

# Animal Passions and Beastly Virtues: Cognitive Ethology as the Unifying Science for Understanding the Subjective, Emotional, Empathic, and Moral Lives of Animals<sup>1</sup>

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## Abstract

*My essay was written as a response to four papers that were presented at the 2004 annual meetings of the American Academy of Religion (AAR) in a session that was devoted to my research on animal behavior and cognitive ethology. Here I stress the importance of interdisciplinary research and collaboration for coming to terms with various aspects of animal behavior and animal cognition, and argue that we have much to learn from other animals with regard to a set of “big” questions including: Who are we in the grand scheme of things? What is the role science (“science sense”) plays in our understanding of the world in which we live? What does it mean to “know” something? What are some other ways of knowing and how do they compare to what we call “science”? What are the uses of anecdotes and anthropomorphism in informing studies of animal behavior? Are other minds really all that private and inaccessible? Can a nonhuman animal be called a person? What does the future hold in store if we continue to dismantle the only planet we live on and continue to persecute the other animal beings with whom we’re supposed to coexist? I argue that cognitive ethology is the unifying science for understanding the subjective, emotional, empathic, and moral lives of animals because it is essential to know what animals do, think, and feel as they go about their daily routines in the company of their friends and when they are alone. It is also important to learn why both the similarities and differences between humans and other animals have evolved. The more we come to understand other animals the more we will appreciate them as the amazing beings they are and the more we will come to understand ourselves.*

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## Animals are “In”: Just who do we Think We Are?

“Sperm whale culture ... might encompass abstract concepts, perhaps even religion” (Whitehead 2003, 371).

*It also struck me that a great deal of the concern people felt about having an inherent nature that might be comparable to animal nature was based on a misunderstanding of how animals actually behaved...The reality was that animals behaved in a far less crude fashion...by misjudging animals they misjudged themselves (Midgley 2005).*

“There is more to life than basic scientific knowledge”(Papineau 2005, 803).

*There’s a certain tragic isolation in believing that humans stand apart in every way from the creatures that surround them, that the rest of creation was shaped exclusively for our use (New York Times 2005).*

Let’s face it; animals are “in.” Whenever I go to a meeting where I’m the “animal guy” who’s supposed to tell people about the latest and the greatest information about animal intelligence and animal emotions, discussions invariably slide toward people wanting to know more about the animals with whom they live or the animals whose lives they’re influencing. Even when I speak at meetings where environmental matters and land use are first and foremost, talk about animals always seems to dominate conversations: how are we affecting the animals who live in certain areas, what do they like and dislike, and what do they feel? Relatively few if any people doubt that many animals have a point of view and that they don’t like much of what we do to them as we subject billions of individuals to regrettable treatments for food, in education, in research, for amusement, or when we move them here and there (“redecorate nature”), when we break up fam-

ilies, or when we steal their homes right from under their paws. I place “for food” first because in terms of numbers and in many instances, extreme inhumane treatment, animals who are used for our meals far outnumber individuals used for other purposes (Goodall 2005; Bekoff 2006a).

Interdisciplinary dialogue is essential in discussions of who we are and how we use and abuse animals in a wide variety of contexts (Bekoff 2006a; McDaniel 2006; Yarri 2006). Furthermore, I hope it will be absolutely clear that questions about animal minds and who we are in the great scheme of things demand interdisciplinary discussion, without which there are many holes to fill. I’ve been very fortunate to be a member of a number of interdisciplinary groups, some of which bridge science, ethics, religion, and spirituality (Science and the Spiritual Quest II; American Association for the Advancement of Science program on Science, Ethics, and Religion (Sussman and Chapman 2004); Jeffrey Schloss’s wonderful interdisciplinary discussion group on Nature in Belief held at Calvin College in July 2004; see also Clayton and Schloss 2004), and as a result, my own science is better and my previously myopic (and sort of boring) views about the evolution of animal behavior are significantly richer. What I find very interesting is that a few of my scientific colleagues continue to ask me why I waste my time going to these sorts of gatherings. If they only knew, poor them!

I often wondered what religious scholars would have to say about my work and now I know — quite a bit! I’ll consider some the “big” areas and “hot” topics that directly and indirectly bear on some of the ideas of my colleagues who have taken the time — and I hope retained their eyesight and sanity — to read some of my books and essays. I try to cover them jargon-free so that a broad audience can understand the basic issues at hand. Mary Midgley’s (2005) concern that many people who write about animals don’t really know much about their behavior also greatly concerns me. Many books have been written about animals by people who really don’t have much, if any, first-hand experience with the variety of animals about whom they write. I think we can do better.

Although I’ve studied a wide variety of animals for more than three decades I never cease learning about the individuals who I encounter around my mountain home or in the field. Staring into the eyes of a red fox who sat by my study and watched me type, and watching a female red fox bury her mate near my house, made me reflect deeply on what it was like to be these individuals as they moved about on my hillside (see Couturier 2005 about how much we can learn from our experiences with urban animals). A recent trip to Kenya and Tanzania opened my eyes to the worlds of elephants, some of the most amazing animal beings I’ve ever seen up close and personal. These experiences were deeply spiritual

and transformational in that not only did I get to observe wild elephants from as close as a six inches but I also could feel their majestic presence and feel their feelings for one another. Babyl’s story is just one among a host of numerous interesting observations. We were watching a group of elephants living in the Samburu Reserve in Northern Kenya and we noted that one of them, Babyl, walked very slowly and then we saw that she was crippled. It was obvious that the elephants in Babyl’s group waited for her because she couldn’t travel as fast as them. When I asked Iain Douglas-Hamilton, who has been studying elephants for almost four decades about this, I discovered that these elephants always waited for Babyl and they’d been doing so for years. They would walk, stop and look around, see where babyl was, and wait or proceed depending on where she was. There seemed to be no reason for them to do this as Babyl could do little for them. They obviously cared enough about Babyl to change their behavior and allow her to continue to be a group member. Friendship and empathy go a long way.

### **Science Sense, Common Sense, and Animals as a Way of Knowing: What is it like to be a Dog?**

*Science should now be seeking ways to engage in conversation with those animals to find out just what cognition has resulted in so far among animal nations (Harvey 2006, 15).*

It’s very clear that learning about other animal beings by asking questions such as: what is it like to a dog, and how do they and other animals spend their time, who do they interact with, where do they do, what do they, and how do they do it, what are their intellectual and cognitive abilities (cognitive ethology), and what are their emotional lives like, is essential for gaining a full appreciation of who these animal beings are. This information is also essential for gaining a full appreciation of human spirituality and what it is to be human, and just what, if anything, is uniquely human. While I am going to consider various topics in the study of animal behavior and cognitive ethology and argue that observational and descriptive information constitute real data (see also Howell 2006; Bekoff 2002a, 2006a), their close interrelationship with environmental and other conservation issues means that in many instances, one can’t really talk about ethology without talking about conservation and vice versa (Bekoff 2002a, 2006a; Saunders 2003; Vining 2003).

Cognitive ethology is the unifying science for understanding the subjective, emotional, empathic, and moral lives of animals because it is essential to know what animals *do*, *think*, and *feel* as they go about their daily routines in the

company of their friends and when they are alone (Allen and Bekoff 1997; Bekoff 2002a, 2006a). We must pay close attention to what animals do in *their* worlds and also recognize other animals as a “way of knowing.” Scientific data, what I call “science sense” is but one way of knowing and common-sense, intuition, and indigenous knowledge must be given serious consideration (Bekoff 2006a, b). Science shouldn’t assume omniscience. Science is a belief system like other belief systems, with its own assumption, limitations, and promises. It’s important to blend “science sense” with common sense. We also need to give serious consideration to the question “What does it mean to “know” something?” I maintain that we *know* that some nonhuman animals feel *something* some of the time, just as do human animals. It is nonsense to claim that we don’t know if dogs or pigs or cows or chickens feel pain or have a point of view about whether they like and don’t like being exposed to certain treatments. And the same goes for the live cats and dogs who are used as shark bait on the island of Réunion (Mott 2005). Who are we kidding? Frankly, I think we’re kidding ourselves.

Some of the big questions and hot topics I’ll touch on include: who we are in the grand scheme of things, the role science (“science sense”) plays in our understanding of the world in which we live, what it means to “know” something, what are some other ways of knowing and how do they compare to what we call “science,” the use of anecdotes and anthropomorphism to inform studies of animal behavior, are other minds really all that private and inaccessible, can a non-human animal be called a person, and what does the future hold in store if we continue to dismantle the only planet we live on and continue to persecute the other animal beings with whom we’re supposed to coexist? I’ll discuss a few of these questions and issues (although some can be quite nagging and tiresome) that keep emerging among a decreasing number of my colleagues as supposedly good reasons to abandon, or to view with great skepticism, the study of animal emotions and animal sentience. These include who we are and the myth of “them” versus “us,” anthropomorphism, and ways of knowing other than science. Much of the literature is covered in some of my own (Bekoff 2002a, 2003, 2006a) and others’ work (Preston and de Waal 2002; de Waal 2005; Dalai Lama 2005).

### **Animals will always have Secrets but their Emotional Experiences are Transparent**

My starting point concerning animal emotions and sentience is that many animals have rich and deep emotional lives and are clearly sentient, and that it’s not a matter of *if* emotions have evolved but *why* they evolved in a wide variety of species. Many animals feel emotions such as joy, happiness, fear, anger, grief, jealousy, resentment, and embar-

rassment (Bekoff 2000a, b, 2006a; Panksepp 2005a, b; de Waal 2005). Some might also have a sense of humor or even a sense of awe. Perhaps some animals marvel at their surroundings and just enjoy being out where they live. While I’ll concentrate on mammals, there is compelling evidence that birds also have rich emotional lives (Skutch 1996; Bekoff 2000a, b, 2002a; Rothenberg 2005) and there’s solid evidence that fish have feelings and feel pain (Sneddon 2003) and need to be allowed to swim into the limelight. Recently the city of Rome (Italy) banned cruel goldfish bowls, made dog-walks mandatory, and banned docking a dog’s tail for aesthetic purposes. And there is also compelling evidence that empathy is widespread among animals (Poole 1998; Preston and de Waal 2002; de Waal 2005; Bekoff 2006a) and that we should spend our time trying to understand why empathy evolved rather than wondering if it exists. The same goes for sympathy. To quote Charles Darwin: “Those communities which included the greatest number of the most sympathetic members would flourish best and rear the greatest number of offspring.” (Darwin 1936 [1871], 163)

### **The Dalai Lama meets the Society of Neuroscience: Is Neurotheology Dead?**

*Perhaps the most important point is to ensure that science never becomes divorced from the basic human feeling of empathy with our fellow beings (Dalai Lama 2005).*

It is interesting to note that a recent discussion of a topic that could easily be covered in this essay concerns the use of neuroimaging techniques such as functional Magnetic Resonance Imaging (fMRI) to study the neural bases of human and animal consciousness and emotions and human meditation (Carey 2005). Neurotheology is the name given to the field in which the neural bases of meditation and spiritual experiences are studied. Different views of what science is and what science can do come to the fore in these studies and in the Dalai Lama’s planned visit to present a paper at the 2005 meetings of the Society of Neuroscience. To wit, as many know, the Dalai Lama (2005) has been very interested in this field of inquiry and was himself a subject. He also is a strong supporter of scientific inquiry. The available database is small but does indeed suggest that there are some unique neural states — an increased level of neural activity in the left anterior temporal region of the brain — associated with meditation. Yes, more data are needed, but where isn’t this the case? Nonetheless, in October 2005 a group of neuroscientists wanted to exclude the Dalai Lama from speaking at their annual convention because some of the claims about the neurobiology of meditation, they argued, were unsubstantiated

and not scientifically rigorous. Some critics also believed that “the field of neuroscience risks losing credibility if it ventures too recklessly in spiritual matters” (Carey 2005). Says Nancy Hayes, a neuroscientist who objects to the Dalai Lama’s speaking, “If we don’t do that [object to the Dalai Lama’s presence], we may as well be the Flat Earth Society” (Carey 2005). Talk about censorship and arrogance.

