Introduction

Welcome (Back) to the Jungle

You have not, I hope, felt the jaws of an animal rend flesh from your bones, or seize your head in an oversized maw; or drag you into the marine deep, wondering whether you will die first of drowning or dismemberment, but likely not thinking much at all—your panic response overwhelming everything. I hope you haven't had some creature sting you into anaphylaxis; or sink its fangs into you, flooding your circulatory system with venom; or even coil around you until you hear your own bones crack. You mostly likely haven't been dragged into the wilderness and mauled by lions, or savaged by a pack of wolves, or caught in the death-roll of a crocodile. I can be sure that you haven't been stamped into the ground by a gigantic primate or torn apart by a Tyrannosaur. Probably you have little desire to have such experiences, knowing already that any one of them would be unpleasant. Yet through horror movies we have been visualizing these scenarios for decades. In films such as *King Kong* (1933), *Jaws* (1975), *Arachnophobia* (1990), *Anaconda* (1997), *Jurassic Park* (1993), *The Edge* (1997), and *Snakes on a Plane* (2006) we see situations in which animals bite, sting, squash, swallow, and generally get the better of us humans. We might imagine ourselves atop a hierarchy of creation, or at least ruling comfortably over our nonhuman brethren; yet animal horror hits us with a radical demotion—with scenarios in which we find our power not nearly as entrenched as we're used to. As paleoanthropologists Donna Hart and Robert Sussman summarize, "the bizarre realization that humans get eaten comes hard to the Western mind."[1] The realization might come hard, but it obviously holds considerable dramatic interest, and it's these strangely alluring cinematic

scenarios, and the animal aggressors that perpetrate them, that this book is devoted to exploring.

Try to imagine yourself in the Pleistocene. It's the period between 2.6 million and twelve thousand years ago. You are aware of yourself as capable of hunting, but also as liable to being hunted. Being away from your tribal group is dangerous; moving around after dark is dangerous. The hominin reading these words likely has little need to fear the kind of predation described in this book, but that wasn't the case for his or her distant ancestors. As Hart and Sussman's influential book *Man the Hunted* (2005) has described in considerable detail, until relatively recently we have been not only predators but also a prey species. We've gradually gained the upper hand over those who'd gladly have us for lunch, even taking down animals larger than ourselves, but as Barbara Ehrenreich points out, "well into the epoch of man-the-hunter, humans still had good reason to fear the tall grass, the forests, and the night."[2] Zoologist Hans Kruuk informs us that as humans entered the ecosystem there were a greater number of carnivorous species than there are today,[3] and that "man must have been a welcome addition to the prey spectrum of many carnivores, and there are no reasons to assume that maneating was not a normal aspect of day-to-day predation during the Pliocene and Pleistocene."[4]

Crime scene evidence from so long ago is naturally tricky to come by, but what has been found supports Kruuk's hypothesis: our human and protohuman ancestors were prey for prehistoric predators. We walked through a world with numerous species of ancestral lion, and leopard—the latter hunters of incredible stealth who appear even to have crept into the caves where our forebears slept to strike.[5] Fossil hominid skulls have been found with puncture marks that match the tooth profiles of the big cats with which these early humans shared their wild world.[6] The genus Homo emerged at around the same time as the Smilodon, the saber-tooth cat armed with canine teeth over six inches in length (Fig. I.1). These ferocious felines lived in North and South America but hung around long enough to see the arrival of ancestral humans.[7]

In Africa and Asia, hominins nervously coexisted with numerous extinct species of giant hyena, as well as forerunners of the current crop, which are formidable hunters today. One of the earlier incarnations was the 440-pound short-faced hyena, which preyed on early hominins. Through careful examination of skeletal damage, and with reference to the eating habits of modern-day hyenas, scientists have even been able to describe the sequence of being eaten by one of these creatures:

> First step: strip off the edible facial muscles causing subsequent damage to cheek bones and upper jaw. Second step: crack the centre of the jaw open to reach the tongue. Third step: crush

Figure I.1. Saber-tooth cat (*Smilodon fatalis*) skull cast with jaws open. These impressive predators were a fearsome hazard of the Pleistocene environment in North and South America. Other species of saber-tooth roamed Europe, Africa, Eurasia, and Indonesia. Photograph: Bone Clones.

