but rather maybe in the “canine developing world.” Ironically, we may learn the most about dogs by looking in places where many dogs are *not* living as pets. And indeed, dogs who are “treated best”—pampered, fêted, fed caviar, and put to bed on Posturepedic mattresses—may be least likely to survive in a posthuman world.

Imagining a future for dogs without their human counterparts helps us shine a light on who dogs are on their own terms, distinct from their cultural role as obedient (or not so obedient) pets, workers, therapists, dumpster divers, and strays. Even more, it asks who dogs might become if humans stopped interfering so completely in their breeding and behavior.

## TIME FRAMES AND SCALES OF LOSS

We are setting out to explore what life on Earth would be like for dogs if humans were to exit, en masse, from the planetary scene. We’re taking as our main working assumption that all humans disappear all at once, leaving the planet pretty much as it is: habitable, but with significant injury. So, “posthuman” really means “all humans are gone.” This is obviously a fictitious scenario. It is highly unlikely that all humans would disappear abruptly, unless there were a massive planetary disaster such as a large meteor strike on a scale that would annihilate all forms of life. Climate change will continue to be felt by nonhuman species, whether humans are around or not. Predicting how global climate change might impact various ecosystems in ten, fifty, one hundred, one thousand, or more years into the future is impossibly complex and so we’ve mainly left this issue in the background.

A key variable for us is the time frame over which we are considering prospects for canine survival. Things will be significantly

different for dogs on day one after humans disappear than at the one-year mark, or after one hundred, one thousand, or ten thousand years. The longer the time scale, the more time natural selection will have to act on remaining dogs. For dogs living in the immediate wake of human disappearance, human selection will still exert an influence on body shape and size, coat type, skull shape, other physical features, as well as on various aspects of behavior. Furthermore, during the first years after human disappearance (give or take twelve to fifteen years), dogs will have lived closely with or around humans, and will have been dependent at least to some degree on humans and on anthropogenic environments. The absence of humans might be felt far more acutely by these dogs than by later generations. After ten to fifteen years, and assuming all humans are gone, dogs will be feral and then eventually they will become wild until they speciate or go extinct.

To emphasize the importance of time frames, we distinguish among Transition dogs, First-generation dogs, and Later-generation dogs. *Transition* dogs are alive when humans disappear and have had some level of human contact. After approximately fifteen years, there will be no more Transition dogs. *First-generation* dogs are born to mothers who had contact with humans. After roughly thirty years, there will be no more First-generation dogs. *Later-generation* dogs are truly posthuman.

## THE VALUE OF THINKING ABOUT A FUTURE WITHOUT US

Imagining a future for dogs without their human counterparts is an interesting exercise in biology, but the real value of the thought experiment—and what ultimately motivated us to write this book—is that it can help us think more clearly about who dogs are in the present and this, in turn, can clarify the moral contours

### **Box 1.1: Nomenclature for Post-Human Dogs**

**Transition dogs:** Dogs who are alive when humans disappear and who have had some level of human contact. After approximately fifteen years, there will be no more Transition dogs.

**First-generation dogs:** Dogs born to mothers who had contact with humans. After roughly thirty years, there will be no more First-generation dogs.

**Later-generation dogs:** Truly post-human.

of human-canine relationships. We may find that certain stereotypes (“Stray dogs are starving, lonely, and miserable” or “Dogs are our best friends”) are mistaken. Even more, it can help each of us who lives in companionship with a dog answer a question that hovers in the back of our minds: What does it mean to give dogs a good life and, especially, how can I give *my own dog* the best possible life, a life of experiential richness, contentment, and joy?

We have both spent countless hours throughout our careers talking with “dog people” (dog lovers, dog guardians, activists working on behalf of dogs) about how to achieve peaceful coexistence, and a recurring theme in these conversations is that what dogs really want is to be dogs and to be allowed to embody their essential Dogness. Allowing dogs to be dogs and engage in natural dog behaviors means that we need to understand what it means to be a dog—a question that is surprisingly complicated and difficult to answer. One way to answer this question is to take humans out of the picture. An obvious objection is “Oh, you can’t

do that. Dogs are only dogs in the company of people. A dog's purpose is to be our help-mate, our loyal companion." But is this really a dog's purpose? And isn't this assumption part of our difficulty in thinking clearly about who dogs are? Exploring future scenarios in which dogs are decoupled from humans allows us to gain fresh perspective on the values and commitments of the present. Writing a book about dogs in a world without humans can, perhaps counterintuitively, help us answer the question "How can humans give dogs the best possible life in a world *with* humans?"

In the next chapter, we'll set the stage for our "Who will dogs become without us?" thought experiment by trying to understand who they are now and how they became dogs in the first place. We'll explore what scientists know about the origins of modern domestic dogs and will look for possible clues about the degree to which dogs are dependent upon humans and the extent to which direct human manipulation has "created" these mammals. This may offer us useful information as we speculate about who dogs might become when humans disappear.

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