

## Animals can tell right from wrong

Animals possess a sense of morality that allows them to tell the difference between right and wrong, according to a controversial new book.

By Richard Gray, Science Correspondent

Last Updated: 5:40PM BST 24 May 2009

Scientists studying animal behaviour believe they have growing evidence that species ranging from mice to primates are governed by moral codes of conduct in the same way as humans.

Until recently, humans were thought to be the only species to experience complex emotions and have a sense of morality.



Research suggests that it's not just humans who have a moral compass Photo: GETTY

### Related Articles

**Wild Justice by Marc Bekoff and Jessica Pierce and Made for Eachother by Meg Daley Olmert: review** (</culture/books/bookreviews/5361030/Wild-Justice-by-Marc-Bekoff-and-Jessica-Pierce-and-Made-for-Eachother-by-Meg-Daley-Olmert-review.html>)

**Animal emotions** (</news/picturegalleries/howaboutthat/2603807/Animal-emotions.html>)

**Gorilla shows animals feel grief** (</news/worldnews/europe/germany/2609440/Mother-gorillas-grief-shows-emotion-is-not-only-human.html>)

**'Happy hour' gene helps some hold their drink better than others, scientists discover**

(</scienceandtechnology/science/sciencenews/5362518/Happy-hour-gene-helps-some-hold-their-drink-better-than-others-scientists-discover.html>)

**Jod Mitchell's radio review: A Frenchman, telling us off for drinking? Sacre bleu** (</culture/tvandradio/5230934/Jod-Mitchells-radio-review-A-Frenchman-telling-us-off-for-drinking-Sacre-bleu.html>)

**At least Natasha could trust man's best friends** (</comment/personal-view/5401426/At-least-Natasha-could-trust-mans-best-friends.html>)

But Prof Marc Bekoff, an ecologist at University of Colorado, Boulder, believes that morals are "hard-wired" into the brains of all mammals and provide the "social glue" that allow often aggressive and competitive animals to live together in groups.

He has compiled evidence from around the world that shows how different species of animals appear to have an innate sense of fairness, display empathy and help other animals that are in distress.

His conclusions will provide ammunition for animal welfare groups pushing to have animals treated more humanely, but some experts are sceptical about the extent to which animals can experience complex emotions and social

responsibility.

Prof Bekoff, who presents his case in a new book *Wild Justice*, said: "The belief that humans have morality and animals don't is a long-standing assumption, but there is a growing amount of evidence that is showing us that this simply cannot be the case.

"Just as in humans, the moral nuances of a particular culture or group will be different from another, but they are certainly there. Moral codes are species specific, so they can be difficult to compare with each other or with humans."

Prof Bekoff believes morals developed in animals to help regulate behaviour in social groups of animals such as wolves and primates.

He claims that these rules help to control fighting within the group and encourage co-operative behaviour.

Recent neurology work has also revealed that distantly related mammals such as whales and dolphins have the same structures in their brains that are thought to be responsible for empathy in humans.

Other findings have also suggested that some animals may even be capable of showing empathy with the suffering of other species.

Prof Bekoff, who co-wrote the book with moral philosopher Jessica Pierce, also from the University of Colorado, added: "There are cases of dolphins helping humans to escape from sharks and elephants that have helped antelope escape from enclosures.

"While it is difficult to know for certain that there is cross species empathy, it is hard to argue against it."

His ideas have met with some controversy in the scientific community, but many admit it is difficult to argue that animals do not share many of the psychological qualities previously only attributed to humans.

Professor Frans de Waal, a primate behaviourist at Emory University, Atlanta, Georgia, said: "I don't believe animals are moral in the sense we humans are – with well developed and reasoned sense of right and wrong – rather that human morality incorporates a set of psychological tendencies and capacities such as empathy, reciprocity, a desire for co-operation and harmony that are older than our species.

"Human morality was not formed from scratch, but grew out of our primate psychology. Primate psychology has ancient roots, and I agree that other animals show many of the same tendencies and have an intense sociality."

## **WOLVES**

Wolves live in tight-knit social groups that are regulated by strict rules. If a pack grows too large, members are not able to bond closely enough and the pack disintegrates. Wolves also demonstrate fairness.

