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Animal Emotions and Animal Sentience and Why They Matter: Blending ‘Science Sense’ with Common Sense, Compassion and Heart

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There is more to life than basic scientific knowledge.

(D. Papineau, 2005)

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 try to work together

Discussions of animal emotions and animal sentience are wonderful for raising difficult and frustrating questions. This chapter is intended to be a non-traditional essay and I hope it generates kind discussion and that what I talk about is not dismissed on the grounds that I'm simply losing my mind. I assure you I'm not. Well, at least I think I'm not. I simply want to put forth some ideas that some might find controversial. Throwing caution to the wind is a good thing to do from time to time. It makes us dig deeply into our minds and hearts to see who we are and what we think about matters at hand. And sometimes we don't like where we end up, which can be outside of our comfort zones.

Let's for the moment put differences aside and see what we can do. Let's engage people who use and abuse animals and try to convince them to change

their ways. Let's be proactive and let's educate them. Conflict is inevitable but, as Martin Luther King stressed, reconciliation is the necessary complement of conflict.

A summary of 'big' issues and difficult and frustrating questions

In this chapter I raise a number of issues that are important to consider in discussions of animal emotions and animal sentience. 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's about time that the sceptics and naysayers had to 'prove' their claims that animals don't experience emotions or don't really feel pain, but just act 'as if' they do. And until such claims are proven, let's assume that numerous animals *do* experience rich emotions and do suffer all sorts of pain. Just because something supposedly worked in the past doesn't mean that it works now or that it ever did. 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 such 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. Some of the issues that I consider here include:

- 1 Are we *really* the only animals who experience a wide variety of feelings? 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. 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 might they be? How can we blend them all together?
- 3 Is what we call 'science' really better than other ways of knowing (e.g. common sense or intuition) for explaining, understanding, and appreciating the nature of animal emotions and animal sentience and for predicting behaviour? 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. Let's also not forget that many explanations about evolution are stories with more or less authenticity or 'truth'.
- 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? *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?
 - 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 we use and abuse for our and not their ends.
 - 14 Who gets paid by whom, and why do so many slaughterhouse workers apparently not like their jobs and seek counselling? Harming animals intentionally surely can't be 'fun' or good for one's psychological well-being. These are among the practical matters that need to be considered.
 - 15 How do we remain hopeful? There are some 'good things' happening, such as the conference on animal sentience organized by Compassion in World Farming Trust, out of which this book arose. 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.

- 16 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?
- 17 To these ends, I endorse the statement agreed by delegates at the conference out of which this book arose: ‘This conference calls on the UN, the WTO, the World Animal Health Organisation (OIE) and their member governments to join us in recognizing that sentient animals are capable of suffering, and that we all have a duty to preserve the habitat of wild animals and to end cruel farming systems and other trades and practices which inflict suffering on animals.’
- 18 But should sentience be the key factor, and if so, why? Isn’t just the fact that they are alive sufficient for us to leave animals alone? There are always difficult and frustrating questions to ponder and they won’t go away if we play ostrich and bury our heads in the sand.
- 19 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 science’ 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’.
- 20 If one loves animals how can she or he eat them, especially, but not only, factory-farmed animals?
- 21 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 those living in 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 example the 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.
- 22 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.

- 23 I believe that good or right-minded people can do and/or allow horrible things to be done to animals because they really haven't travelled 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. 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.
- 24 Often, what is called 'good welfare' simply isn't 'good enough'. Animals deserve more and we can *always* do better.

Eyes tell it all: Dare to look at them if you can (I can't)

Let's begin with the 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 McConnery 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 who he'd just shot. I often wonder about animals whose eyes we can't look into.

Doug Smith, 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 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?' 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?'

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’. It turns out that the eyes are of paramount importance in knowing that another human is feeling fear; 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 the 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 feelings and it’s easier to deny this if one doesn’t look at their eyes and feel the fear emanating from the poor beast.

