

# Are you feeling what I'm feeling?

If you doubt that non-human animals have emotions, just look at them, listen to them and inhale the odours that pour out when they interact with friend or foe. I believe that what you see on the outside speaks volumes about what is happening inside an animal's head and heart. Not long ago, the notion that animals have emotions was considered subversive, but opinion is changing. In recent years, reputable scientific journals have published research about moral dogs and chimps, joyful rats, grieving elephants, empathetic mice and fearful fish. Just watching a frolicking wolf, a whimpering dog, or a squealing piglet having his tail and testicles cut off without an anaesthetic is enough to convince me that these are emotional beings. The evidence of a single anecdote may not be very scientific, but as philosopher Dale Jamieson says, the plural of anecdote is data. What's more, anecdotes such as those I recount in this article can also inspire new research. **Marc Bekoff**



## Empathy

While watching elephants in the Samburu National Reserve in northern Kenya, I noticed one that walked very slowly. Elephant expert Iain Douglas-Hamilton told me that this female elephant, Babyl, had been crippled for years, but the other members of the herd never left her behind. They would walk a while and then stop and look around to see where she was. Depending on how she was doing, they would either wait or go on. Sometimes the matriarch even fed Babyl. The elephants had nothing to gain by helping her as she could do little for them. The only obvious conclusion was that their kindness and care was unconditional. Out of

friendship and empathy they adjusted their behaviour to allow Babyl to remain with the group.

Bears seem to have similar emotional depths. In September 2005 while in Homer, Alaska, I read about two orphaned grizzly bear cubs that stuck together when their mother was shot dead. The male cub had been wounded and limped and swam very slowly, but his sister was seen hauling salmon out of the river for him to eat. The young female obviously cared for her brother, and her support was crucial for his survival.

I have received many reports of empathy in all sorts of animals. CeAnn Lambert, who runs the

Indiana Coyote Rescue Center in Bringhurst, told me that one summer morning she noticed two baby mice trying to get out of a deep sink in her garage. Seeing their growing exhaustion, Lambert put some water in a lid in the sink. The livelier pup went over to get a drink and on its way found a piece of food, which it picked up and took back to the weaker mouse. Every time the weaker pup tried to take a bite, the other moved the food gradually towards the water until finally the exhausted animal reached it. Their strength renewed, both were then able to climb out using a board Lambert had placed in the sink.

## Joy

In his latest book, *Pleasurable Kingdom*, ethologist Jonathan Balcombe tells a nice story of two fish crows he observed on Assateague Island off the coast of Virginia. "They first engaged in flight play then, over the next 10 minutes, one bird (always the same one) repeatedly sidled up to the other, leaned over and pointed his/her beak down, exposing the nape. The other bird responded by gently sweeping his/her bill through the feathers as though searching for parasites. There was every indication that they were mates or good buddies, and that their contact was as pleasurable for both giver and receiver as a massage or caress between two humans."

All the signs are that many animals can experience pleasure. There is also ample evidence they feel joy, especially during play. I once saw a young elk in Rocky Mountain National Park run across a snowfield, jump in the air and twist his body while in flight, stop, catch his breath, and do it again and again. Buffalo have been seen playfully running onto and sliding across ice, excitedly bellowing as they do so.

## Spite

Nick, an olive baboon, joined his group in the south-east corner of the Masai Mara National Reserve in Kenya, as an adolescent. "The guy simply wasn't nice," recalls biologist Robert Sapolsky from Stanford University. Nick was "confident, unflinching, and played dirty". After a fight in which he trounced another young male, Reuben, the latter retreated with "his ass up in the air", a sign of submission. Instead of letting him be, Nick slashed Reuben's rump with his canines. "He harassed the females, swatted at kids and bullied ancient Gums and Limp," writes Sapolsky. One day, Nick took exception to a female baboon, Ruth. When threatened by a male, a female usually runs up a tree and to the end of a flimsy branch, where the heavier male cannot follow her. "So Ruth gallops up the tree, Nick after her, and Ruth leaps out to a safe edge," Sapolsky recounts. "Nick promptly climbs onto a stronger, thicker branch directly above her. And then urinates on her head."

## Grief

A few years ago I witnessed an intriguing ritual in Boulder, Colorado. A magpie was lying dead on the side of the road, probably hit by a car, with four others standing around it. One after the other, two of them approached the corpse, gently pecked at it and stepped back. One of the birds flew off, brought back some grass and laid it by the corpse. Another did the same. Then all four stood vigil for a few seconds before flying away one by one.