However, not everyone agrees with Professor Hayes and others in her camp. In the spirit of some of what follows in my essay, Robert Wyman, a supporter of the Dalai Lama and a world-renowned neuroscientist, noted about the scientific method: “You get curious about something and you mess around. That’s what science is in the beginning, you mess around.”

The same sorts of criticisms, that the database is too scanty or that researchers risk their credibility for trying to study phenomena that are difficult to study, while decreasing, have been used to criticize research into the study of animal emotions and animal sentience. Critics fail to recognize that studies of animal emotions are still in their infancy and that one of the wonderful things about scientific inquiry is curiosity. Patience is also needed. It seems as if the critics of the Dalai Lama are afraid of what might come of this research, as are many of the critics of research on animal emotions. Why can’t they just see what the Dalai Lama has to say and not apply a double standard to research that they don’t like? Once again there is a parallel here. Donald Griffin, “the father of cognitive ethology,” often claimed that critics of studies of animal minds frequently applied a double-standard, demanding stronger data for research on topics such as animal consciousness and animal emotions than they required for less controversial subjects in the “hard sciences” such as physics, chemistry, or biomedical research (Allen and Bekoff 1997; Bekoff and Allen 1997; Griffin 2001).

### **Animal Emotions and Animal Sentience: A Summary of “Big” Issues and Difficult and Frustrating Questions and a Call for a Paradigm Shift**

What are some of the issues at hand? Here I present a smattering and a glimpse of some of the questions that I ponder almost daily. I want to raise a number of issues that are important to consider in discussions of animal emotions and animal sentience (Figure 1). Most, if not all, can also be transported into other areas of inquiry in the general field of animal behavior.

First and foremost, here and elsewhere I argue for a paradigm shift in how we study animal emotions and animal sentience and what we do with the information we already have, “scientific” and otherwise. It is about time that the skeptics



**Figure 1:** Elephants are often the poster children for discussions of animal emotions. Here are four members of an elephant herd that is being studied by Iain Douglas-Hamilton and his colleagues in the Samburu Reserve in Northern Kenya. Elephants form social groups called matriarchies and individuals of different ages (who clearly vary in size, as shown here) form very close social bonds with one another. Elephants experience a wide range of emotions ranging from joy when they play to grief when they lose a friend. They also empathize with other individuals. Joyce Poole (1998), a seasoned expert in elephant behavior wrote about a mother who had lost her newborn: ‘As I watched Tonie’s vigil over her dead newborn, I got my first very strong feeling that elephants grieve. I will never forget the expression on her face, her eyes, her mouth, the way she carried her ears, her head, and her body. Every part of her spelled grief.’ Poole (1998) also wrote:

*It is hard to watch elephants’ remarkable behavior during a family or bond group greeting ceremony, the birth of a new family member, a playful interaction, the mating of a relative, the rescue of a family member, or the arrival of a musth male, and not imagine that they feel very strong emotions which could be best described by words such as joy, happiness, love, feelings of friendship, exuberance, amusement, pleasure, compassion, relief, and respect.*

I had the pleasure of visiting Iain in Samburu in July 2005 and was amazed by my first-hand experience of the deep emotional lives of these magnificent animals who form extremely close social bonds with other group members. Clearly, elephant social groups should never be broken up so that individuals can be shipped here and there to live miserable lives in captivity. Photo by Jan Nystrom.

and nay-sayers have to “prove” their claims that animals don’t experience emotions or don’t really feel pain, they merely act “as if” they do. Skeptics’ vacuous denials are rather empty. And until we know that animals don’t experience emotions or feel pain, let’s assume that they do experience rich emotions and do suffer all sorts of pain. Furthermore, just because weak arguments against animal emotions and animal sentience worked in the past this doesn’t mean that they work now. Animal emotions and animal sentience matter very much not only because what animals feel must be used first and foremost for influencing how we interact with and use other animals, but also because broad studies of animal emotions and animal sentience raise numerous “big” questions about the nature of science itself. We can also learn much about ourselves when we ponder the nature of animal passions and beastly virtues.

In this section I outline some of the issues that need to be considered in discussions of animal emotions and animal



sentience, some of which I consider here and below (for further discussion of those issues that I mention but don't delve into please see Bekoff 2006a, b).

1. Are we *really* the only animals who experience a wide variety of feelings? As I mention above, in my view the real question is *why* emotions have evolved not *if* they have evolved in some animals. So, for example, it's a waste of time to ask if dogs or chimpanzees experience emotions such as joy, grief, anger, and jealousy. *Surely a whimpering or playing dog, or a chimpanzee in a tiny cage or grieving the loss of a friend, or a baby pig having her tail cut off — 'docked' as this horrific and inexcusable procedure is called — or having her teeth ground down on a grindstone, feels something.* Recent data show that chronic pain is associated with docking (Comis 2005). Cows also can be moody, hold grudges and nurture friendships. Is this really surprising? Of course not. Animals aren't unfeeling objects. They don't like being shocked, cut up, starved, chained, stunned, crammed into tiny cages, tied up, ripped away from family and friends, or isolated. Numerous pigs (and other farm animals) are mistreated daily in factory farms. Scientific research shows that pigs suffer from stress, anxiety, and depression. Surely it's not a big jump to claim that they don't like having their tails cut off and their teeth ground down. Their squealing tells us that, doesn't it? Pigs can be stressed by *normal* farm management procedures. Indeed, this and other findings support the idea that all too often what is called 'good welfare' simply is not good enough.

Of course animal emotions are not necessarily identical to ours and there's no reason to think they must be. Their hearts and stomachs and brains also differ from ours and from those of other species but this doesn't stop us from saying they have hearts, stomachs, and brains. There's dog-joy and chimpanzee-joy and pig-joy, and dog-grief, chimpanzee-grief, and pig grief. Animals' emotions function as a "social glue" and as "social catalysts." Their emotions and mood swings grab us. It is highly likely that many animals exclaim 'Wow!' or 'My goodness, what is happening?' as they go through their days enjoying some activities and also experiencing enduring pain and suffering at the hands of humans. *What animals feel is more important than what they know when we consider what sorts of treatment are permissible. When in doubt, err on the side of the animals.*

2. What are some of the difficult questions in studies of animal emotions and animal sentience that go "beyond" science, or what we think science is and what we think science can do? Is science the only show in town? Are there different ways of knowing, and what are they? How can we blend them all together?

3. Is what we call "science" really better than other ways of knowing (common sense, intuition) for explaining, under-

standing, and appreciating the nature of animal emotions and animal sentience and for predicting behavior? This is an empirical question for which there really are no comparative data despite claims that science and "objectivity" are better. Until the data are in we must be careful in claiming that one sort of explanation is *always* better than others. It's poor scholarship to take a univocal approach in the absence of supportive data.

No science is perfect, it's "just science." But "just science" isn't a pejorative phrase. We need to come clean about what science is, what we can prove and not prove, and how good the scientific data really are. Scientists are responsible not only for sharing their findings with the public but also for letting them know that science is a value-laden and imperfect enterprise. Scientists shouldn't make science something that it isn't.

Let's also not forget that many explanations about evolution are stories with more or less authenticity or "truth." Along these lines we need to ask scientists who, on the one hand, come into their laboratory and tell everyone how smart or happy or depressed their dog is and then put that all aside and do horrible things to other dogs. This sort of moral schizophrenia is difficult to understand but is not all that uncommon (Rollin 1989). Just what is the difference in morally relevant emotional capacities and the ability to suffer between a dog in a home and a dog in a research facility? Nothing.

4. Is science really value-free? What background values underpin how science is done and data are interpreted? Are scientists unfeeling automatons who don't have a point of view that influences their research? Scientists are human beings with different points of view on what they do and why, and they, like others, have to make a living, perhaps support a family, and pay taxes. *Asking questions about science is not to be anti-science.*

5. Are anecdotes really useless? Is anthropomorphism really all that bad? Is subjectivity heresy? Should we have to apologize for naming the animals we study? I'll have more to say on these questions below.

6. Do *individual* animals have inherent value independent of the instrumental value that we impose on them?

7. What do we *really know* about animal emotions and animal sentience? Who has it — what do we think the taxonomic distribution of animal sentience is and why? Does this really matter for influencing how we treat other animals?

8. Do we know more than we think we know?

9. Does what we *really know* about animal emotions and animal sentience translate into action on behalf of animal beings?

10. What does each of us *really believe and feel* about animal emotions and animal sentience?

11. Does what we *really believe and feel* about animal

emotions and animal sentience translate into action on behalf of animal beings?

12. For those of us whose work involves using animals, what do we feel about animal emotions and animal sentience when we're alone, away from colleagues, and pondering how we make our livings? Are we proud of what we do to and for other animals and do we want others, including our children, to follow our path? Should we continue what we're doing?

13. What do we tell others, including our children, about how we make our livings? What words do we use and how do we explain the emotions and passions of animals who are used and abused for our, and not their, ends? Where do we tell them their dinner comes from?

14. How do we remain hopeful? There are some good things happening, such as the international conference on animal sentience organized by the Compassion in World Farming Trust (CIWF) in March 2005 (CIWF 2005). And the recent victory of the McLibel Two, Helen Steel and David Morris, against McDonald's, gives us hope. I believe we must remain hopeful, but time isn't on our side. We're engaged in a rapidly growing social movement and we must educate people and have them consider difficult questions that are easier to put aside.

15. Where do we go from here? How do we educate and open minds and hearts? How might we work together to make the world a better place for all beings? We all know that the situation at hand *must* change so how are we going to accomplish our goals?

16. Should sentience be the key factor in deciding how animals should be treated, and if so, why? Isn't just being alive sufficient to leave animals alone? There are always difficult and frustrating questions to ponder and they won't go away if we choose to ignore them.

17. We must change minds and hearts, and time is of the essence. Far too many animals are harmed each and every second of each and every day worldwide on our behalf "in the name of food," "in the name of science," "in the name of human progress," or "in the name of this or that." We really are an intrusive species that brings far too much pain and suffering to other animals when we use and abuse them and when we 'redecorate nature.'

18. Why do we do what we do? Decisions about animal use and abuse are *individual* choices and none of us should claim that we do things 'because others make us do it.' Harming and killing other beings — human animals, other animals, and yes, even other forms of life such as trees, plants and bodies of water is a personal choice. It's all too easy for a person to say something like "I didn't want to harm that animal, but I had to do it because someone made me do it." If we all own up to our personal choices, I really believe that the world will become a more peaceful place. And what a poor exam-

ple this line of reasoning "Oh, someone else made me do it!" sets for children. Each of us is responsible for our actions and the convenience of blaming others — including and especially large impersonal entities — should be discouraged. Individual responsibility is critical. It's a good idea for all of us to leave our comfort zones and to grow — to expand our horizons as we work to replace cruelty with compassion and dig deeply into our hearts. An important question to ask is "Would we do what we did again?" and if so, why. We need a paradigm shift in how we study animal emotions and animal sentience.