> the facial skeleton to obtain marrow. Fourth step: break open the cranial vault to expose the brain, an organ that is prized by hyenas for its plentiful lipid content.[8]

A horror scene if ever there was one. There were also 250-pound wild dogs, which could hunt alone or in packs. And of course there would have been snakes, for which our living primate relatives share our aversion. Luis Llosa's film *Anaconda* notwithstanding, the fossil record on snakes eating early humans is less clear,[9] although if size ratios are any indication, our fairly small-statured Australopithecine cousins were definitely in trouble[10]; and there are numerous instances of large snakes seizing infants for consumption even today.[11] Depending on their location, our ancestors may also have encountered the short-faced bear Arctodus, which weighed a metric ton and stood six-foot high while still on all-fours[12]; Arctodus lived alongside protohumans until the end of the Pleistocene eleven thousand years ago. In addition to the enormous saltwater crocodiles that still inhabit the continent, early residents of Australia likely encountered Megalania, a twenty-three-foot Komodo dragon whose bite, like that of today's Komodos, would induce prolonged and shock-inducing blood loss.[13] And of course we could venture further into the past, finding other threats for earlier ancestors: creodonts, for

example, were an order of mammalian predators that became extinct eleven million years ago, and which likely preyed on primates.[14] The focus of this book isn't wide enough to include an exhaustive catalogue of age-old animal anxieties, but it's fair to say that the noble image of "Man the Hunter" has been much exaggerated, and must be balanced with evidence of our prey-status.

"Try to imagine yourself in the Pleistocene": movie-lovers may have noticed my earlier allusion to a scene in *Jurassic Park*, in which grouchy paleontologist Alan Grant (Sam Neill) tries to persuade a boy of around ten that he isn't so clever for mocking the appearance of a fossilized velociraptor skeleton that Grant's crew have just discovered. "Try to imagine yourself in the Cretaceous period," Grant says, urging this kid to envision himself eviscerated by a pack of raptors. Obviously, humans did not coexist with dinosaurs, but we know our ancestors still had big, toothy problems. In films like *Jurassic Park* we can imagine ourselves suddenly slotted back into a matrix of predation that we have only recently (for the most part) escaped. Predation by animals is hardly unique for the majority of the animal kingdom, and cinema's animal attackers, as Michael Fuchs recognizes, "are remnants of a past state in humanity's relatively brief existence in which human beings were pitted against nature's forces on a daily basis."[15] Such films provide us with a sense of ourselves in alarming ecological context, reminding us that our current power is far from unquestionable.

Of course, despite our dominance today, prehistoric perils sometimes arise in the modern era. British hunter Jim Corbett, who lived in India in the early 1900s, reported that one female tiger had managed to kill 436 people, and two other tigers had killed 64 and 150, respectively. Similarly, government statistics listed reported tiger kills for the whole of India in 1902 at as many as 1,046 people—and that's only the kills that were reported.[16] Hart and Sussman note that 425 people were killed by tigers between 1975 and 1985 on the Indian side of the Sundarbans delta (shared with Bangladesh).[17] Indian authorities in the area have distributed plastic facemasks to be worn on the back of one's head to deter tigers (tigers prefer to stalk oblivious prey), and dummy humans have been rigged to deliver electric shocks to condition the tigers to consider humans an unappetizing meal.[18] Leopard attacks are rarer, but in the Garhwal region of Northern India, seventeen people were reported killed in 1996, and nineteen the following year.[19] The attacks may be rarer but often involve a leopard actually breaking into a victim's house to carry him or her away.[20]

Predators remain a problem elsewhere. As Hart and Sussman point out, "Deaths from polar bears have always been a part of Inuit life, with several attacks per year even as populations decline from climate change"[21] Among the Aché, a Paraguayan forager society, being eaten by a leopard

accounts for an alarming 8 percent of all male deaths.[22] Australia is a developed country, but it's also home to a virtual living dinosaur, the saltwater crocodile, which reaches between fifteen and twenty feet in length and weighs up to 2,600 pounds—the world's largest living reptile. This brute has a bite force of 3,700 pounds per square inch: greater than that of bears and estimated to be at the low-end of what a Tyrannosaurus would have possessed.[23] And they'll eat humans when they can, with one or two unlucky or foolhardy folks being snatched up per year. Inhabitants of industrialized societies are largely spared such incidents, yet when stories emerge they run through the media like wildfire, their interest-value grossly disproportionate to virtually all other kinds of death. Such fatal animal attacks carry explosive conceptual power. They startle us with the reminder of our capacity to be mere meat for something else, a reminder which, as Fuchs puts it, "implies a questioning of mankind's self-aggrandizing notion as the centre of the universe."[24]

Once Bitten, Twice Shy

I have not evoked our history as prey in the context of animal horror movies for the trivial symmetry of it: that history is very much with us. So powerful and important is the human legacy of being prey that we continue a fascination with its possibility. As we know, while you may not be under threat from predators, your distant ancestors were. And whatever your position in life now, you're part of a long and unbroken line of "winners" in evolutionary terms. You're here because your genetic relatives survived long enough to reproduce in a world in which they could have been just a protein source for something else. You're a winner, but over hundreds of thousands—millions—of years, those successes in survival and reproduction were hard-won, and you retain the ancestral knowledge to "know better" than those who perished. Throughout evolutionary time, precautionary behavior has paid off. Giving a start at the sound of a rustle in the bushes, even if it turned out to be nothing, was a small "cost" if it helped protect us against getting wiped out. This biases our development toward an optimal level of anxiety, including fearful but biologically cheap "false positives," like flinching. In excess amounts, anxiety becomes maladaptive, but when it comes to serious threats, being scared kept us safe. Serious threats would often have been animals—and we're still ready for them. As Jeffrey Lockwood explains,