The ‘A’ words – Anecdote, anthropomorphism and activism

First let’s consider the first two of what I call the three ‘A’ words, *anecdote*, *anthropomorphism* and *activism*. I’ve argued over and over again that the plural of ‘anecdote’ is ‘data’ and that we *must* be anthropomorphic. Anecdotes and stories drive much of science although, of course, they aren’t enough on their own. But to claim they aren’t a useful heuristic flies in the face of how hard science and soft science are conducted.

Anthropomorphism has survived a long time because it is a necessity, but it must be done carefully and biocentrically, 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 behaviourist 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.

Some people argue against the use of the ‘A’ words without seeming to know that they too are using them. For example, a representative of the American Zoo and Aquarium Association (AZA) 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 has concluded in its *own* executive summary that: '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.

Science isn't value-free: Three more 'A' words

Science isn't value-free. We agree and disagree about the best way to study animal emotions and animal sentience, just as we agree and disagree about what is the best bank in which to place our money. Science is but one way of knowing and is not the only show in town. We need to dispense with the three 'A' words that often characterize science – *arrogant, authoritarian and autonomous*.

I love being a scientist and doing science, but remaining open to other ways of knowing enriches me and makes me think 'out of the box'. I don't think it's a matter of science *or* subjectivity but rather science *and* subjectivity. We also need to be able to live with uncertainty and give up control. Science and scientists must be dynamic, open and compassionate. Asking questions about science is *not* to be anti-science.

What does it mean to 'know' something?

It's important to blend 'science sense' with common sense. I maintain that we *know* that some non-human animals feel *something* some of the time, just as do human animals. It's nonsense to claim that we don't know if dogs, pigs, cows or chickens feel pain or have a point of view about whether they like or don't like being exposed to certain treatments. Who are we kidding? Frankly, I think we're kidding ourselves.

The privacy of mind and the use of a double standard: It's 'just science'

The minds and feelings of individuals other than oneself are private. Access is limited because we can't really get into the head or heart of another being. Sceptics often use this solipsistic 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 trying to understand what another human is thinking or feeling or stop us using this information to make future compassionate decisions.

When considering the emotional lives of animals, sceptics 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 exper-

iences are private matters, residing in the brains (and hearts) of individuals and inaccessible in their entirety to others, it's easy for sceptics to claim that we can never be sure about animal emotions and to declare the case closed. Nonetheless, a cursory glance at many studies in animal behaviour, behavioural ecology, neurobiology and biomedicine 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 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. This is all in the patent 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. No one has yet shown that one form of prediction is better than others and this is still an open question (Bekoff, 2004, 2006). 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 (even if people once thought the world was flat). Clearly, even when scientific data are available, individuals interpret them differently and they may not even be used. This is so in other fields as well. Sandra Andelman has 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 US. Opportunism and other factors play more of a role.

No science is perfect, it's 'just science'. But 'just science' is not 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.

Arguing against speciesism and for evolutionary continuity

I have stressed the degree to which perceived animal/human differences in the brain's organization of feeling and emotion are probably due to artefacts 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, p41)

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, p42)

Now, what about *speciesism*? Are we really the only species in which emotions have evolved. It's not a matter of 'them' versus 'us'. Over the years a variety of criteria has been used to separate 'them' from 'us' – tool use, language, culture, rationality, consciousness and a sense of self – and all have failed. Maybe we're the only species that cooks food. There are differences but there are also many similarities between humans and non-human animals. Evolutionary continuity is important to consider, the idea that there are differences in *degree* rather than differences in *kind* in behavioural phenotypes and in cognitive and emotional capacities among animals and between humans and other animals. This is an idea – descent with modification – that Charles Darwin argued long ago. There isn't a great divide as some argue there is.