19. We can and we do make a difference. Animal emotions and animal sentience matter very much. What should our guidelines be? Perhaps there are some types of studies that simply cannot be done.

20. I do believe that good or right-minded people can do and/or do allow horrible things to be done to animals because they really haven't traveled deep into their hearts or because they just don't know. *So we need to educate them and that is something we can do.* The bottom line is that we must change minds and hearts and time is of the essence. Far too many animals — billions if you dare imagine it — are harmed each and every second of each and every day worldwide. If we can change minds and hearts and especially current practices in which animals are used and abused we are making progress, and there is hope.

21. Often, what is called "good welfare" simply isn't "good enough." Animals deserve more and we can *always* do better.

### **I am You and You are Me and We are Them: Evolutionary Continuity is Real and We are not Alone**

*I have stressed the degree to which perceived animal/human differences in the brain's organization of feeling and emotion are probably due to artifacts rather than to a real gap between primates (including humans) and other mammalian orders. But that is not to say there is no real difference at all between humans and other animals. There may indeed be a real difference in brain organization of emotion. If so, however, it is quantitative in nature and moderate in degree — not a qualitative or massive difference (Berridge 2003, 41).*

*Neural substrates of feeling and emotion are distributed throughout the brain, from front to back, and top to bottom. The same brain structures are implicated in affective reactions for both humans and other animals (Berridge 2003, 42).*

It's essential to learn more and more about the lives of other animals because learning and knowledge lead to an understanding of animals as individuals and members of a given species, and understanding leads in turn to appreciation and respect for the awesome and mysterious animal beings with whom we share Earth. Comparative approaches to the study of animal emotions and animal sentience allow us to see how different species and individuals solve the myriad of problems that they face.

There is no doubt that we can learn much about humans by carefully studying our animal kin and also by listening to their stories. One reason for my fascination with the study of animal behavior (in particular questions centering on animal cognition, animal emotions, animal morality, and how we humans intrude into the lives of other animals) is that I want to learn more about why both the similarities and differences between humans and other animals have evolved. *The more we come to understand other animals the more we will appreciate them as the amazing beings they are and the more we will come to understand ourselves.* Their interests and concerns are as important to them as ours are to us (Sharpe 2005).

Of course some people want to learn more about animals to make the case for human uniqueness, usually claiming that humans are "above" and "better" than other animals. But the more we study animals and the more we learn about "them" and "us" we frequently discover that there is not a real dichotomy or non-negotiable gap between animals and humans because humans are, of course, animals. Rather, there is evolutionary continuity. Rational thought, consciousness, self-cognizance (Bekoff and Sherman 2004), art, culture, language, tool use and manufacture can no longer be used to separate "them" from "us." Many animals also have a sense of morality, knowing right from wrong in their worlds (Bekoff 2004, 2006a) so the having of moral sensibility doesn't make humans unique. What's interesting about research on morality in animals is that much of it centers on animal play behavior, an activity that looks to be thoroughly frivolous yet one that is serious business (Bekoff 2004, 2006a). Empathy also isn't uniquely human. Recent research clearly shows that empathy is widespread among many different groups of animals (Preston and de Waal 2002; de Waal 2005; Bekoff 2004, 2006a). Some nonhuman animals might also be called "persons" (Bekoff 2002a, 2006a and references therein; see also Howell and Harvey 2006 for a discussion of the notion of "other-than-human-persons"). Perhaps cooking food is uniquely human (Wrangham and Conklin-Brittain 2003), and I sometimes wonder if, and worry that, sadism is a uniquely human characteristic.

Here is some more information to support the claim that human uniqueness is getting harder to defend. Almost daily we learn of many "surprises" about animal behavior. New

Caledonian crows are better at making and using tools than many primates, and fish show culture (Bshary et al. 2002). Primatologists have identified about 40 different behavior patterns that show cultural variation in chimpanzees (tool use, grooming, patterns of courtship, etc.; see, for example, de Waal 1999, 2005 and Whiten et al. 1999). Female killer whales are known to spend years showing their youngsters how to hunt elephant seals according to local custom. Researchers have compiled a list of almost 20 behavior patterns in cetaceans that are influenced by local tradition and show cultural variation. Frans de Waal, a primatologist at Emory University, tells a story of how enamored some art critics were of a painting only to change their minds when they discovered that a chimpanzee was the artist. In the prestigious journal, *Science*, researchers in Germany reported that a dog named Rico has a vocabulary of about 200 words and was able to figure out that an unfamiliar sound referred to an unfamiliar toy (Kaminski et al. 2004). Rico inferred the name of unfamiliar toys by exclusion learning, and showed patterns of learning similar to those of young humans. The study of Rico reminded me of a paper published almost eight decades ago in the *Quarterly Review of Biology* (Warden and Warner 1928) about the sensory capacities of dogs, especially a male called Fellow. What I love about this paper is the authors' claims that "Much of what the average man "knows" about his own dog, and about dogs in general is, of course, quite unknown to the animal psychologist." It's best to keep an open mind. Just because animals don't do something when we ask them to do it in certain experimental conditions, or just because we don't see other animals do something that we would expect them to do based on our own expectations, doesn't mean that they can't do amazing things in other contexts.

It's clear that the central question that demands careful attention is "Just who do we think we are?" Drawing lines between species in terms of cognitive skills or emotional capacities can be very misleading especially when people take the view that nonhuman animals are "lower" or "less valuable" than "higher" animals, where "higher" usually means primates, nonhuman and human (see also Yarri (2005) and Harvey; for further discussion see Sharpe 2005). In many ways "we are them" and "they are us." "Them" versus "us" dualisms don't work nor does the misleading claim that there are "higher" and "lower" species. "Higher" invariably and arrogantly means human. We are not alone.

Charles Darwin's idea of evolutionary continuity, in which differences among species are differences in degree rather than differences in kind, has never been truer than it is today, especially in the study of animal intelligence and animal emotions. Sure, we're unique and special as many claim, but so are all other animal beings. I'll continually return to this theme throughout this essay. Of course, we can define

other animals away if we so choose — in fact, we can do anything we want if we so choose and I find this a frightening thought. Furthermore all individuals count and a worldview that concentrates on species leaves far too many animals suffering immeasurably in our wake of growth and destruction. Caution surely is the best road to take when offering generalizations especially about complex behavior patterns, animal thinking, and animal emotions. Not only are there differences in behavior between species (called interspecific variation) but also there are marked individual differences within species (called intraspecific variation). These differences make for exciting and informative research concerning, for example, why wolves and dogs differ and why even littermates and siblings may differ from one another. Many of the coyotes I studied in the Grand Teton National Park in Wyoming lived in packs, but just down the road coyotes lived either alone or as mated pairs. Thus, making general statements that “the coyote behaves this way or that” is very misleading because “the coyote” does not really exist. The same is true for tool use in chimpanzees and orangutans. Not all of these great apes use tools, and it is challenging to discover why tool use has appeared in some populations but not in others. Intraspecific variation in behavior has been observed in many animals including insects. Lumping all members of a species into one category can be very misleading. A bee is not a bee, just as a person is not a person is not a person. Humans and other animals are individuals. For those interested in more of what I have to say please see some of my recent essays and books (Allen and Bekoff 1997, Bekoff 2000a, b, c, 2002a, 2003, 2004, 2006a, b; Bekoff and Nystrom 2004; Bekoff and Sherman 2004; Goodall and Bekoff 2002).

### **There is No Great Divide: Animals *do* Think**

*“But,” you say, “man is an exception.” Then, according to the ancestral principle, so are his fathers and his grandfathers, and in an endless line, all his ancestors...Here, then, are the consequences: monkeys do not think; their descendants do not think, since a descendant can do only what his ancestors did. Now these scientists, according to their own established theory of evolution, are among the descendants. The conclusion is inevitable. If their proposition and their logic have any consistent value, then the scientist who thinks that animals do not think belong himself to a hopelessly unthinking species (Long 1906, 15).*

Recently, Clive Wynne (2004a) wrote a book with the catchy title “Do Animals Think?” He concluded that while

we really don’t know much about animal thinking, what passes as animal thinking can be readily explained without appealing to much at all going on in the heads of other animals. Even animals to whom we commonly attribute active minds and a good deal of conscious thought — companion animals, dolphins, and great apes — really don’t think much about anything. Here and elsewhere Wynne (2004b, c), in his unbridled advocacy of behaviorism, believes that we should be very cautious about ascribing consciousness to animals and that anthropomorphic explanations have no place in the study of animal behavior. Wynne also believes that while there are similarities among some animals and humans the differences count more and that they are pretty big. But are they? Does Wynne include *all* animals or only some species in his arguments for mental discontinuity?

Wynne also claims that language, culture, imitation, and the ability to take another individual’s perspectives (commonly referred to the having of a theory of mind) “are *almost* entirely lacking in any other species” (Wynne 2004a, 7). What does *almost* mean? Perhaps its all shades of gray. Surely, few, if any, people claim that other animals are *identical* to us, but arguments invoking Charles Darwin’s notion of evolutionary continuity leave room for small differences and large similarities (differences in degree rather than differences in kind). Clever Hans aside, there are many data that show that members of some species imitate others, empathize with others, are able to take other’s perspective in certain situations (with supportive neurobiological evidence), and have culture and rather sophisticated patterns of communication. Wynne’s behaviorist views show little concern for how diverse behavioral patterns have evolved. The behavior of many animals is far too flexible and situation-specific to be explained in terms of simplified stimulus-response contingencies. Marked within-species variability is quite common and this adaptive variability lends itself readily — often but not always — to more “cognitive” explanations invoking consciousness, intentions, and beliefs (many essays in Bekoff et al. 2002).

It remains to be shown how large the differences between humans and other animals are for there aren’t enough data to support Wynne’s sweeping beliefs. You can’t have it both ways — on the one hand claim there aren’t enough data available to make definitive statements and then on the other hand offer them nonetheless. Not a good lesson for students or for non-researchers who want to learn about animal behavior. While Wynne argues for an objective study of behavior, ironically much of his book reinforces the notion that science isn’t value-free and that we all come to our science with an agenda. “Objective science” is an oxymoron.

Wynne also briefly discusses animal pain, with heavy skepticism about what animals feel and whether it should



matter in how we treat them. On the one hand he likes philosopher Jeremy Bentham's claim that the key question about animal treatment is can they suffer and not what they know or if they can reason but on the other hand, after questioning whether animals feel pain, Wynne notes that even if we could measure pain "it is still not clear that this would tell us what to do and to whom" (240). Perhaps Wynne's views on matters of animal well-being are best summed up when he writes: "Animals ... are valuable to us because of who we are, not *what* they are. *Things* don't have to be like us to be important to us" (242, my emphasis). Surely, animals aren't "things" like backpacks or cars, and surely animals' worth shouldn't be measured by their utility to us. Animals have value because they exist.

### **Eyes Tell it All: Dare to Look at them if you Can (I Can't)**

If one really wants to know about what animals are feeling let's go right to their eyes, the magnificently complex organs that provide a window to the world. Across many species an individual's eyes reflect what they are feeling, wide open in glee and sunken in despair. Jane Goodall writes about the young chimpanzee Flint's sunken eyes as he grieved the loss of his mother, Flo, and Konrad Lorenz also noted how the eyes of a grieving goose sink back into its head. Jody McConery (McRae 2000, 86) wrote of traumatized orphan gorillas: "The light in their eyes simply goes out, and they die." And Aldo Leopold wrote of the 'green fire' in the eyes of a dying wolf he'd just shot (Leopold 1948). I often wonder about animals whose eyes we can't look into.