> Our evolutionary history as soft, slow sources of protein and vulnerable targets of venom quite reasonably accounts for our tendency to be alarmed by creatures that can eat, sting, or bite us. Cultural and technological changes happen much

> faster than genetic change, so we are left with minds and bodies poised for dangers on the savanna while we try to stay safe on the freeway.[25]

It doesn't matter that guns or fast cars are now more likely to kill us than big cats; adaptation doesn't happen that quickly, and we're still equipped with nervous systems tuned for a world of animal violence. For the most part we have long since escaped these primal terrors, but as far as our psychology is concerned we're not out of the woods yet. As Ian Tattersall writes, "Insulated as most of us are today from the practical dangers of predation, we are nonetheless (often) meat-eaters who are still haunted by atavistic fears."[26] It wasn't arbitrarily that I mentioned the Pleistocene (although we might have gone further back): this is the period in which humans reached their anatomically modern state, and the selection pressures placed on our ancestors by animal predators throughout that era helped shape who we are today.[27]

Predator evasion is a fundamental adaptive problem. Just as the emotion of disgust has its origins in the threat of bacteria and parasites, and worked to keep us safe long before the germ theory of disease came along,[28] we also retain the psychological residue of our interactions with predators. We can see easily that other animals have formed behavioral adaptations in response to the pressures of predation. After gull chicks hatch, their parents will carry their eggshells away from the nest, innately aware that the presence of the eggs makes their nest stand out to predators.[29] Other animals may display mimicry, play dead, or may, like zebras, be aware that blending in with the herd makes identification and pursuit of a single target confusing. They already know to do this: they don't have to be taught—selection has molded it into instinct. Obviously, the role of social learning is much higher in the case of humans than for other animals: our sense of sources of danger is not only "instinct"; nevertheless, some basic principles still apply. H. Clark Barrett points out that

> [o]ur ancestors faced the risk of predator attack since well before they were human, stretching back to our most ancient mammalian ancestors. Pursuit of prey, too, stretches back to the earliest insectivorous primates and crescendos in the big game hunting of our own hominin lineage. Few things seem more Darwinian than predator-prey interactions, so it is hard to imagine such encounters not shaping our evolution.[30]

We certainly owe numerous features of our psychology and physiology to the selection pressures of predation. Barrett suggests that animal predators probably drove us toward increased sociality;[31] indeed, we'll see

that throughout many horror films, such as *Jaws*, *Rogue* (2007), *The Edge*, and *The Grey* (2011) animal predators repeatedly have the narrative effect of compelling the unity of otherwise disparate characters. Only through cooperation and strength in numbers do such characters stand a chance, and those who chose to remain antipathetic to their fellow humans become easy prey. It's also thought that fear of the dark, a phenomenon deeply intertwined with horror as a genre, is an adapted response linked to the weakness of our night vision relative to that of large carnivores that hunt at night. Packer and colleagues have demonstrated that man-eating lions will not only choose overwhelmingly to attack after dark but also time their attacks toward the darkest parts of the night, in fact preferring to strike in total darkness.[32] Barrett even suggests that "it is plausible that the proper domain of our ability to detect motion—on which nearly all social perception and cognition depends—is predator–prey interactions, and that social-action processing evolved on top of these ancient mechanisms."[33]

By now, it is highly unlikely that we need to be taught from a null starting-point that large, fast-moving carnivorous creatures present a threat to us, just as young children don't need to be taught apprehension around great heights. This doesn't mean we're born with a specific "template" for lions that gets "matched" when we see one, but it's clear that we do have ingrained fear responses and that we come into the world biologically primed to learn some fears more easily, and deeply, than others (what psychologists call "biological preparedness"). In the case of some co-evolutionary animal threats, biologically prepared fear is now beyond question: snakes, for instance, of great concern in numerous films (Fig. I.2), gave our primate

Figure I.2. Famous cinematic snake-hater Indiana Jones (Harrison Ford) faces a cobra in *Raiders of the Lost Ark* (Steven Spielberg, Paramount, 1981). We are predisposed to fear snakes because of the threat they posed to our prehuman ancestors. Digital frame enlargement.

ancestors such a hard time that we do appear to have a specific "template," triggered by curvilinear snake shapes, designed to zero in on serpents and prioritize them in our attention above other stimuli. Snakes don't just attract our curiosity, they override everything else: in psychological experiments they command attention with unrivalled urgency.[34]