We cannot know for certain what these magpies were thinking or feeling, but reading their actions there is no reason not to believe they were saying a magpie farewell to their friend. I have heard numerous stories of similar behaviour in crows and ravens, and they are not alone. Many animals seem to display grief. Elephants appear to mourn their dead. Gorillas have been seen holding wakes. Even llamas grieve, according to my friend Betsy Webb. Directly after her 27-year-old llama Boone died of old age, his lifelong partner Bridger died next to him, and from no apparent cause. The effect on Webb's remaining llamas was remarkable. "For the next two days, stoic Taffy stood across the fence from the grave and stared at the hole in the ground," Webb told me in a letter. "She barely moved from the spot. Excitable Pumpernickel stayed in his little barn and wailed for two days. On the third day, they emerged from their grieving and resumed their normal activities."

The story of Boone and Bridger is similar to one that primatologist Jane Goodall tells of a young chimpanzee called Flint who died soon after his mother Flo, apparently of grief. "The last time I saw him alive, he was hollow-eyed, gaunt and utterly depressed, huddled in the vegetation close to where Flo had died," Goodall recalls. Slowly Flint made his way to the spot where his mother's body had lain. "There he stayed for several hours, sometimes staring and staring into the water. He struggled on a little further, then curled up – and never moved again."



## Gratitude

In December 2005, a 15-metre female humpback whale got tangled in crab lines near the Farallon Islands off the coast of northern California. The extra weight was making it difficult for her to keep her blowhole above water, so divers courageously went to set her free. "When I was cutting the line going through the mouth, its eye was there winking at me, watching me," James Moskito recalls. After her release, the whale nuzzled each of her saviours in turn and flapped around them in what one whale expert has described as "a rare and remarkable encounter". Moskito says the whale stopped about 30 centimetres away from him and began nudging playfully. "It felt to me like it was thanking us, knowing it was free and that we had helped it."

## Love

Nobody seems to know where the Jack Russell terriers Bill and Ben originally came from, but they were found, filthy and terrified, cowering on the main street of a small town in the US. Ben was bleeding from both eyes and Bill was standing guard, barking and snapping at anyone who approached. The vet who examined them discovered that Ben had been stabbed. Both his eyes had to be removed and the lids sewn shut. Two days after the operation, Ben was reunited with Bill in the local animal shelter. With Ben holding onto the scruff of his neck, Bill walked him around the yard until he was familiar with the lie of the land. Since then, Bill has acted as Ben's guide dog, nudging and tugging to help him get around.

This is just one of many stories of animals

displaying loving care for each other. Norma Harris of Georgetown in Texas told me another, this time about mother love. She heard a scratching noise in her attic and noticed a hole in the eaves outside her bedroom window. She and her husband watched until a squirrel came out, then closed the opening. "Later that morning I was on the other side of the house sitting by a window when I heard a lot of chattering noise," Harris remembers. Looking up she saw a squirrel peering in at her. "It was obviously very angry and was cussing me out. When it saw it had my attention, it slowly stood up on a small branch with front paws raised. She was showing me two rows of prominent black nipples and her full breasts! Then I realised we had locked her away from her babies in the attic."

**"Bill acts as Ben's guide dog, nudging and tugging to help him get around"**



## Awe

In June 2006, Jane Goodall and I visited the Mona Chimpanzee Sanctuary near Girona in Spain. There we met Marco, a rescued chimp, who dances during thunderstorms with such abandon that he appears to be in a trance. Goodall and others have witnessed chimps, usually adult males, perform a similar ritual at waterfalls. She described a chimpanzee approaching one of these falls with slightly bristled hair, a sign of heightened arousal. "As he gets closer, and the roar of the falling water gets louder, his pace quickens, his hair becomes fully erect, and upon reaching the stream he may perform a magnificent display close to the foot of the falls," she describes. "Standing upright, he sways rhythmically from foot to foot, stamping in the shallow, rushing water, picking up and hurling great rocks. Sometimes he climbs up the slender vines that hang down from the trees high above and swings out into the spray of the falling water. This 'waterfall dance' may last 10 or 15 minutes."

Perhaps numerous animals engage in similar rituals but we haven't been lucky enough to see them. Is it possible that they are marvelling at their surroundings – that they feel a sense of awe? ●

## The case for and against

### Animals have emotions like us

Marc Bekoff

It's easy to make the case for animal emotions. In fact, I would go so far as to say that it is bad biology to argue that humans are the only emotional beings. Emotions serve as a "social glue" to bond individuals with one another and to catalyse and regulate their social encounters. They also permit individuals to behave flexibly in a wide variety of situations. Humans are not the only animals that need to do these things. There is every reason to believe that emotions would have evolved in numerous other species. Charles Darwin himself advocated evolutionary continuity – that differences among species are differences in degree rather than kind.

