

When is an animal not an 'animal'? Research ethics draws the line

January 15 2014, by Kate Lynch



Octopuses are the only non-vertebrates granted 'animal' status in the area of animal research ethics. Is this an arbitrary distinction? Credit: Saspotato

Many people are surprised to find that insects, jellyfish and sea urchins are animals. Animals are generally thought of as medium-sized four-legged creatures with two sets of eyes and ears—those with features similar to ourselves.

While the kingdom [Animalia](#) spans from [tapirs](#) to [tardigrades](#), the latter is absent from zoological exhibitions and beloved [Graeme Base](#) picture books.

Although this omission may be excused in children's literature, a similar distinction appears to be made in serious scientific decisions. This is the field of [animal research](#) ethics.

A research 'animal'

Zoologists tend to agree that the animal kingdom includes vertebrates (animals with a backbone) and [invertebrates](#) (those without), but the [NSW Animal Research Act](#) defines "animal" in the following way:

animal means a vertebrate animal, and includes a mammal, bird, reptile, amphibian and fish, but does not include a human being.

Humans may be excused from this definition on pragmatic grounds, as separate acts on human ethics in research are in place.

However, [invertebrate animals](#) are wholly excluded. There is no other act covering these "non-animals". As far as scientific research is concerned, no backbone means no protection.

One exception

At a national level there is one exception. The National Health and Medical Research Council (NHMRC) in Australia defines animals as:

any live non-human vertebrate, that is, fish, amphibians, reptiles, birds and mammals, encompassing domestic animals, purpose-bred animals, livestock, wildlife, and also cephalopods such as octopus and squid.

Cephalopods were introduced to the guidelines in 2004, but the justification for this inclusion has not been made clear.

Well-being, stress, distress and pain

So, what is the significant difference between a vertebrate (plus cephalopod) and invertebrate animal? Why the recent addition of cephalopods? And how does a species become entitled to ethical protection?

The Australian Code of Practice leaves some clues. They focus on four aspects that should be considered in animal research:

1. well-being
2. stress
3. distress
4. pain.

As these are all subjective states of affairs, it is difficult to assess whether or not an animal experiences them. We can usually identify these things in other humans, as they act in a way that we would when distressed ourselves – but animals adapted to different lifestyles may behave differently to us.

Tourists watching a captive elephant swaying may think it is being playful, when in fact the animal is distressed.

Even in closely related animals, such as chimpanzees, some behavioural displays are difficult for us to interpret. If this is the case, what hope do we have for identifying a stressed-out jellyfish?

A physiological account

Because of these limitations, it appears that the NHMRC have resorted to a physical account of pain and distress. According to the code:

All vertebrates possess the anatomical and neurophysiological components for the reception, transmission, central processing and memory of painful stimuli. Some of these features are also present in some higher-order invertebrates, such as octopus and squid. This, together with analyses of animal behaviour, supports the view that an animal may have subjective experiences of pain similar to those of humans.

This indicates that the 2004 cephalopod revision was done in light of research concerning the complexity of their nervous system. But it is possible for there to be other invertebrate animals with components for the reception, transmission, processing, and memory of pain. The code does not deny this possibility, but it also does not acknowledge it.

In the same way that some animals have different behavioural responses to pain, it is possible that invertebrates have different underlying physiologies related to pain transmission, reception and memory.

Not only has there not been enough research conducted on the matter, but due to the private nature of pain and well-being, it may in principle be impossible to conduct.

Where to draw the line

So where to draw the line on animal research? Should every animal, down to the tiniest insect, be carefully considered before used in a scientific manner? This question boils down to how humans differentially value different species.

Most of us don't blink an eyelid when insects fly in to our windscreens on the road, but shudder at the thought of hitting a possum or wallaby. Would this kind of reasoning change if we were to find better evidence of pain and distress in invertebrates?

To decide what animals to include in ethical decision making, we need to get to the bottom of these kinds of intuitions and decide whether they are justified.

Although the NHMRC believe that justification lies with differences in the experience of pain and distress, others place value on animals for different reasons such as intelligence, consciousness and self-consciousness.

It may be these reasons that permit unregulated invertebrate use in [scientific research](#) to continue without public protest. It may also be why the consideration that these creatures could suffer pain and discomfort—despite differing underlying physiologies—remains inhibited.

A friend who taught ethics classes at primary school last year asked children why some [animals](#) should be protected over others. One of the resounding responses was "because they are cute".

While this may seem childish and charming at face value, think about the way some people beat at harmless spiders with a shoe: would they behave the same way if they did not have their "creepy crawly" appearance?

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