Some adaptations stand out: freezing in fear ("attentive immobility") has evolved in numerous species. Freezing allows prey animals to assess a threat while temporarily delaying attack, given that sudden evasion triggers the chase impulse of predators such as wolves and big cats. Freezing may even cause an inattentive predator to pass its meal by.[35] Generally, what adaptations are specifically dedicated toward avoiding animal predation is less clear, and ripe for further research (and many are likely by now alloyed with other adaptations focused on personal defense). But one of the most fundamental of anti-predator behaviors is also the simplest: interest. As Hans Kruuk points out, bird and mammal prey species are frequently curious about their enemies, showing "a clear attraction . . . toward the most dangerous and effective predators."[36] What's more, they do not simply watch to ensure their own immediate safety: birds will fly long distances to observe the commotion of a predator in their colony, "long necking" as Kruuk puts it. "It seems likely," he indicates, "that this curiosity helps the birds to learn what kind of adversary they are facing," and given that they face a variety of threats, some potentially novel to them, this learning is useful.[37] Many African mammals are similarly possessed by curiosity about their predators. In the Serengeti, prey animals such as wildebeest and antelope, while keeping a minimum safe distance, will choose to approach predators to observe them. As Kruuk recounts, "it is an unforgettable scene to see whole herds of several different species all staring quietly at a walking large cat, like a lion or a cheetah. They may follow it, and one cannot help but compare such a herd to a crowd of people, gaping at somebody or something."[38] As he notes, such behavior carries a small risk, and it costs the animals the time they could spend grazing, but these appear to be outweighed by the information-gathering benefits of observation—there's an instinctively understood value to knowing more about your natural opponent.

Animal Attractions: The Spell of the Predator

Let's get back to *Jurassic Park* for a minute. "Look how it eats," Alan advises his young co-travelers as they watch a Tyrannosaurus from behind a log as it tears flesh from an ostrich-like Gallimimus—and having narrowly escaped becoming the same kind of meal themselves. Twelve-year-old Lex (Ariana Richards) obviously has a lower tolerance for anxiety, wants to

hurry off—and that's probably smart. But she doesn't look away either. Young Tim (Joseph Mazzello), his head raised higher than the others', is obviously entranced: "Yes," he murmurs. A moment later: "Look how much blood . . ." The trio leaves, with Alan snatching the spellbound kid away before he cranes his head too high and risks becoming a target. Getting well clear of this reanimated super-predator is definitely a good idea, and yet (particularly as the camera positions us to share the humans' voyeuristic view), we understand that there's something worth seeing here (Fig. I.3).

There are clear symmetries between our own interest in nature's brutal beasts and that of our brethren throughout the animal kingdom: our curiosity around impressive carnivores, Kruuk writes, "is comparable to the curiosity aspect of anti-predator behaviour in animals. We are interested in the mechanisms of danger and the fate of the attacked."[39] The kind of large carnivores that preyed on us throughout deep history and occasionally still do today are especially alluring: "The appeal and attraction of carnivore danger is obvious . . . in a zoo," writes Kruuk, "where children and adults are drawn to the lions, tigers and wolves as to a magnet."[40] Our fascination certainly stems from a deep need to monitor and assess threat. The evolution of more complex nervous systems allowed organisms to build on their goal of self-preservation through the inclusion of mechanisms beneficial in their flexibility, like conditioning, instrumental learning, and conscious deliberation and threat-assessment,[41] hence the utility of our curiosity around dangerous animals. We know

Figure I.3. Tim (Joseph Mazzello, lower-right foreground), hiding behind a log, is fascinated by the sight of the Tyrannosaurus devouring its prey in Steven Spielberg's *Jurassic Park* (Universal, 1993). The impulse to observe one's predators is reflected elsewhere in the animal kingdom. Digital frame enlargement.

enough to pay attention, but we don't know everything: information-gathering is important.

Unsurprisingly then, intimidating animal predators have been central to human stories since we began telling them. The great biologist Edward O. Wilson has noted that what is living, as a matter of visual preference, is inherently more interesting than what is not: "No one in his right mind looks at a pile of dead leaves in preference to the tree from which they fell," he writes. But he notes that some creatures "have more to offer because of their special impact on mental development,"[42] and even become channeled into cultural and religious forms. "In all cultures," he notes as an example, "serpents are prone to be mystically transfigured," and behind these archetypes are individuals whose minds are "primed to react emotionally to the sight of snakes, not just to fear them but to be aroused and absorbed in their details, to weave stories about them."[43] Fierce creatures stalk through or tower over too many mythological traditions to catalogue here, although we might mention briefly as examples the monster Leviathan of the Hebrew Bible, Christianity's beast of Revelation, the serpentine goddess Tiamat of Ancient Mesopotamian lore, or the monstrous wolf Fenrir of Norse mythology. The beasts of religious tradition are often to be confronted by a brave hero (Fig. I.4).