Doug Smith (2005, 33), who leads the Yellowstone wolf reintroduction project, also recently wrote about the eyes of a wolf named Five, and how much he learned from looking into them:

*The last time I looked into Five's eyes ... she was walking away from an elk her pack had killed. ... As we flew overhead, she looked up at us, as she always did. But the look she gave me had changed. To gaze into the eyes of a wild wolf is one of the holiest of grails for lovers of nature; some say what you see is untamed, unspoiled wildness. ... That day in January, something had gone out of Five's eyes; she looked worried. Always before her gaze had been defiant.*

And then there's the story of Rick Swope and the chimpanzee JoJo. When Rick was asked why he risked his life to save JoJo who had fallen into a moat in the Detroit Zoo and was drowning, he answered: 'I looked into his eyes. It was like looking into the eyes of a man. And the message was:

Won't *anybody* help me?' (Goodall 1990). Recently, three men near my hometown of Boulder tried to save a young mountain lion who'd been hit by a car. The lions' eyes begged them to do so. And I stopped killing cats as part of a doctoral research project when Speedo, a very intelligent cat, looked at me and asked, "Why me?" Frankly, I couldn't really find the words to tell him why or how badly I felt for torturing and then killing him.

Eyes tell it all and, if we can stand it, we should look into the fear-filled eyes of animals who suffer at our hands, in horrible conditions of captivity, in slaughterhouses, and in zoos, rodeos, and circuses. Dare to look into the sunken eyes of animals who are afraid or feeling other sorts of pain, and then try to deny to yourself and to others that these individuals aren't feeling *anything*.

Writing about the importance of eyes makes a great case for some of our intuitions being borne out by hard science. In the prestigious journal, *Nature*, there was a very interesting study called "Staring Fear in the Face" (Vuilleumier 2005). It turns out that the eyes are of paramount importance in knowing that another human is feeling fear, and people tend to look at the eyes, and more so when the face is fearful. A study of a woman with a specific deficit in recognizing fearful facial expressions due to damage to a region of her brain called the amygdala showed that that she couldn't perceive fear because she didn't look spontaneously towards the eyes. Rather, she judged the face as having a neutral expression. It's also likely that the eyes are not only important in perceiving fear but also other emotions. The results of study made me think that perhaps one reason that so many people can't look into the eyes of an animal who is afraid or otherwise suffering is because the people "know" just what the animal is feeling and it's easier to deny this if one doesn't look at his or her eyes and feel the fear emanating from the poor beast.

### **The Growth of the Science of Animal Behavior: "Surprises" are Constantly Appearing**

The study of animal behavior has burgeoned over the past four decades. People worldwide are interested in the behavior of animals because knowledge about animals enriches their lives. There are many more professional journals in animal behavior and behavioral ecology now than 30 to 40 years ago and many universities offer undergraduate and advanced degrees in the behavioral sciences. Videos and movies about animals also abound. Many people want to remain connected to or reconnect with animals. Our brains are not all that different from those of our ancestors who were more connected to the animals with whom they shared their habitats. Thus, our old brains seem to drive us to keep in touch

with animals and with nature in general. It is not natural to be alienated from other beings and it feels good to interact with them and to know that they are out there doing what comes naturally to them.

In 1973, a most exciting and thoroughly unexpected event occurred when Konrad Lorenz, Niko Tinbergen, and Karl von Frisch won the Nobel Prize for Physiology of Medicine for their pioneering work in animal behavior. Lorenz, Tinbergen, and von Frisch are called “ethologists,” a word that often is reserved for those researchers who are concerned with the evolution or ecology of behavior and who also conduct fieldwork. Lorenz and others stressed that behavior is something that an animal “has” as well as what he or she “does,” and is a phenotype on which natural selection can act. Nowadays, ethological research is also conducted on captive animals (as was most of Lorenz’s research) and for many people the terms “ethology” and “animal behavior” have become synonymous.

Winning the Nobel Prize was a most amazing feat for researchers who studied such phenomena as imprinting in geese, homing in wasps, hunting by foxes, and dancing in bees, and some scientists who conducted biomedical research were miffed that such “frivolous” pursuits merited the most prestigious award, what is called “the prize” for scientific research. And, these three men were also having fun doing their ground-breaking research, and in many scientific circles this was not acceptable. Lorenz has been filmed donning a fox coat and hopping along the ground to see how geese would respond to him! I remember meeting Lorenz at an ethological conference held in Parma, Italy, and his passion and enthusiasm were incredibly contagious. For hours he never repeated a story of the animals with whom he had shared his home. He clearly loved what he did and loved his animal friends who brought so much to his life.

As I mentioned above, what is so exciting about the study of animal behavior is how many “surprises” are springing up all over the place. Much new information is accumulating that show just how fascinating and complex animal behavior can be (Bekoff 2006a). Fish show complex patterns of culture and social cognition, and most likely experience pain. Recent research has shown that fish respond to the pain reliever morphine and that pain-related behaviors are not simple reflexes. Chickens can recognize and remember more than 100 other chickens in their social pecking order. Many individuals show distinct personalities and idiosyncratic quirks, just as humans do. There are extroverts, introverts, agreeable individuals, and neurotic animals. Shy laboratory rats might not live as long as more adventurous rats. It is thought that stress might cause premature aging. Chimpanzees can remember how to count three years after they last performed a task that required them to count, and a seal

showed that he could remember the concept of “sameness” after a 12-year period. Two elephants, Shirley and Jenni, remembered one another when they were inadvertently reunited after being apart for 20 years. Gorillas have recently been observed for the first time using tools, in this case, to measure the depth of water, captive chimpanzees converse about food that they find in their pens (Appel 2005), it’s recently been suggested that mice might sing and that their patterns of communication may be more complex than previously appreciated (Holy and Guo 2005; see also Panksepp 2005a), and a landmark field experiment has shown that African elephants show higher levels of interest in the skulls and ivory of members of their own species than they do to natural objects or to the skulls of other large terrestrial mammals (McComb et al. 2005).

On the lighter side of things, fish and snakes appear to communicate by flatulating. What a good and economical use of a natural bodily function! Even Aristotle took a break from serious philosophizing and was concerned with animal flatulence. In his *History of Animals*, a veritable gold mine of natural history about a wide variety of animals, he noted that the “wind” that lions discharge is very pungent. However, he did not postulate that it was used to communicate with other lions! And animals are not immune from rare natural events. Captive hamadryas baboons have been observed to show a reduction of rates of locomotion and threat behavior when there was a solar eclipse. And howler monkeys showed a 42% decrease in population size and major social disorganization after hurricane Iris destroyed the forest in which they lived in southern Belize in October 2001.

The list of new and fascinating discoveries is endless. Solid scientific data, stories, anecdotes, myths and lore are all needed as we attempt to learn as much as we can about animal behavior. Information from dog parks, field sites, and facilities where animals are kept can all be used to learn about animals. Detailed descriptions of behavior patterns, careful observations, and ethically justified experiments that do not harm the animals in whom we are interested are all important components of a comprehensive approach to animal behavior. Often, when we perform research that stresses animals we are unable to answer the very questions in which we are interested. Often animals are stressed by our mere presence so we cannot truly study their more natural patterns of behaviors. I and my colleagues believe that this is a major problem that needs to be studied and understood so that the data we collect are as reliable as possible and the questions in which we are interested are answered with as little ambiguity as possible.

Animals can do amazing things and accomplish incredible feats, but sometimes they do not do what we ask them to do. They have their own points of view and on occasion they express them freely. An individual might not be motivated to

do something because she is tired, not hungry or thirsty, or perhaps she just wants to be left alone. It is also possible that we are not sensitive to the sensory worlds of the animals and that we are asking them to respond to a stimulus to which they are not sensitive — a sound that is outside of their range of hearing, a color that they cannot see, or an odor that they cannot perceive. The sensory world of many animals is quite different among different species and also varies from our own.

### **‘Does not’ Does not Mean Cannot**

One important lesson that I emphasize in my classes is that “does not does not mean cannot.” Just because an animal does not do something does not mean that he or she cannot do a particular task. A wolf might choose not to chase an elk, but this does not mean that he cannot do this. A robin might not learn to discriminate friend from foe but this does not mean that she cannot do this. We need to discover why individuals make the choices that they do, including the choice to not do anything. Not to do something is to do something. Not to decide is to decide.

Humans — researchers and non-researchers alike — often try to package nature and to sanitize and simplify the behavior of other animals. Sometimes simple answers to complex questions suffice, and at other times they do not. Experts can disagree, and this is good for science in general. Disagreements fuel future research for curious minds. Just when we think we know all there is to know we learn that this is not so. Saying “I don’t know” is one of the best phrases that a researcher can utter because admitting that there are mysteries still to be uncovered and acknowledging disagreements can also fuel future inquiries. The award-winning poet, Mary Oliver, captured it best in her lines from “The Grave”:

“A dog can never tell you what she knows from the smells of the world, but you know, watching her, that you know almost nothing.”

While there are many behavioral phenomena about which we know quite a lot — we can make very accurate and reliable predictions about what an individual is likely to do in a given situation — there are some areas in which we know next to nothing. The minds of other animals are private (as are human minds) and their sensory capacities often are so very different from our own and each other’s. So, even though we might know much academically about the physiology and anatomy of a dog’s nose or of a bat’s ears, we still do not know with certainty, experientially, what it is like to be a dog or a bat. Wouldn’t it be nice to be a dog or a bat or a termite for a while? And, when we study the concept of self-knowledge in animals using mirrors, it is possible that even if we collect data that suggest that dogs do not have as high a degree of self-awareness as do chimpanzees because dogs do

not respond with self-directed movements as do chimpanzees when they look at their reflection in a mirror, it remains possible that dogs do have a high degree of self-awareness but that the use of a mirror does not tap into this ability. Perhaps assessing a dog’s response to different odors, including their own, would yield different results. My own study of a dog’s response to his own and to other dog’s urine (“yellow snow”) showed that this might be the case (Bekoff 2001). We need to take into account how animals sense their worlds using different sensory modalities — which are more or less important to them.

Along with unbridled curiosity, cleverness, and creativity, patience is a virtue when it comes to the study of animal behavior. I well remember many hours spent sitting cold and alone amongst 250,000 Adélie penguins at the Cape Crozier rookery on Ross Island in Antarctica just waiting for them to do so something — anything — but stealing rocks from each other’s nests or sleeping or staring at me trying to figure out who I was — a curious observer or a new land predator! And I also recall falling asleep while waiting for a coyote to wake up and join other pack members who had decided to move to another area in which to hunt and frolic.

Patience is also needed in data analysis. Watching videos over and over again and doing the appropriate statistical analyses can try anyone’s patience, but these activities are just as important and exciting as collecting reliable data. Well, maybe they are not all that much fun but they are essential. And do not give up on some idea just because others think you are wrong. Sometimes you might be heading in the wrong direction and sometimes you might not. Be patient and analyze the arguments of supporters and critics alike. If the late William Hamilton III had not been persistent in pursuing his revolutionary ideas about the evolution of social behavior via kin selection, the field of animal behavior would have suffered an enormous loss. Had Jane Goodall not insisted on naming the chimpanzees who she studied at Gombe stream in Tanzania, there would have been a delay in our coming to recognize that individuals had distinct personalities. Goodall also was the first researcher to observe chimpanzees use a blade of grass as a tool to extract a termite meal from a hole, but many other researchers did not believe her until she showed them a video of the activity. Had I given up the study of social play, as some of my colleagues suggested I do when I was a graduate student, I would never have discovered over the next 25 years the important connections between social play and the evolution of fairness, trust, and morality. Years of detailed video analysis (that drive some students crazy), discussions with colleagues from different disciplines, and a belief that I was onto something big kept me going. Imagine if Charles Darwin had given in to his critics when he wrote about his theory of natural selection!