During play, dominant wolves will "handicap" themselves by engaging in roll reversal with lower ranking wolves, showing submission and allowing them to bite, provided it is not too hard.

Prof Bekoff argues that without a moral code governing their actions, this kind of behaviour would not be possible. If an animal bites too hard, it will initiate a "play bow" to ask forgiveness before play resumes.

## **COYOTES**

In other members of the dog family, play is controlled by similar rules. Among coyotes, cubs which bite too hard are ostracised by the rest of the group and often end up having to leave entirely.

"We looked at the mortality of these young animals who disperse from the group and they have four to five times higher mortality," said Bekoff.

Experiments with domestic dogs, where one animal was given a treat and another denied, have shown that they possess a sense of fairness as they shared their treats.

## ELEPHANTS

Elephants are intensely sociable and emotional animals. Research by Iain Douglas Hamilton, from the department of zoology at Oxford University, suggests elephants experience compassion and has found evidence of elephants helping injured or ill members of their herd.

In one case, a Matriarch known as Eleanor fell ill and a female in the herd gently tried to help Eleanor back to her feet, staying with her before she died.

In 2003, a herd of 11 elephants rescued antelope who were being held inside an enclosure in KwaZulu-Natal, South Africa.

The matriarch unfastened all of the metal latches holding the gates closed and swung the entrance open allowing the antelope to escape.

This is thought to be a rare example of animals showing empathy for members of another species – a trait previously thought to be the exclusive preserve of mankind.

## DIANA MONKEYS

A laboratory experiment trained Diana monkeys to insert a token into a slot to obtain food.

A male who had grown to be adept at the task was found to be helping the oldest female who had not been able to learn how to insert the token.

On three occasions the male monkey picked up tokens she dropped and inserted them into the slot and allowed her to have the food.

As there was no benefit for the male monkey, Prof Bekoff argues that this is a clear example of an animal's actions being driven by some internal moral compass.

## CHIMPANZEES

Known to be among the most cognitively advanced of the great apes and our closest cousin, it is perhaps not surprising that scientists should suggest they live by moral codes.

A chimpanzee known as Knuckles – from the Centre for Great Apes in Florida – is the only known captive chimpanzee to suffer from cerebral palsy, which leaves him physically and mentally handicapped.

Scientists have found that other chimpanzees in his group treat him differently and he is rarely subjected to intimidating displays of aggression from older males.

Chimpanzees also demonstrate a sense of justice and those who deviate from the code of conduct of a group are set upon by other members as punishment.

## RODENTS

Experiments with rats have shown that they will not take food if they know their actions will cause pain to another rat. In lab tests, rats were given food which then caused a second group of rats to receive an electric shock.

The rats with the food stopped eating rather than see another rat receive a shock. Similarly, mice react more strongly to pain when they have seen another mouse in pain.

Recent research from Switzerland also showed that rats will help a rat, to which it is not related, to obtain food if they themselves have benefited from the charity of others. This reciprocity was thought to be restricted to primates.

## BATS

Vampire bats need to drink blood every night but it is common for some not to find any food. Those who are successful in foraging for blood will share their meal with bats who are not successful.

They are more likely to share with bats who had previously shared with them. Prof Bekoff believes this reciprocity is a result of a sense of affiliation that binds groups of animals together.

Some studies have shown that animals experience hormonal changes that lead them to "crave" social interaction.

Biologists have also observed a female Rodrigues fruit-eating bat in Gainesville, Florida, helping another female to give birth by showing the pregnant female the correct birthing position – with head up and feed down.

## WHALES

Whales have been found to have spindle cells in their brains. These very large and specialised cells were thought to be restricted to humans and other great apes and appear to play a role in empathy and understanding the feelings of others.

Humpback whales, fin whales, killer whales and sperm whales have all been found to have spindle cells in the same areas of their brains.

They also have three times as many spindle cells compared to humans and are thought to be older in evolutionary terms.

This finding has suggested that complex emotional judgements such as empathy may have evolved considerably earlier in history than previously thought and could be widespread in the animal kingdom.

---

© Copyright of Telegraph Media Group Limited 2009