

# The pull of *charisma*

It's not unusual to see polar bears and tigers fronting conservation campaigns and adverts, but worms and crustaceans? Not so common. Lydia Bach explains why some lesser-known species deserve more of the limelight.



What attracted you to read this article? Was it the picture of the lugworm or the one of the emperor penguin chick? Like most researchers I spend part of my time talking at conferences, engaging with the public and demonstrating the importance of my work to secure funding. The problem is, my species are a hard sell.

My research focuses on food webs in coastal mudflats around the UK. The species in these ecosystems, mostly invertebrates such as worms, crustaceans and molluscs, aren't well-loved or even well known by the public, and tend not to receive much attention. In many ways they are the underdogs of the natural world. In contrast, so-called charismatic species attract disproportionate amounts of attention and funding. These are the species that draw our attention and even affection – think big cats, whales and polar bears. Because they easily capture public imagination, charismatic species can drive conservation goals and raise support to protect them and their habitats – and the less charismatic fauna associated with them.

Even I find myself drawn to these animals rather more than to my snails or worms. Once I'd admitted this to myself I decided I had to find ways to popularise the underdogs, and wondered whether understanding charismatic species would help.

Most species on the planet are neither particularly attractive nor charismatic. A study into how different species groups compare in terms of scientific or conservation effort showed that invertebrates do particularly badly. That's bad news for my mostly invertebrate mudflat species, which are not seen as charismatic and on the whole are not endangered.

Such creatures haven't been ignored entirely: the Ugly Animal

Preservation Society was created to raise the profile of less attractive species. But I found that, despite their 'ugliness', these species share many traits with their charismatic cousins. What makes these species charismatic?

## **The Bambi effect**

Research has shown that we humans tend to be attracted to animals whose physical features in some way remind us of our own, particularly babies. Look at the deer fawn in the picture: no question it is very charming.

It's hard to think of species with 'attractive' physical features in the ecosystem I study, but look harder and there they are. Zebra fish are common in freshwater regions of the Himalayas. They are popular aquarium fish and important model organisms in vertebrate research. Seen through a scanning electron microscope, zebra fish larvae are undeniably charming.





### Colour and composition

I searched for 'beautiful animals' in Pinterest to see what it came up with. Unsurprisingly, it didn't feature mudflat species; instead what stood out in the results were the shape, colour, texture and complex patterns on the animals. Clearly, looks influence our perceptions and the interest and value we place on a species.

Most of the animals in mudflats have evolved to be inconspicuous to avoid predators or ambush prey, but you can still find impressive patterns and colours if you care to turn over a rock and have a closer look.

### Behavioural traits

We love learning about animal behaviours and capabilities. We are mesmerised by the complex social interactions of chimps or bottlenose dolphins; we admire Arctic terns that migrate up to 90,000km as the seasons change; we marvel at a cheetah catching an antelope at 120km per hour.

But such capabilities are found in charismatic species and underdogs alike. The ragworm can switch feeding modes between herbivore, detritivore and predator according to environmental conditions – that's more or less the equivalent of an animal that can be a zebra, a hyena and a lion at the same time.

### Scale – up or down

It seems after all that size does matter. Children are drawn to all sorts of animals but tend to bond with large, conspicuous animals and pets, rather than smaller underdog species.

It is hard sometimes for people to even imagine the 'small stuff' that scientists study, especially if these are microscopic species that few of us will have seen directly or in any great detail.

That brings me to the charisma in sheer numbers. I think we have



a hard time relating to abstract sizes and numbers unless we can think of them in a context we understand. For example, diatoms (single-celled algae) absorb 23.275 Petagrammes of carbon per year – that's 23,275,000,000,000g or more than 23 billion tonnes – to me a meaningless number. But when you think that all the tropical rainforests on the planet absorb 17.8Pg you start to get a sense of what a leading role diatoms play in our planet's carbon cycle.

### Good marketing

Every successful news story has an attention-grabbing headline. Emperor penguins grab the Antarctic headlines every year by surviving and even breeding in subzero temperatures. They headline as 'Extreme survivors!'

For my work I dissect common shore crabs to find out what they feed on. Freezing them is a humane method of putting them to sleep and has worked well on all but one occasion. Once I put them in a -20°C freezer for 24 hours and, alas, some of them were still alive – 'Zombie crabs!'



### Redistributing our scientific wealth

The truth is that scientific research and conservation bodies have limited resources, which simply won't stretch to every species. Clearly we have biases in our perception of different species and this perception translates into valuing and ultimately protecting some species rather than others.

Closely linked to perception is knowledge: if people understand something they feel more connected to it and are more motivated to protect it. If we can increase awareness of and pride for natural environments and all the species characteristic to them perhaps some scientific resources will be redirected too.

Maybe I need to found the 'average looking but still important' animal society? My challenge will be to help people value species they do not yet understand. I hope the stories I've told here will encourage people to look at underdogs like my mudflat species and with greater appreciation.

● Lydia Bach is a postgraduate student at Queen's University Belfast, studying food webs and coastal ecosystems around the UK. Alongside her research she is particularly interested in science communication and public engagement.