As Donna Haraway (2003, 19) notes in her book *The Companion Species Manifesto*:

*To do biology with any kind of fidelity, the practitioner must tell a story, must get the facts, and must have the heart to stay hungry for the truth and to abandon a favorite story, a favorite fact, shown to be somehow off the mark. The practitioner must also have the heart to stay with a story through thick and thin, to inherit its discordant resonances, to live its contradictions, when that story gets at a truth about life that matters.*

I could not agree more with her sentiments.

### The “A” Words — Anecdote and Anthropomorphism

*It is possible, therefore, that your simple man who lives close to nature and speaks in enduring human terms, is nearer to the truth of animal life than is your psychologist, who lives in a library and today speaks a language that is tomorrow forgotten (Long 1906, 26).*

Among the reasons that some researchers are skeptical about research on animal thinking and animal minds is their concern about what I call the “A” words — anecdote and anthropomorphism. Discussions of the “A” words enter into much interdisciplinary dialogue including that with theologians and religious leaders. Critics claim that anecdotes aren’t sufficient data (a view with which I and other “rich cognitivists” agree) and anthropomorphism is needless and wrong. I’ve argued repeatedly that the plural of anecdote is data and that we *must* be anthropomorphic. Anecdotes and stories drive much of science and, of course, aren’t enough on their own. But to claim that they aren’t a useful heuristic flies in the face of how hard science and soft science are conducted.

Let’s consider the views of a vociferous skeptic. Wynne (2004a,b,c) believes that anthropomorphic explanations are extremely imprecise and he privileges reductionistic stimulus-response explanations over explanations that appeal to such notions as consciousness, intentions, and beliefs, however, Wynne doesn’t scientifically support his position. Many who favor mechanistic explanations have *not* spent much time watching free-ranging animals. Surely, given the complexity and flexibility of behavior no explanatory scheme will be correct *all* of the time. But, more importantly, Wynne ignores the fact that the utility and accuracy of various sorts of explanations have *not* been assessed empirically. So, we really don’t know if his flavor of explanations is better for un-

derstanding and predicting behavior than those he eschews. Until the data are in we all must be careful in claiming that one sort of explanation is *always* better than others. It’s poor scholarship to take a univocal approach in the absence of supportive data.

Anecdotes and anthropomorphism have frequently been used to bash the field of cognitive ethology (Allen and Bekoff 1997, Bekoff and Allen 1997, Bekoff 2002a). There are many different ways of describing what animals do. How one chooses to summarize what they see, hear, or smell depends on the questions in which they are interested. There is not only one correct way to describe or to explain what animals do or feel.

Anecdotes, or stories, always find their way into people’s views of animals. Some of my colleagues dislike or ignore anecdotes because they are “merely stories” with little or no substance; they are not “hard data.” However, much of our theorizing about the evolution of behavior also rests on better or worse stories, but few people find this objectionable, perhaps because there is the widely accepted central unifying theory of natural selection.

Anecdotes are central to the study of behavior as they are to much of science. As we accumulate more and more stories about behavior we develop a solid database that can be used to stimulate further empirical research, and yes, additional stories. The plural of anecdote is data. Stephen J. Gould (2000), in his foreword to *The smile of a dolphin* (Bekoff 2000a), has stressed the importance of case studies in science. Anecdotes, similar to anthropomorphism, can be used to make better science, if we carefully assess how we are using them.

Anthropomorphism has survived a long time because it’s a necessity, it’s the only reference point and vocabulary we have, but it must be done carefully and biocentrically (Bekoff 2000b), making every attempt to maintain the animal’s point of view by asking “What is it like to be that individual?” Claims that anthropomorphism has no place in science or that anthropomorphic predictions and explanations are less accurate than behaviorist or more mechanistic or reductionistic explanations are *not* supported by any data. This is an empirical question for which there are no data. Anthropomorphism is alive and well, as it should be. But, let me stress again that it must be used with care.

Frans de Waal, in his book *The ape and the sushi master* (2001), introduces the notion of “anthropodenial,” a practice in which a dualism, or distinct separation between humans and other animals, is suggested. Differences, rather than similarities or evolutionary continuity, are stressed. Recall Charles Darwin’s notion of evolutionary continuity.

Some people argue against the use of the “A” words without seeming to know they’re using them. For example, a



representative of the American Zoo and Aquarium Association recently claimed that we mustn't be anthropomorphic and that it's bad science to attribute human-like feelings to animals. He was critical of people who claimed that an elephant at the Los Angeles Zoo "wasn't doing well," but in the same breath he claimed that the elephant was "doing well" and shouldn't be sent to an elephant sanctuary. What he meant is that *he* can be anthropomorphic but others can't be. He can say that an animal in a particular zoo is doing well but others can't say the elephant is *not* doing well. We must not let people get away with such sloppy and self-serving claims. In view of that sort of inconsistency (and hypocrisy) it's also important to note that the AZA itself (AZA Executive summary) has concluded in their *own* executive summary the statement, "Little to no systematic research has been conducted on the impact of visits to zoos and aquariums on visitor conservation knowledge, awareness, affect, or behavior." So much for their claims that zoos are important for purposes of education and conservation and so much for the selective use of anthropomorphism.

### **The Privacy of Mind, Avoiding Double-Standards, and the Power of Prediction**

The minds and feelings of individuals other than one's self are private. Access is limited because we can't really get into the head or heart of another being. Skeptics often use this solipsist's line of reasoning but it really can be a dead-end when practical matters are of primary concern. Of course other minds are private but that doesn't stop us from trying to understand what another human is thinking or feeling and using this information to make future compassionate decisions.

When considering the emotional lives of animals, skeptics can be rather sanguine concerning the notions of proof or what is actually known, often employing a double standard. In practice this means that they require greater evidence for the existence of animal emotions than they do in other areas of science, a point stressed by the late Donald Griffin. But because subjective experiences are private matters, residing in the brains (and hearts) of individuals and inaccessible in their entirety to others, it's easy for skeptics to claim that we can never be sure about animal emotions and declare the case closed. Nonetheless, a cursory glance at many studies in animal behavior, behavioral ecology, neurobiology, and biomedical research shows clearly that only rarely do we ever come to know *everything* about the questions at hand, yet this does not stop us from making very accurate predictions concerning what an individual is likely to do in a given situation or from suggesting the use of a wide variety of treatments to help alleviate different diseases. Ac-

curate predictions can be made in the absence of incontrovertible proof, in the absence of total certainty, something that few scientists can ever offer.

It's also important to consider the power of prediction for different types of knowledge. No one has yet shown that one form of prediction is better than others and this is still an open question (Bekoff 2004, 2006a). Is "science sense" a better predictor than common sense in the study of animal emotions and sentience? I can't find any hard data on this question. Clearly, even when scientific data are available individuals interpret them differently and the data may not even be used. This is so in other fields as well. Meir et al. (2004) have shown that scientific data about species' abundance actually plays little or no role in determining which species are placed on the endangered species list in the United States. Opportunism and other factors play more of a role.

### **Self-cognizance: Do Animals Exclaim "Wow! That's me!"?**

I often wondered if Jethro, my late canine companion, knew who he was. People who know me are not surprised when I ask such questions. I also ponder if chimpanzees, cats, elephants, dolphins, magpies, mice, salmon, ants or bees have a sense of self. What do these animals make of themselves when they look in a mirror, see their reflection in water, hear their own or other individual's bark or howl, or smell themselves and others? Is it possible that exclaiming "Wow, that's me!" is a uniquely human peculiarity? Some people do not want to acknowledge the possibility of animal self-awareness because then borders between humans and other animals become blurred and their narrow, hierarchical, anthropocentric view of the world is toppled. Are we really that unique or special? Recall Darwin's ideas about evolutionary continuity—that differences in behavior among various species are differences in degree rather than difference in kind. Self-cognizance in animals is also a practical matter; what animals might know about themselves is crucial to studies of animal pain and suffering.

Many researchers are eager to discover what animals might know about themselves. Some argue that high levels or degrees of "self-cognizance" have evolved in a wide variety of animals, whereas others believe that only great apes have "rich" notions of self (knowing who they are and/or having a "theory of mind," which means being able to infer the states of minds of others). Still others argue that it is methodologically too difficult to address this question because animal (like human) minds are subjective and private. Some in this latter category do not attribute any sense of self to animals other than humans, and question whether animals are conscious of anything at all.

I revised my own thinking about animal selves based on long conversations with Paul Sherman, a behavioral ecologist at Cornell University. I had written a short essay for the journal *Nature* on the topic of animal selves. Paul contacted me after reading this piece and my collaboration with Paul was very rich and challenging and resulted in my revising some of my ideas — some that were not *that* old — and fleshing out degrees of self-cognizance in much more detail. Perhaps some animals do have a sense of “I-ness” but we just have not been able to access it using methods that do not tap into the neural underpinnings of self-hood. Paul and I decided to write a paper (Bekoff and Sherman 2004) together in which we argue that there are degrees of self-cognizance. We presented a new scale of animal selves and offer “self-cognizance” as an umbrella term to cover a continuum ranging from self-referencing to self-consciousness. The terms we use in our scale are “self-referencing” (also referred to as self-referent phenotype matching and the “armpit effect”); “self-awareness” (also referred to as “perceptual consciousness” and “body-ness” or “mine-ness”); and “self-consciousness” (analogous to “reflective consciousness,” “sense of self,” “I-ness” and “I-self” having sympathy, empathy and a theory of mind also are included). Basically, we wanted to introduce terminology that could be used as a standard among different researchers and also open doors for discussion among interested colleagues.

Sherman and I hypothesized that species exhibit different degrees of self-cognizance, which reflect variations in their social environments and life histories. The position of an individual on the self-cognizance continuum is based on the degree to which members of its species or group engage in repetitive competitive or cooperative interactions with the same conspecifics over their lifetimes and benefit from changing their responses in light of outcomes of those previous interactions. We also stressed the development of non-invasive neural techniques to study self-cognizance in animals.

Sherman and I concluded that we must return to basics by revising our definitions, refocusing our questions, giving more attention to the way in which different sensory modalities are involved in animal self-cognizance, and developing an agreed-upon terminology. Interdisciplinary collaboration also is a must. We invoked Darwin’s notion of evolutionary continuity to argue that differences among species are differences in *degree* rather than differences in *kind* and that we actually know very little about the taxonomic distribution of self-cognizance in animals. If we look at “self-awareness” as “body-awareness” we might also discover more about how animals think and the perceptual and neurobiological processes underlying various cognitive capacities. Darwin’s ideas about evolutionary continuity along with empirical data

and common sense caution against the unyielding claim that humans, and perhaps other great apes and cetaceans, are the only species in which some sense of self has evolved.

In no way do Sherman and I believe that we have the “final” answers. Our paper was meant to stimulate researchers and others to revisit fundamental assumptions and to foster interdisciplinary discussion.

### Why Care about Animal Self-cognizance? Going to the Animals

I generally assume that many animals are conscious and have some sense of self. I take an evolutionary approach to the subject and ask why (*not if*) consciousness and a sense of self evolved in certain animals — “what are they good for?” To answer such questions we need to recognize that there are degrees of self and that we need to take into account individuals’ social needs and sensory worlds. We need to go to the animals.