A few years ago I was reading the prestigious journal *Science* and saw the following quotation: 'More than any other species, we are the beneficiaries and victims of a wealth of emotional experience.' Professor R. J. Dolan, who wrote this, cannot know that this statement is true. Indeed, it just might be that other animals experience more vivid emotions than we do. This sort of humanocentrism is what plagues the study of animal emotions. Why are we so special, why are we such deeply feeling animals whereas other animals aren't? I find it difficult to accept that we should be the standard against which other animals should be compared. Just look at the state of the world today.

They dock pigs, don't they? Does a whimpering dog feel something? Who are we kidding?

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 (United States Department of Agriculture, 2005). *Is this really surprising? Who are we kidding?* Cows also can be moody, hold grudges and nurture friendships. *Is this really surprising?* 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? Michael Mendl notes that 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.

‘Oh, I harm animals “In the name of science”’

Some people justify what they do to animals ‘in the name of science’ or in the name of ‘this’ or ‘that’. This is unacceptable. There is no reason to continue to harm and to kill billions of animals and we must take to task those who claim that there is.

‘I do what I do because there are no adequate non-animal substitutes’: The three ‘E’s

This is a lame excuse with no force whatsoever. Numerous organizations list non-animal substitutes that fit what I call the ‘E’ category – they are surely more *ethical*, and at least as good or more *educational* and *economical*. And of course, there is much evidence that many non-animal scientific procedures yield results that are as good as or better than procedures that use animals. A search on Google resulted in more than 1,300,000 ‘hits’ for the phrase ‘humane education’, 1,120,000 for the phrase ‘humane science’ and about 23,800 for the phrase ‘non-animal alternatives’. Needless to say, there is much information out there!

Where to from here? A potpourri of ideas and shifting the paradigm

We need to take the sceptics to task and turn the tables and have sceptics ‘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 talked about elephants and showed a wonderful video of these highly intelligent and emotional beasts. During the question and answer period a former programme 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 neither could Cynthia. However, science sense, along with common sense and solid evolutionary biology, would favour her



Figure 3.1 *Four members of an elephant herd that is being studied by Iain Douglas-Hamilton and his colleagues in the Samburu Reserve in Northern Kenya*

Source: Photo by Jan Nystrom

Note: 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, a seasoned expert in elephant behaviour 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 also wrote: 'It is hard to watch elephants' remarkable behaviour 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 Douglas-Hamilton 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.

view over his. It's wonderful that mainstream journals are publishing essays on animal emotions. For example, the article 'Elephant breakdown' about social trauma in elephants recently appeared in *Nature*. And the *New York Times* editorial 'My little chickadee' (New York Times, 2005) 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.

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 millions of individual animal beings to suffering. I apologize to each and every individual animal and hope that my scientific colleagues and I can make a difference in their lives.

Getting out and doing something: All we need is love

We must continue to be the voices for voiceless animals and add to their 'vociferous voices of suffering' as the philosopher Graham Harvey puts it. Numerous animals really are crying for help and they are not truly 'voiceless'.

As we change the paradigm and move forward we are in a good position to use the precautionary principle. Basically, this principle maintains that a lack of full scientific certainty should not be used as an excuse to delay taking action on some issue. So, in the arena of animal emotions and animal sentience, I have argued that we *do* know enough to make informed decisions about animal emotions and animal sentience and why they matter. We shouldn't tolerate a double standard of proof. Sceptic's stories aren't any better or truer than ours. And even if we might be wrong *some* of the time this does not mean we're wrong *all* of the time. And so what if we're wrong some of the time or unsure about how to proceed? At least we won't be adding more cruelty to an already cruel world. And I (and others) have argued that when in doubt we should err on the side of the individual animal.

It's okay to be sentimental and to go from the heart. We need more compassion and love in science, more heartfelt and heartfelt science. Simply put, we must 'mind' animals and redecorate nature very carefully. All we need is love . . .

Often 'good welfare' simply isn't 'good enough'. Animals deserve more and we can *always* do better.

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