Evolutionary continuity is apparent in the architecture of the brain. All mammals share the neuroanatomical structures crucial for emotional responses, known as the limbic system, which includes the amygdala and the hippocampus. A decade ago, neurobiologists identified specific nerve cells that are associated with empathy – the bedrock of social emotions. These so-called mirror neurons have been identified in non-human primates, and it is likely that they exist in humans and other mammals, and perhaps

even in birds. Another recently discovered specialised brain cell, known as the spindle cell, seems to play a part in empathy, intuition and feelings for others, and was thought to be exclusive to humans and the other great apes. These cells have now been found in whales. Who knows what other parallels we may find as we continue to investigate the brain?

Accumulating evidence from the study of animal minds and behaviour strongly supports the claim that many species have rich emotional lives and that their feelings matter to them. This should also matter to us in our interactions with other species. Even fish give all the indications that they are sentient beings. Recent studies, for example, show that they feel fear and respond to it in ways similar to those of rodents. Meanwhile, at the other end of the spectrum, our treatment of wild elephants seems to have left some of them suffering from post-traumatic stress disorder (*New Scientist*, 18 February 2006, p 39).

To critics who suggest that my approach is anthropomorphic, I'd ask whether that is necessarily a bad thing. Inappropriate anthropomorphism is indeed problematic, and I believe that the best guard against

that is the knowledge we gain from detailed studies. But I do believe that we must be anthropomorphic when we discuss animal emotions because it is the best way to take account of their point of view. Often the person who accuses me of anthropomorphism when I say that an elephant is unhappy in a zoo will tell me that the animal really is happy, without realising their view is anthropomorphic too.

If we accept that animals have emotions, then careful anthropomorphism is not a way of foisting human attributes onto animals, but rather a means of identifying commonalities and then using human language to communicate what we observe. The neural systems in the amygdala that underlie the human capacity for anthropomorphism are also involved in our basic emotional responses. Being anthropomorphic is doing what is natural and necessary to understand animal emotions. We do it because we ourselves feel.

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### Animals are not furry, scaly, feathery humans

Marian Stamp Dawkins

Anthropomorphism is not wrong. The problem is that, if unchecked, it leads to a complete absence of scientific rigour in the way we look at animals. Using anecdotes as data only makes matters worse, because this allows anyone to speculate on what a given animal is experiencing, without any standard for what counts as evidence. We are asked to believe, for example, that a female squirrel, inadvertently locked out of her nest by humans, conceived a plan to persuade those humans to let her back to her babies by standing on her hind legs and demonstrating that she had full teats and was therefore lactating. This implies not just a high degree of cognitive ability on the part of the squirrel, but also the attribution of a "theory of mind" – she knew that humans could be influenced – as well as her belief in our altruism. It ignores the simpler hypothesis that the natural anti-predator behaviour of squirrels includes chattering and standing on their hind legs.

Recent studies on animals have shown how simple local rules can lead to complex behaviour that mimics what we humans would achieve by more cognitive means. We might plan ahead if we were deciding where to move house. Bees do it by simple recruitment

rules of following the most vigorously signalling bees around them. Dogs and horses have famously fooled large numbers of people into thinking they could count when all they were doing was reading the body language of a human who was really doing the counting. Likewise, the female squirrel could use her innate anti-predator behaviour to achieve an end that we might achieve in a completely different way using our big brains and the extraordinary capacity that language gives us to plan ahead.

I do believe that animals have emotions, but anthropomorphism is not the best way to study them, not least because it is unclear whether animals experience emotional states consciously as we do. We should be very careful in concluding that animals are conscious just because they behave like us. For a start, many human activities take place without our being consciously aware of what we are doing. What's more, our emotional states can be shifted by stimuli flashed so briefly that we are not consciously aware of having seen them (*Personality and Social Psychology Bulletin*, vol 31, p 111). It seems that emotions do not have to be conscious, even in ourselves. Then there are the many

activities we can do either consciously or unconsciously. Breathing, for example, can either be an automatic, unconscious process or can be brought under conscious control. So just because other species breathe "like us" does not necessarily mean that like us they are conscious of their breathing. They could be using the route that, in us, is unconscious.

If we really want to understand the worlds of non-human animals, we need a more rigorous, evidence-based approach to what it is like to be a horse, a dog or a squirrel. If we genuinely want to improve their lot from their point of view – as opposed to just making ourselves feel better – we should move away from seeing them as just like us, only with fur or feathers or scales, and look at their own particular needs. A little anthropomorphism may help. Too much is disastrously unscientific.

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