Figure I.4. *Hercules and Iolaus slaying the Hydra* (1545), engraving by Sebald Beham (1500–1550). As well as its reptilian frame and multiple snake-necks, the hydra is depicted here with wolfish heads. Mythological traditions are filled with monsters that resemble, or combine features of, animals that would have presented real threats in our species' own natural history.

As Barbara Ehrenreich notes, "If there is one central human mythological theme, from Gilgamesh to Beowulf, it is of the human-eating creature that ravages the countryside until someone—hero or god—successfully confronts it."[44] As Paul Trout puts it, "Wherever one looks, animal predators slither, run, and swoop their way through the mythic landscape in search of human flesh," reminding us that "humans are good to eat."[45] In hybrid creatures—mythical monsters—we see agglomerations of the scariest parts of animal predators: scales, fangs, claws, serpentine physiology, and so on. Trout's extensive 2011 study *Deadly Powers: Animal Predators and the Mythic Imagination* examines the extent to which these myths would have arisen from the animal threats of our ancestral landscape. As he notes, "storytelling is universal because it reflects an adaptation that helped humans survive," and deeply wrapped up in this was our need "to deal with our predicament as a prey species—to address our fear of being hunted, killed, and eaten by predators. . . . [W]e told stories to stay alive. And, in a figurative sense, we still do."[46]

Narrated encounters with lethal creatures engage our fear and fascination. While in our relatively secular age they may not be invested with the religious awe of earlier accounts, animal horror films tickle this age-old attraction. Why watch films in which human characters are chewed up by nonhuman foes? Why watch horror films at all, for that matter—a genre literally defined by fear and physical attack? Well, certainly, some of us don't watch them. But among those who do, I'd suggest a key reason is that the "cost" they impose on these viewers, in terms of exposure to stress, is somehow outweighed by the survival benefit we intuit in them. We know that things that are dangerous are worth paying attention to. Wilson writes that "fascination creates preparedness, and preparedness, survival."[47] Our response to animal predators is not entirely predetermined: it leaves room for reflection and decision making (and thus, in movies, engaging narrative action).[48] Animal horror films allow us to run simulations of hostile encounters. They show us scenarios, character traits, actions and reactions, some successful and others less so. To our deepest stone-age brains, they're an implicit learning opportunity. Through them we can gather information on the threat, learn its behavior, countenance strategies and precautions against it, and learn our own limits.

In light of the above, I haven't taken us through a blow-by-blow historical account of the development of animal horror cinema,[49] tracing its emergence as if it were a bounded artistic phenomenon, "movement," or cultural trend, because, as the above indicates, it isn't. Animal horror is more akin to an impulse. Dan Whitehead is almost certainly correct to suggest that "the very first horror stories ever told were about animals. Whether painted on cave walls or shared around a fire, our primitive

ancestors first learned mortal fear from the predatory beasts that shared their domain. Such tales spoke to our need for survival, rather than entertainment."[50] But it probably runs deeper: it's likely the evolution of language itself was promoted by pressures to more effectively signal the existence of animal threats.[51] Certainly it is well documented that several types of nonhuman primate (e.g., vervet monkeys) will use distinct alarm calls for different types of predators, which we might see as a type of protolinguistic communication. Thinking more cinematically, anthropologist Lynne A. Isbell has explored how co-evolutionary threats were instrumental in the development of our impressive visual acuity: the benefit to watching out for predators goes back to the origins of human vision itself.[52] In short, while animal horror movies might not possess much cultural prestige, they undoubtedly represent the tail end of an almost inconceivably long and unbroken tradition, stretching deep into prehistory.

Getting a Closer Look

If our fear and fascination with some animals—animals of the kind that appear in horror movies—is ingrained, then what is left to say about them? A lot, actually. While this book will sometimes consider the way our evolutionary inheritances affect what we see onscreen, we are complex mixtures of genetic and environmental influences: the way we view animals is obviously subject to cultural variation. Across a variety of cultural or historical contexts, particular animals may be ignored, disdained, petted, and revered; they may be attributed different personalities, or taken to symbolize different traits or values. We have recently seen in the humanities a rise in academic interest in our relationships with animals (sometimes termed the "animal turn"), including in film studies. As for animal horror specifically, Gregersdotter and colleagues observe, "with the exception of some notable classics, like *King Kong* (1933), *Jaws*, and *The Birds* (1963), animal horror cinema has long been seen as a low-budget, low-quality form of entertainment that is largely disconnected from serious cultural debates,"[53] but the climate is gradually changing, as their recent collection, *Animal Horror Cinema: Genre, History and Criticism* (2015) indicates. Charles Darwin's theory of evolution by natural selection, through which (in *The Descent of Man*) he linked human beings to apes via a common primate ancestor, remains the most significant and powerful theory in the life sciences. Yet still today a fundamental division between the "human" and the "animal" is deeply embedded in the vast majority of our cultures. As Gregersdotter and colleagues describe, central to approaching animal horror has been the importance of thinking about "how films rely on and

simultaneously subvert and reinscribe the basic conceptual separation of the human and non-human animal."[54] Indeed, as we'll see, the tension of animal horror movies regularly arises from overlaps and collisions between these conceptual categories, and others that are closely aligned (e.g., civilization/wilderness), forcing us to consider that the templates we use to understand the world around us may be less reliable than we think.