While there are important “academic” reasons to study self-cognizance in animals, there are also important practical reasons to learn about animal selves. Answers to challenging questions about self-cognizance have wide-ranging consequences because they are often used by researchers and lawyers as a litmus test for defending the sorts of treatments to which animals can be ethically subjected. However, it is *not* clear that self-awareness or other cognitive capacities should be used for such decisions. Some argue that a sense of “I-ness” is morally relevant and necessary for experiencing pain. However, even if an animal does not know *who* she is, this does not mean she cannot feel that “something painful is happening to this body.” Just because the experience of pain might not be the same across species, this does not mean that individuals of different species do not suffer their own type of pain. *Self awareness is not a reliable test for assessing well-being.* Here, it is worth recalling Jeremy Bentham’s well-known claim concerning animal suffering: “The question is not, Can they *reason?* nor Can they *talk?* but, Can they *suffer?*” For Bentham, it really did not much matter if animals could think or if they were smart. Rather, Bentham was concerned with whether or not animals could suffer.

So, do any animals ever exclaim “Wow, that’s me!” We really do not know, especially for wild animals. It is time to get out of the armchair and into the field. Speculation does not substitute for careful studies of behavior. The stakes are high. Answers to questions about self-cognizance often inform where humans place themselves in the evolutionary scheme of things and influence how animals are treated. More careful studies are needed.

## Wild Justice and the Evolution of Morality: Moral Mutts and Happy Hounds

My own current research on the evolution of morality in dogs, wolves, and coyotes shows that during social play individuals of these species fine-tune their play so that play can continue without breaking out into fighting, for example. Play signals are used carefully and non-randomly to signal “This is play” or “I’m going to bite you but it’s only in play” or “I’m sorry I bit you, let’s continue playing.” Play signals are honest signals and rarely used to deceive others. Details are provided elsewhere (Bekoff 2004, 2006a) but suffice it to say, animal play is a highly cooperative and likely contains elements of fairness, trust, apology, forgiveness, and empathy. Animals also enjoy playing. We are not the only moral beings and we can even ask if we should be so self-centered and arrogant so as to use ourselves as the standard for moral behavior. There is honor among beasts.

If we keep open minds the idea of animal morality is not any more silly than the well-accepted idea that many animals are thinking and feeling beings. The nay-sayers are on the run, for as we have seen, their arguments ignore what we now already know to be true for many different species. Surprises are always in store as we continue to learn about the intelligence and cognitive and emotional capacities of animals. We need to be careful that our expectations do not lead us down the wrong path especially in the absence of information. But it is abundantly clear that we do not have to ascribe to animals’ far-fetched cognitive and emotional capacities to reach the conclusion that they can make moral decisions in certain situations. Neither should we deny that some cognitive and emotional capacities are well within their grasp. Our place in the grand scheme of beings is not at risk and we do not have to worry that we’re not special or unique. All animals are special and unique.

### Animals are within Us: Reflections on Earth’s Mirror

Once, while visiting my parents in Florida, my father called his friend, Ginger, whose husband had recently died, so that she could show me her new treasure, a teacup poodle, not surprisingly named Tiny, whom she carried inside her shirt! Ginger pampered and deeply loved Tiny who pampered and deeply loved Ginger in return. She brought Ginger much joy in the absence of her husband. But, the silly rules of the condominium complex imposed by the homeowner’s association, didn’t allow dogs on the premises. I can guarantee you that this wonderful small dog was much less of a nuisance than most of Ginger’s human neighbors. Yet Ginger had to move because dogs were banned. What was very interesting

to me was that my mother, who had been bitten by a dog when she was young and feared dogs throughout her life, and who at the time was unable to move on her own, also found Tiny to be a welcome and comforting friend. We were all afraid that my mother would become very upset as Tiny landed on her lap. But, to our pleasant surprise, she actually allowed Tiny to lay on her lap and smiled from ear-to-ear as Tiny burrowed into her blanket and heart.

On another trip to visit my parents, I read about a homeless man named Jackie Tresize who’d been mugged and beaten and whose best friend, a Shih Tzu named Champion had disappeared while Jackie was recuperating. Of his canine friend, Jackie said, “He was my little family unit; he kept me from feeling lonely. If I had my dog, I wouldn’t want nothing else in life.” In my home state inmates at the Colorado Women’s Correctional Facility get to care for and live with dogs who would have been put to sleep at the local animal shelter. The experience of walking the dogs, grooming them, and cleaning up after them is incredibly rewarding and beneficial to the dogs, caretakers, and prison staff. Prison Warden Jim Abbott notes “They have a terrific calming effect that is very therapeutic for both inmates and staff — in a tense situation they divert it.” Says Stephanie Timothy a caretaker of rescued Charlie “It helps you feel important that they give you the responsibility ... Just knowing (Charlie) is going to make somebody else as happy as he made me is worthwhile.” And for Mary Johnson, training Max taught her a trade she can pursue when she’s released. Recently, a dog in Toronto (Canada) was responsible for stopping a man on a killing spree. The dog approached the man and started playing with him and the man turned himself into the local police!

Animals are intimate and indispensable parts of our spiritual lives. We weave them into numerous aspects of our being — perhaps all parts of our lives — and they are active participants in the vital and life-promoting processes of integration and assimilation. Integration and assimilation beget dynamic and ongoing reciprocal transformations within and between species, resulting in compassion, love, and a heartfelt move toward oneness and wholeness. There can and must be no other way.

Nonhuman animal beings continue to find themselves in a very precarious situation. On the one hand they are used and abused in a sickening and morally repugnant array of human-centered activities. On the other hand they are revered, worshipped, and form an indispensable part of the tapestry of our own well-being — they make us whole; they shape us; and they make us feel good. The complicated interrelationships humans have with their animal kin make life difficult for all. But what is thoroughly unacceptable is the fact that animals are often used to define just who we humans are in the great chain of being, and that chain is then present-

ed as a “hierarchy of beings” in which humans place themselves separate from and above other animals. Isn’t this convenient? We declare that we are special and better and more valuable than our animal kin and go on to close the door on the lives of other animals. We shut down our senses and our hearts to the idea that we should take them seriously for who they are and not for what we want them to be in our narrow anthropocentric view of the world. Let’s not forget that throughout the world the legal standing of the vast majority of animals, if they have any legal standing at all, is that they are property. They can be legally abused, dismissed, disenfranchised, bartered, and killed — treated as if they were backpacks or bicycles. Often this happens “in the name of food, science, education, entertainment, or clothing.”

The world of animals is laden with magic and wonder. Just as we exclaim “Wow” when we marvel over the mysterious lives of animals, I wouldn’t be surprised if they say “Wow” in their own way as they experience the ups and downs of their daily lives and the grandeur and magic of the environs in which they live.

If we peer into biological and spiritual mirrors the reflection shows that it’s misleading to present humans and other animals in a “we” versus “them” framework. While there are many differences, these variations should be cherished rather than used to establish species’ boundaries. The multitude of likenesses clearly shows that “we” are “them” and “they” are “us.” We are all part of the same deeply interconnected and interdependent community. We are one among many. We are all woven into a seamless tapestry of unity with interconnecting bonds that are reciprocal and overflow with respect, compassion, and love. I feel blessed when I open myself to the heart, spirit, and soul of other animals. When I study coyotes I am Coyote, when I study birds I am Bird. Often when I stare at a tree, I am Tree. There is a strong sense of oneness. When I watch coyotes I try as hard as I can to adopt a “coyote-centric” view of the world so that I can come to a deeper understanding and appreciation of these awesome beings.

Each and every being is defined from within and without. The social matrix in which I am defined is an integrated tapestry, a dynamic event of monumental proportions that resists being totally intelligible given the evolutionary state of my (and other humans’) brains. My spiritual quest has taken me to the arena in which science, ethology, and spirituality meet. Much of my journey owes itself to my interactions with other animals and their willingness to share their lives with me. Watching a red fox bury another red fox, observing the birth of coyote pups and the tender care provided by parents and helpers, watching dogs blissfully lost in play, and my nearly falling over a mountain lion as he protected a deer he had just killed make me realize how much of “me” is defined by my relationships with others.

We need to care deeply about Earth. By “minding animals” and “minding Earth” numerous animals, people, and habitats are far better off than they would be in the absence of an ethic that blends respect, caring, compassion, humility, generosity, kindness, grace, and love. The phrase “minding animals” refers to caring for other animal beings, respecting them for who they are, appreciating their own worldviews, and wondering what and how they feel and why. It also refers to the fact that many animals have very active and thoughtful minds. I’ve always minded animals so my parents say that it’s natural for me to do so now. It’s a no-brainer that many animals have a point of view about their place in the world and that the obvious answer to the question “Do you feel anything?” is “Yes, I feel a lot.”

Caring about some being or some thing, any being or any thing, can spill over into caring for every body and every thing. If we focus on the awe and mystery of other animals and Earth perhaps we will be less likely to destroy them. Allowing ourselves to sense the presence of other animals, to feel them residing in our hearts, brings much joy and peace and can foster spiritual development, a sense of unity, and oneness. And this happiness, this sense of bliss, allows for Earth, bodies of water, air, animals, and people to be melded into a seamless and warm comforter of caring and compassion, in which every single individual counts and makes a difference. The interconnectedness of individuals in the worldwide community means that what one does affects all — what happens in New York influences what happens across the world, in Beijing, and in other distant locales.

### **Old Brains in New Bottlenecks: Why We Seek Nature’s Wisdom and Spirit**

Why do we feel good when we’re out in Nature? I have been asking this question since I was about four years old. A few years ago I discovered the following quotation by the renowned author Henry Miller (1957, 93): “If we don’t always start from Nature we certainly come to her in our hour of need.” Perhaps there isn’t only one reason why Nature’s wisdom and spirit are frequently sought when we feel out of balance, when times are tough. Perhaps we can look to our own ancestors and evolution to understand why we do so (much of what follows is from Bekoff 2003).

I find I’m never alone and neither do I feel lonely when I am out in Nature. Nature feeds my own spirituality, which is based on a deep drive for a seamless unity, a sense of oneness, motivated by respect, caring, compassion, humility, generosity, kindness, grace, and love. Nature’s wisdom easily captures me and I feel safe and calm wrapped in her welcoming arms. We converse with one another. Why do we go to Nature for guidance? Why do we feel so good, so much at



peace, when we see, hear, and smell other animals; when we look at trees and smell the fragrance of flowers; when we watch water in a stream, a lake, or an ocean? When we are immersed in Nature we often cannot articulate why there are such penetrating calming effects, why we often become breathless, why we sigh, why we place a hand on our hearts as we sense and feel Nature's beauty, awe, mystery, and generosity. Perhaps the feelings that are evoked are so very deep, so very primal, that there are no words that are deep or rich enough to convey just what we feel: joy when we know that Nature is doing well and deep sorrow and pain when we feel that Nature is being destroyed, exploited, and devastated. I ache when I feel Nature being wounded.

What about our ancestors? There must have been more significant consequences for them if they "fooled" with Nature. They didn't have all of the mechanical and intellectual know-how to undo their intrusions into natural processes. Indeed, early humans were probably so busy just trying to survive that they would not have had the opportunities to wreak the havoc that we have brought to Nature. And the price of their injurious intrusions likely would have been much more serious for them, because of their intimate interrelations with, and dependence upon, Nature, than they are for us. This is not to say that early humans always lived in harmony with nature, but rather that they weren't as powerful or ubiquitous as modern humans.