The renewed academic interest in animals in the humanities has tended to cluster around various approaches inherited from postmodernist theory.[55] From these angles, attention to animals often becomes part of critiquing what are seen as dominant patriarchal, capitalist, and colonialist attitudes and social structures. Just as capitalism and patriarchy, for example, are thought to determine how humans are culturally valued, in order to maintain the dominance of their nefarious ideological programs, they also assign an exploitative place to animals toward that same goal. The vocabulary of animality, of course, is often mobilized in the oppression of humans. Referring to humans as in some way "like animals" ascribes to them the same negligible moral value attributed to nonhumans, therefore legitimating their oppression. Yet this process of 'dehumanization' also reinforces our disdain and moral distance from animals themselves, thus compounding their exploitation.[56] According to this perspective, then, our views of animals are intertwined in systems of both animal and human exploitation. Animals themselves, like socially disempowered humans, have projected onto them various meanings, and this categorizing activity plays a part in maintaining the various hierarchies of power that have been postmodernism's traditional critical focus. Emerging out of these perspectives has been a collection of positions loosely grouped as "post-humanist" for their rejection of the human exceptionalism associated with traditional humanism.[57] Posthumanism acknowledges that humans, rather than being elevated beyond nature, are a type of animal, and therefore regarding them as fundamentally different from the broader spectrum of creaturely life is philosophically unsupportable. We may wish to flatter ourselves that merely being human endows us with some unique moral specialness; but from a secular perspective, there can no longer be a divine or absolute line with homo sapiens on one side and the rest of the animal kingdom on the other.

Posthumanist scholarship correctly recognizes that (as Darwin canonized) humans are immersed in the same evolutionary narrative as all life. At the same time, it paradoxically clings to the postmodernist tenet that the "human" itself is historically defined and constructed[58]: that there is no underlying human nature or characteristic behavior, and what we think of as human nature is molded from historical, social, and cultural influences. As David Bordwell puts it, for the typical postmodernist scholar,

"social structures superimpose historically defined categories upon human beings, thus 'constructing' subjects in representation and social practice."[59] Since postmodernism hit universities in the late 1970s and early 1980s, theoretical approaches to film and literature emphasizing human nature as culturally constructed to the exclusion of evolved biological influences have, as David Bordwell puts it, "saturate[d] the humanities."[60] However, this romantic tabula rasa view of human nature cannot be reconciled with evolutionary theory. We would all concede that a squirrel has what we might call a "squirrel nature," evolved in response to squirrel adaptive problems, forged from the pressures of its natural environment, and that an otter or eagle or chimpanzee has its own nature; however, various strands of academic postmodernism are united by their dismissal of any adapted nature for humankind.[61] Posthumanism's reverence for this extreme social constructionist premise means that despite its interest in biological context, this latest postmodernist iteration has missed chances to explore the wealth of scientific evidence from the behavioral sciences indicating that human nature is certainly not only the product of social and cultural power differentials. In other words, it has neglected ways in which humans are adapted animals. As posthumanism has largely persisted with postmodernist theory's assumption that humankind, unlike other species, is "beyond nature," it fosters human exceptionalism even as it claims to move beyond it. Despite a stated interest in eroding the boundaries between the human and animal, then, posthumanism seems to me somewhat ironically held back by postmodernism's traditional diehard social constructionism, as well as its skepticism of scientific thought.

In the humanities, postmodernist approaches that attribute any human "nature" to speak of as only the product of various types of social "power" and "discourse" may, according to literary scholars Brian Boyd and colleagues, by now have "hardened into habit or dogma." However, at the same time, they note that elsewhere, "the evolutionary analysis of human nature has been maturing."[62] As I have touched on in this introduction, we are far from "blank slates" to be arbitrarily inscribed by our parenting, culture, or society. Perhaps the most significant single work marshalling the evidence against the entire legacy of blank slate thinking is Harvard psychologist Steven Pinker's 2002 book *The Blank Slate: The Modern Denial of Human Nature*.[63] As Pinker demonstrates, research in areas such as neuroscience, behavior genetics, and cognitive and evolutionary psychology highlights the powerful influences of biology and genetic variability on who we are. Evolutionary psychology is invaluable for its project of identifying the adaptive functions of the mind, allowing us to better understand our psychology in the context of the evolutionary engineering that characterizes the rest of earthly life. As