Nonetheless I imagine that our psyches, like theirs, suffer when Nature is harmed. Human beings worldwide commonly lament how badly they feel when they sense Nature and her complex webs being spoiled. Ecopsychologists, such as Laura Sewall, argue just this point. It would be invaluable if we could tune in to our old big brains and let them guide us, for our brains are very much like those of our ancestors. However, our sociocultural milieus, technology, and Nature have changed significantly, and we face new and challenging bottlenecks that move us in new and varied directions. Cycles of Nature are still with us and also within us, although we might not be aware of their presence because we so easily can override just about anything "natural." Much technology and "busy-ness" cause alienation from Nature. This breach in turn leads to our wanton abuse of Nature. It is all too easy to harm environs to which we are not attached or to abuse other beings to whom we are not bonded, to whom we don't feel close.

Our brains can distance us from Nature, but they also can lead us back to her. Perhaps there is an instinctive drive to have close ties with Nature — biophilia, if you will — and when these reciprocal interconnections are threatened or ruptured we seek Nature as a remedy, because our old brains still remember the importance of being an integral and cardinal part of innumerable natural processes and how good these

deep interconnections feel. Perhaps our close ancestral ties with Nature offer a reason for hope, a reason for being optimistic about healing deeply wounded Nature. It just does not feel good to cause harm to Nature.

Perhaps the intense joy we feel when Nature is healthy, the joy we feel when we are embedded in Nature's mysterious ways and complicated and convoluted webs is but one measure of the deep love we have for her, a love that might offer us one more chance to change our ways, a love to awaken us from a dangerous and pitiful apathy that amounts to the betrayal of our collective responsibility to act proactively and with passion to save Nature for our and future generations. Activism, whether it involves calling attention to our destructive ways or conducting research that can be used to right wrongs, can be healing for us and Nature and is but one way for us to return to Nature some of the wisdom, solace, and spirit she provides, to allow her to continue to exist for all to relish. By minding Nature we mind ourselves.

In the current state of the world personal transformations are greatly needed, and they will serve us well. We owe it to future generations to transcend the present, to share dreams for a better world, to step lightly, to move cautiously and with restraint. We all can be dreamers and doers. We owe it to ourselves and to the other animals to whom we can, unfortunately, do whatever we choose. We owe it to ourselves to keep in mind the power of love. As big-brained, omnipresent, powerful, and supposedly omniscient mammals, we are the most powerful beings on Earth. We really are that powerful, and with that might comes inextricably tied, innumerable, staggering responsibilities to be ethical human beings. We can be no less.

As the enterprise of science adopts more heart and compassion and turns away from the tiresome objectivity that can lead us astray, and as we learn more about the deep and rich emotional lives of animals, their presence — even if we do not know they are there — can affect our own spirituality and foster a deep and warm feeling of oneness and wholeness. Animals are present in heart and spirit when they are not immediately present in body. When we cannot actually see animals they may be present in voice and odor, sounds and smells that remind us they are near. Even in the absence of the kaleidoscope of cues they directly provide, animals are always near.

I find myself continually exclaiming "Wow!" when I am immersed in Nature. But some might think that the question "Do animals say 'Wow!' as they experience the ups and downs of their daily lives?" is a frivolous one, one that is not tractable scientifically. I don't think this is so. We know that humans and other animals share the neural apparatus and neurochemicals that underlie the expression and experience of a wide variety of emotions. We know that many animals

experience rich and deep emotional lives. We know that they can be happy and sad, that they can experience joy and grief.

I think that many animals exclaim “Wow!” in their own ways — when they are experiencing the panoply of joy and happiness associated with delighting in life’s pleasures or when they are experiencing the agonizing depths of pain and suffering when their well-being and spirit are compromised, when we breach their trust in us. We owe it to all animals to offer them the best life we can. All beings benefit when we treat other animals with the dignity, compassion, respect, and love they deserve.

In many ways we need animals more than they need us. In our absence most animals will go on to live quite contentedly. But our hearts and spirits erode when we abuse other animals because they are an essential part of who we are.

We must step lightly with respect, caring, compassion, humility, generosity, kindness, grace, and love when we trespass into animals’ lives. We owe it to the animals, and we owe it to ourselves and especially to our children and theirs, to stop ravaging Earth. Love must rule.

When we pillage Earth we destroy the deep and reciprocal interconnections that define all life, the interrelationships that resonate in all beings and all things. It chills my heart to imagine being severed from the Earth community. Surely we do not want to be remembered — if there’s anyone around to recall — as the generation that killed Nature.

When we desecrate Earth an eerie coldness prevails, for when we slay Nature we kill ourselves, other animals, tree beings, landscapes, and the ubiquitous universal spirit that connects us all. We destroy our and Nature’s integrity.

## There is Hope

While it seems as if we are addicted to destroying the very animals and landscapes we love, there is hope. I am a hopeful dreamer, a die-hard optimist. If love rules we can “win,” but time is not on our side. There really is a sense of urgency. But if each and every one of us does something — anything — to make Earth a better place for all beings and things, we will create a path for future generations so that they too will be able to enjoy the many wondrous gifts of Nature that are just waiting to be relished. Wow!

I ask people to imagine that they carry a suitcase of courage, compassion, and hope and that because we give, the supply of courage, compassion, and hope will never be exhausted. It is easy to have one’s spirit and soul weathered by the “bad” things that happen all around us, each second of every day. But many good things are happening each and every day all over the world that can kindle our spirit and impel us to act, to do even more.

If love is poured out in abundance then it will be re-

turned in abundance. There is no need to fear depleting the potent and self-reinforcing feeling of love that continuously can serve as a powerful stimulant for generating compassion, respect, and more love for all life. Each and every individual plays an essential role, and that individual’s spirit and love are intertwined with the spirit and love of others. These emergent interrelationships, which transcend individuals’ embodied selves, foster a sense of oneness. They can work in harmony to make this a better and more compassionate world for all beings. We must stroll with our kin and not leave them in our tumultuous wake of rampant, self-serving destruction.

We will need to replace our “mindlessness” about our interactions with animals and Earth with “mindfulness.” Nothing will be lost and much will be gained. We can never be too generous or too kind. We will come to feel better about ourselves if we know deep in our hearts that we did the best we could and took into account the well-being of the magnificent animals with whom we share Earth, the awesome and magical beings who selflessly make our lives richer, more challenging, and more enjoyable than they would be in the animals’ absence. Doesn’t it feel good to know that there are animals out there whom we have helped even if we cannot see, hear, or smell them? Doesn’t it feel good to know that we did something to help Earth even if we do not see the fruits of our labor?

It is essential that we do better than our ancestors did, and we certainly have the resources to do so. Perhaps the biggest question of all is whether enough of us will choose to make the heartfelt commitment to making this a better world, a more compassionate world in which love is plentiful and shared, before it is too late. I believe we have already embarked on this pilgrimage. My optimism leads me in no other direction.

## Where to from Here? All Animals Matter

We need to take the skeptics to task and switch the table and have skeptics ‘prove’ that animals don’t have emotions rather than our having to prove that they do. I recall an event at a symposium that was held at the Smithsonian Institution in October 2000 to celebrate the publication of *The Smile of a Dolphin*, a book about animal emotions that I edited. Cynthia Moss, who has studied wild elephants for almost four decades, talked about elephants and showed wonderful video of these highly intelligent and emotional beasts. During the question and answer period a former program leader from the National Science Foundation asked Cynthia ‘How do you know these animals are feeling the emotions you claim they are?’ and Cynthia aptly replied ‘How do you know they’re not?’

This was a very important exchange because of course he couldn’t answer his own question with certainty and nei-

ther could Cynthia. However, science sense, along with common sense and solid evolutionary biology, would favor her view over his. It's wonderful that mainstream journals are publishing essays on animal emotions. For example, the article "Elephant breakdown" (Bradshaw et al. 2005) about social trauma in elephants recently appeared in *Nature*. And the *New York Times* editorial "My little chickadee" (*New York Times* 2005) about our connections to nature is also a most-welcomed event.

Just because something seemed to work in the past doesn't mean it works now. We need a paradigm shift in how we study animal emotions and animal sentience and what we do with what we 'know' and feel about animal emotions and animal sentience. The herd instinct must be strongly resisted, as must thinking such as "Well, it worked for my mentor and his mentor, so it must be right." Historical momentum in methodology and in interpretation and explanation need to be reassessed critically. We also need to change funding priorities by not buying into the *zeitgeist* of "science over all."

It's essential that we do better than our ancestors and we surely have the resources to do so. My optimism leads me in no other direction. But I am personally ashamed at how humans abuse animals. I am sure future generations will look back on us with shock and horror about our treatment of other animal beings and wonder how we missed what is so very obvious about animal emotions, and how much harm and suffering we brought to billions upon billions of individuals. How could we ever do the things that we did to individuals who clearly were suffering at our hands for our, and not their, benefit? How could we ever allow so many individual beings to suffer horrific pain just so that we could study them or eat them? I just don't know. I really just don't know.

### **Life's too Long to Bicker: The Long and Winding Road**

Some say life's too short to bicker but I often feel that life's too long to bicker and that we ought to spend our time making the world a better place for all beings. As I said previously, I do believe that "good or right-minded" people can do and/or do allow horrible things to be done to animals because they really haven't traveled deep into their hearts or because they just don't know what we know. *So we need to educate them and that is something we can do.*

### **What did you do Today, Daddy?**

I often imagine a dinner-table conversation between a parent (a scientist) and his or her child concerning, for example, studies in which the nature of mother-infant bonds are studied by taking the infant away from their mother.

Child: So, what did you do today?

Parent: Oh, I removed two baby chimpanzees from their mother to see how they reacted to this treatment.

Child: Hmm, do you think the baby minded being taken from her mother?

Parent: Well, I'm not sure so that's why I did it.

Child: Oh, but what do you think that the baby's fighting to get back to her mother and her writhing and screaming meant? Surely she didn't like it. We already knew that, didn't we? Why do you do this to young animals and their mom?

Parent: It's getting late, isn't it time for bed?

Of course, this sort of conversation could be had for the innumerable situations in which we subject billions of individual animal beings to deep and enduring suffering, including the use of animals for food (CIWF 2005). There isn't any reason to do much of the harmful research that is done nowadays. I apologize to each and every individual animal who finds himself or herself being involuntarily and intentionally subjected to inhumane treatment at the hands of humans, and I hope that my scientific colleagues and I can make a difference in their lives and the lives of other individuals. We must learn from the horrific research that occurred in the past (e.g. maternal deprivation studies in monkeys, Blum 2002) and not allow it to happen again.

As we come to live more in harmony with Nature we can restore, rekindle, and re-create ourselves and our psyches, which have been fragmented because of our alienation from animals and Nature.

We need animals, Nature, and wildness. We need their spirit.

I'll end here. We can always do better in our interactions with other animal beings.

### **Endnotes**

1. Some of this essay is excerpted from Bekoff (2006a,b) and first appeared in *Zygon*, March 2006 (volume 41, 71-104).
2. Author to whom correspondence should be directed: [marc.Bekoff@colorado.edu](mailto:marc.Bekoff@colorado.edu)
3. Suggested websites: <http://literati.net/Bekoff>; [www.ethologicaethics.org](http://www.ethologicaethics.org).

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## References

- Allen, C., and Bekoff, M. 1997. *Species of Mind: The Philosophy and Biology of Cognitive Ethology*. Cambridge, Massachusetts: MIT Press.
- Appel, A. 2005. Chimp “dinner conversation” proof of ape speech? [http://news.nationalgeographic.com/news/2005/10/1020\\_051020\\_chimps\\_talk.html](http://news.nationalgeographic.com/news/2005/10/1020_051020_chimps_talk.html)
- AZA, Executive summary: Visitor learning in zoos and aquariums. <http://www.aza.org/ConEd/VisitorLearning/Documents/Visitor-LearningExecutiveSummary.pdf>
- BBC News. 2005. Wild gorillas seen to use tools. <http://news.bbc.co.uk/2/hi/science/nature/4296606.stm>
- Bekoff, M. (ed.) 2000a. *The Smile of a Dolphin: Remarkable Accounts of Animal Emotions*. Washington, D.C.: Random House/Discovery Books.
- Bekoff, M. 2000b. Animal emotions: Exploring passionate natures. *BioScience* 50, 861-870.
- Bekoff, M. 2000c. *Strolling with our Kin: Speaking for and Respecting Voiceless Animals*. New York: Lantern Books.
- Bekoff, M. 2001. Observations of scent-marking and discriminating self from others by a domestic dog (*Canis familiaris*): Tales of displaced yellow snow. *Behavioural Processes* 55, 75-79.
- Bekoff, M. 2002. *Minding Animals: Awareness, Emotions, and Heart*. New York: Oxford University Press.
- Bekoff, M. 2003. Minding animals, minding Earth: Old brains in new bottlenecks. *Zygon (Journal of Religion and Science)* 38, 911-941.
- Bekoff, M. 2004. Wild justice and fair play: Cooperation, forgiveness, and morality in animals. *Biology & Philosophy* 19, 489-520.
- Bekoff, M. 2006a. *Animal passions and beastly virtues: Reflections on re-decorating nature*. Philadelphia: Temple University Press.
- Bekoff, M. 2006b. Animal emotions and animal sentience and why they matter: Blending “science sense” with common sense, compassion and heart. In J. Turner and J. D’Silva (eds.), *Animals, Ethics and Trade*. London: Earthscan Publishing.
- Bekoff, M., and C. Allen. 1997. Cognitive ethology: Slayers, skeptics, and proponents. In R.W. Mitchell, N. Thompson, and L. Miles (eds.), *Anthropomorphism, Anecdote, and Animals: The Emperor’s New Clothes?*, 313-334. Albany, New York: SUNY Press.
- Bekoff, M., C. Allen, and G. Burghardt (eds.). 2002. *The Cognitive Animal: Empirical and Theoretical Perspectives on Animal Cognition*. Cambridge, MA: MIT Press.
- Bekoff, M. and J. Nystrom. 2004. The other side of silence: Rachel Carson’s views of animals. *Zygon* 39, 4, 861-883.
- Bekoff, M. and P. Sherman. 2004. Reflections on animal selves. *Trends in Ecology and Evolution* 19, 176-180.
- Berridge, K. 2003. Comparing the emotional brains of humans and other animals. In R.J. Davidson, K.R. Scherer, and H.H. Goldsmith (eds.), *Handbook of Affective Sciences*, 25-51. New York: Oxford University Press.
- Blum, D. 2002. *Love at Goon Park: Harry Harlow and the science of affection*. Cambridge, MA: Perseus Publishing.
- Bradshaw, G.A, A.N. Schore, J.L. Brown, J. H. Poole and C. J. Moss. 2005. Elephant breakdown. *Nature* 433, 807.
- Bshary, R., W. Wickler, and H. Fricke. 2002. Fish cognition: A primate’s eye view. *Animal Cognition* 5, 1-13.
- Carey, B. 2005. Scientists bridle at lecture plan for Dalai Lama. <http://www.nytimes.com/2005/10/19/national/19meditate.html?pagewanted=all>
- CIWF. 2005. From Darwin to Dawkins — The Science and Implications of Animal Sentience (An International Conference). <http://www.ciwf.org/conference2005>
- Clayton, P. and J. Schloss (eds.). 2004. *Evolution and Ethics: Human Morality In Biological and Religious Perspective*. Wm. B. Eerdmans Publishing Company.
- Comis, Don. 2005. Settling doubts about livestock stress. *Agricultural Research*, March. <http://www.ars.usda.gov/is/AR/archive/mar05/stress0305.htm>
- Couturier, L. 2005. *The Hopes of Snakes and Other Tales from the Urban Landscape*. Boston, MA: Beacon Press.
- Dalai Lama. 2005. *The Universe in a Single Atom: The Convergence of Science and Spirituality*. New York: Morgan Road Books.
- Darwin, C. 1936 [1871]. *The Descent of Man and Selection in Relation to Sex*. New York: Random House.
- Darwin, C. 1998 [1872]. *The Expression of the Emotions in Man and Animals* 3rd edition. New York: Oxford University Press.
- de Waal, F. 1999. Cultural primatology comes of age. *Nature* 399, 637-638.
- de Waal, F. 2001. *The Ape and the Sushi Master*. New York: Basic Books.
- de Waal, F. 2005. *Our Inner Ape*. New York: Riverhead Books.
- Goodall, J. 1990. *Through a Window: My Thirty Years with the Chimpanzees of Gombe*. Boston, MA: Houghton Mifflin Company.
- Goodall, J. 2005. *Harvest for Hope: A Guide to Mindful Eating*. New York: Warner Books.
- Goodall, J. and M. Bekoff. 2002. *The Ten Trusts: What We Must Do to Care For the Animals We Love*. San Francisco, CA: HarperCollins.
- Griffin, D.R. 2001. *Animal Minds*. Chicago, IL: University of Chicago Press.
- Gould, S.J. 2000. A lover’s quarrel. In M. Bekoff (ed.), *The Smile of a Dolphin: Remarkable Accounts of Animal Emotions*, 13-17. Washington, D.C.: Discovery Books.
- Haraway, D. 2003. *The Companion Species Manifesto: Dogs, People, and Significant Otherness*. Chicago, IL: Prickly Paradigm Press.
- Harvey, G. 2006. Animals, animists, and academics. *Zygon* 41, 9-19.
- Holy, T.E. and Z. Guo. 2005. Ultrasonic songs of male mice. *PLoS Biology* 3, 1-10.
- Howell, N. 2006. Going to the dogs: Canid ethology and theological reflection. *Zygon* 41, 59-69.
- Kaminski, J., J. Call, and J. Fischer. 2004. Word learning in a domestic dog: Evidence for “fast mapping.” *Science* 304, 1682-1683.
- Leopold, A. 1948. *A Sand County Almanac*. New York: Oxford University Press.
- Long, W.J. 1906. *Brier-patch philosophy by “Peter Rabbit.”* Boston, MA: Ginn & Company.
- McComb, K., L. Baker, and C. Moss. 2005. African elephants show high levels of interest in the skulls and ivory of their own species. *Biology Letters*, published online.
- McDaniel, J. 2006. All animals matter: Marc Bekoff’s contribution to constructive Christian theology. *Zygon* 41, 29-57.
- McRae, M. 2000. Central Africa’s orphaned gorillas: Will they survive the wild? *National Geographic* February, 86-97.



- Meir, E., S. Andelman, and H.P. Possingham. 2004. Does conservation planning matter in a dynamic and uncertain world? *Ecology Letters* 7, 615-622.
- Midgley, M. 2005. Mary Midgley: Moral missionary. By John Crace, September 20. *The Guardian*.
- Miller, Henry. 1957. *Big Sur and the Oranges of Hieronymus Bosch*. New York: New Directions Publishing Company.
- Mott, M. 2005. Dogs used as shark bait on French Island. [http://news.nationalgeographic.com/news/2005/10/1019\\_051019\\_dogs\\_sharks.html](http://news.nationalgeographic.com/news/2005/10/1019_051019_dogs_sharks.html)
- New York Times. 2005. My little chickadee. Editorial, March 3. <http://www.nytimes.com/2005/03/03/opinion/03thu4.html?n=Top%2fOpinion%2fEditorials%20and%20Op%2dEd%2fEditorials>
- Panksepp, J. 2005a. Beyond a joke: From animal laughter to human joy. *Science* 308, 62-63. (see also <http://news.bbc.co.uk/2/hi/science/nature/4401695.stm>)
- Panksepp, J. 2005b. Affective consciousness: Core emotional feelings in animals and humans. *Consciousness and Cognition* 14, 30-80.
- Papineau, D. 2005. Looking ahead to future brain studies. A review of the new brain sciences: perils and prospects (edited by D. Rees and S. Rose). *Nature* 433, 803.
- Poole, J. 1998. An exploration of a commonality between ourselves and elephants. *Etica & Animalia* 9, 85-110.
- Preston, S.D., and F.B.M. de Waal. 2002. Empathy: Its ultimate and proximate bases. *Behavioral and Brain Sciences*. 25, 1-72.
- Reuters. 2005. Rome bans "cruel" goldfish bowls. CNN.com, October 25, 2005. <http://www.cnn.com/2005/WORLD/europe/10/25/italy.fishbowls.reut/index.html>
- Rothenberg, D. 2005. *Why Birds Sing: A Journey through the Mystery of Birdsong*. New York: Basic Books.
- Saunders, C.D. 2003. The emerging field of conservation psychology. *Human ecology Review* 10, 137-149.
- Schloss, J. 2004. Nature in belief: Evolutionary explanation, biological function, and religious purpose. Calvin College Seminar in Christian Scholarship. <http://www.calvin.edu/scs/2004/seminars/templeton/>.
- Sharpe, L. 2005. *Creatures like us?* Imprint Academic Exeter, UK.
- Skutch, A. 1996. *The Minds of Birds*. College Station, Texas, Texas A&M University Press.
- Smith, D.W. 2005. Meet five, nine, and fourteen, Yellowstone's heroine wolves. *Wildlife Conservation*, February, 28-33.
- Sneddon, L.U. 2003. The evidence for pain in fish: the use of morphine as an analgesic. *Applied Animal Behaviour Science* 83, 153-162.
- Sussman, R. and A.R. Chapman (eds.). 2004. *The Origins and Nature of Sociality*. Chicago: Aldine de Gruyter.
- The secret life of moody cows. 2005. *The Sunday Times*. <http://www.timesonline.co.uk/article/0,,2087-1502933,00.html>
- Vining, J. 2003. The connection to other animals and caring for nature. *Human Ecology Review* 10, 87-99.
- Vuilleumier, P. 2005. Staring fear in the face. *Nature* 433, 22-23.
- Warden, C.J. and L.H. Warner. 1928. The sensory capacities and intelligence of dogs, with a report on the ability of the noted dog 'Fellow' to respond to verbal stimuli. *Quarterly Review of Biology* 3, 1-28.
- Whitehead, H. 2004. *Sperm Whales: Social Evolution in the Oceans*. Chicago: University of Chicago Press.
- Whiten, A. et al. 1999. Cultures in chimpanzees. *Nature* 399, 682-685.
- Wrangham, R. and N. Conklin-Brittain. 2003. Cooking as a biological trait. *Comparative Biochemistry and Physiology, Part A* 136, 35-46.
- Wynne, C.D.L. 2004a. *Do animals think?* Princeton, NJ: Princeton University Press.
- Wynne, C.D.L. 2004b. The perils of anthropomorphism. *Nature* 428, 606.
- Wynne, C.D.L. 2004c. Fair refusal by capuchin monkeys. *Nature* 428, 140.
- Yarri, D. 2005. *The ethics of animal experimentation: A critical analysis and constructive Christian proposal*. New York: Oxford University Press.
- Yarri, D. 2006. Animals as kin: The religious significance of Marc Bekoff's work. *Zygon* 41, 21-28.