Pinker explains, "We see these signs of engineering everywhere: in eyes that seem designed to form images, in hearts that seem designed to pump blood, in wings that seem designed to lift birds in flight [but] signs of design in human beings do not stop at the heart or eye."[64] A relatively young science, evolutionary psychology has grown rapidly because of the theoretical indispensability of its underlying appreciation that the brain, like any other organ, is an outcome of natural selection, optimized through inherited traits that maximize the survival and reproductive success of the organism for which it works. In short, evolution did not stop at the neck. And as Pinker describes, "Evolutionary psychology explains why the slate is not blank. The mind was forged by Darwinian competition, and an inert medium would have been outperformed by rivals outfitted with high technology—with acute perceptual systems, savvy problem-solvers, cunning strategists, and sensitive feedback circuits. . . ."[65] Accordingly, its work has focused on forwarding testable hypotheses concerning human nature based on evolutionary logic. Particularly important have been cross-cultural analyses that demonstrate shared human tendencies and behaviors regardless of culture; and studies of identical twins raised apart, which clarify relative genetic/environment influences. Collectively, the wealth of empirical evidence accumulated and replicated in the behavioral sciences more broadly makes very clear that the idea that human nature is the exclusive product of parenting, society, or culture (or "discourse") is unsupportable.

While the blank slate position has by now been thoroughly undermined within the sciences, it retains powerful cultural and political currency—as noted, including in segments of academia. I share Boyd and his colleagues' fear that "by insisting on the separateness of humanistic subjects and modes of inquiry, many in the humanities have deprived themselves of the resources discovered in other fields," and that for literary and film scholars, "acknowledging the reality of human evolution presents no serious dangers and offers immense opportunities."[66] Consequently, I count myself as one among a growing number who "distinguish ourselves from 'cultural constructivists,' who effectively attribute exclusive shaping power to culture."[67] Culture does surely shape us, as do historical circumstances. But these are far from the only shaping influences. Accordingly, this book regularly embraces both cultural and biological influences on behavior and its representation—an approach that, I feel, is particularly pertinent to examining our fear and fascination with such long-running co-evolutionary pressures as animal predators.

Despite their marginalization within literary and film studies, analytical approaches that acknowledge the relevance of our evolutionary heritage to artistic and cultural productions and the human behavior they

depict are gaining ground. These are gestured to in the dissatisfactions with the abstractions of film theory articulated in Bordwell and Noël Carroll's 1996 anthology *Post-Theory: Reconstructing Film Studies*, with its focus on a more empirically grounded "cognitivism"[68] (Bordwell would delve further into evolutionary thinking in his own 2008 essay on cognition and emotion, "What Snakes, Eagles, and Rhesus Macaques Can Teach Us").[69] These approaches gathered further steam with the release of Boyd and colleagues' 2010 anthology *Evolution, Literature, and Film: A Reader*,[70] which placed the work of film scholars side by side with that of biologists and evolutionary psychologists, as well as further work by the pioneer of Darwinist literary studies Joseph Carroll, including *Reading Human Nature: Literary Darwinism in Theory and Practice* (2011) and more recently *Darwin's Bridge: Uniting the Humanities and Sciences* (2016). Further progress in this consilience of the humanities and sciences has been made through the inclusion of Carroll's work in the latest (2017) edition of Rivkin and Ryan's much-taught *Literary Theory: An Anthology*, in a newly added section, "Cognition, Emotion, Evolution, Science."[71]

Nevertheless, I appreciate that my approach may sometimes strike readers as unconventional. Like the scholars cited above, this book does not discount culture as a force in shaping of human behavior, but rather embraces a "biocultural" approach, which holds that "works of art are shaped by our evolved human nature, by culture, and by individual experience."[72] Truly considering ourselves as animals, with fears and inclinations forged from the pressures of our habitat and biological niche, allows us to view our numerous literary and filmic tales of nonhuman predators with new insight. As Boyd and colleagues put it, "Adopting an evolutionary perspective enables us to build theories of literature and film not from near the end of the story but from the start, from the ground up. By building in this way, we can ask altogether new questions and return to older questions with sharper eyes and surer hands."[73] My approach, then, is a little different from what might be expected, but I hope the reader will find it insightful in its analysis of both cultural contexts and the biological animals—human and nonhuman—that inhabit them.

Framing Animals?

I'm sympathetic to trends in human–animal studies scholarship that highlight and critique humans' brutality toward other species. This is a book about animals assaulting (and often chowing down on) humans, although we all know that the reality is overwhelmingly the reverse. There may be a temptation to think of animal horror, in its affront to human dominance, as a kind of "revenge" genre. However, given that it

surely predates our own species' dominance, any broad version of that hypothesis runs into problems pretty fast. But animals don't make films directly, and there's much value in considering the meanings we attribute to them and how they might be framed. On the subject of ethics, Gregersdotter and colleagues note that while there's been long-running public concern around the treatment of animal performers, "the use of animals in films also raises questions of the ethics of representation of non-human creatures."[74] As they realize, this seems particularly pertinent to animal horror, given its focus on eliciting fear from and (narratively at least) opposition to animals.

Many of these films aren't great PR for animals—that much is obvious. And if our view of animals is subject to cultural influences, what does this mean for the real animals with which we interact? This is an exceptionally difficult question, and I hope that the reader isn't too disappointed that it isn't answered here. If at the most primal level our interest in such films stems from a desire to observe and learn from predators, it seems logical that we gain some "information" on them. But whether such knowledge, in a context we know is fictional, translates into attitudes toward real animals, and whether it is applied behaviorally in real life, is quite another question. It's worth noting that *Jaws* has been routinely linked to the demonization of sharks, with real consequences for conservation. Marine biologist George Burgess, thirty years after the film's release, tells us that "there was a collective testosterone rush that went through the U.S. in the years following *Jaws*, where guys just wanted to catch these sharks so they could have their pictures taken with their foot on the head of a man-eater and the jaws later displayed on their mantle."[75] Yet scientists in the field also attribute to the film a beneficial explosion of positive research interest in an animal that had been generally neglected; in other words, negative representations don't necessitate negative effects. We also need to bear in mind that claims of film and television's ability to negatively influence viewers' behavior have a long and sensational history but remarkable trouble holding up under honest scientific scrutiny.[76] Recently, psychological measures of "implicit" or "unconscious" bias related to other humans have fallen into controversy over what they actually measure,[77] and their failure to predict real-life discrimination.[78] It seems that the unconscious biases we hold do not necessarily manifest in behavior. Alternatively, it may also be true that *Jaws* is a very particular case; it's not at all clear that the extraordinary cultural resonance of Spielberg's film can be easily extrapolated to other films, or even to other types of animals. As we'll see, the animal attacker is virtually always vanquished in these films, and it may be that dramatizations of human triumph give implicit moral support to

the anxieties around everyday animal exploitation. If animals in movies appear to oppose us, maybe it's easier to feel that they somehow "deserve" their fate, legitimizing our consumption of them as a spoil of conquest in a broader struggle for survival? Again, I remain agnostic. Even if we accept this (speculative) thesis, its behavioral consequences are also unclear. But it's something to think about. What I would say is that I hope this book's exploration of animals onscreen draws the reader into deeper contemplation of the cultural and emotional lenses through which we see animals, and fosters a respectfully refreshed view of the richness and wonder of animal life.

Into the Wild

This book isn't arranged as a chronology of cinematic animal horror, though the order of films within chapters is generally by year of release. Nor is it an exhaustive catalogue of every such movie,[79] which, given the size of the subgenre, would preclude deeper discussion. It's foremost an exploration of themes, patterns, tendencies, and preoccupations. I haven't covered every species or permutation of animal horror, but its significant trends (in both popularity and critical success) are represented. However, I have kept my focus mainly on the beasts of Western cinema, primarily in order to afford adequate attention to the (still diverse) cultural contexts in which these creatures are embedded. I regret this limitation, though I think readers will find that many of the observations herein will apply to the bad brutes of movies (fewer in number) in other filmic traditions. Indeed, the amphibian behemoth of the Japanese *Godzilla* (1954) is touched on as a point of subtextual overlap, since it shares with various Western productions (including an American remake) the era's cultural trepidation around atomic destruction.

Regarding the animals themselves, some may be thankful to hear that I stick to "true predators" in the zoological sense, so parasites aren't included (despite their occasional appearance in horror). The creature responsible for the most human deaths, the mosquito, is ironically neglected in movies, swatted aside in favor of its more physically impressive (or simply revolting) killer-counterparts, and accordingly isn't discussed either. Also, partly because of space constraints, few prehistoric animals are addressed; I've generally maintained focus on the creatures of our current epoch. Similarly, Godzilla notwithstanding, I generally avoid more generalized "monsters" that possess animal characteristics, although again I feel that what follows will be useful for thinking about them too. Despite its boundaries, I hope that the reader will be satisfied with the bestiary compiled herein, and find fascination in considering

the emotional effect of our toothy brethren of fur and fin and their (at least alleged) delight in dining on people. It's not strictly necessary to have seen the films mentioned here before reading about them—but I'd encourage it. I can't say that this is a "spoiler free" book, but I do avoid divulging the details of films unless doing so is necessary for serious discussion (and sometimes it is). As to the structure of the book: we'll begin with cinematic animal horror's first grand success, *King Kong* (1933), but I'd prefer not to perform extended introductions here. Instead, I'd ask that, as you proceed, you allow these daunting beasts to clamber or crawl or swim or slither up to you more naturally, with your eyes peeled but your mind open.[80]