How green is your pet?

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Editorial: *Cute, fluffy and horribly greedy*

SHOULD owning a great dane make you as much of an eco-outcast as an SUV driver? Yes it should, say Robert and Brenda Vale, two architects who specialise in sustainable living at Victoria University of Wellington in New Zealand. In their new book, *Time to Eat the Dog: The real guide to sustainable living*, they compare the ecological footprints of a menagerie of popular pets with those of various other lifestyle choices - and the critters do not fare well.

As well as guzzling resources, cats and dogs devastate wildlife populations, spread disease and add to pollution. It is time to take eco-stock of our pets.

Environmental health hazard (Image: Brand X Pictures/Getty)

1 more image

To measure the ecological paw, claw and fin-prints of the family pet, the Vales analysed the ingredients of common brands of pet food. They calculated, for example, that a medium-sized dog would consume 90 grams of meat and 156 grams of cereals daily in its recommended 300-gram portion of dried dog food. At its pre-dried weight, that equates to 450 grams of fresh meat and 260 grams of cereal. That means that over the course of a year, Fido wolfs down about 164 kilograms of meat and 95 kilograms of cereals.

It takes 43.3 square metres of land to generate 1 kilogram of chicken per year - far more for beef and lamb - and 13.4 square metres to generate a kilogram of cereals. So that gives him a footprint of 0.84 hectares. For a big dog such as a German shepherd, the figure is 1.1 hectares.

Meanwhile, an SUV - the Vales used a 4.6-litre Toyota Land Cruiser in their comparison - driven a modest 10,000 kilometres a year, uses 55.1 gigajoules, which includes the energy required both to fuel and to build it. One hectare of land can produce approximately 135 gigajoules of energy per year, so the Land Cruiser's eco-footprint is about 0.41 hectares - less than half that of a medium-sized dog.

The Vales are not alone in reaching this conclusion. When *New Scientist* asked John Barrett at the Stockholm Environment Institute in York, UK, to calculate eco-pawprints based on his own data, his figures tallied almost exactly. "Owning a dog really is quite an extravagance, mainly because of the carbon footprint of meat," he says.

Eco-pawprints

Then there are all the other animals we own. Doing similar calculations for a variety of pets and their foods, the Vales found that cats have an eco-footprint of about 0.15 hectares (slightly less than a Volkswagen Golf), hamsters come in at 0.014 hectares apiece (buy two, and you might as well have bought a plasma TV) and canaries half that. Even a goldfish requires 0.00034 hectares (3.4 square metres) of land to sustain it, giving it an ecological fin-print equal to two cellphones.

This kind of analysis appeals to David Mackay, a physicist at the University of Cambridge and the UK government's new energy adviser. He believes we should put as much thought into choosing a pet as we do into buying a car. "If a lifestyle choice uses more than 1 per cent of your energy footprint, then it is worthwhile reflecting on that choice and seeing what you can do about it," he says. "Pets definitely deserve attention: by my estimates, the energy footprint of a cat is about 2 per cent of the average

British person's energy footprint - and it's bigger for most dogs."

Alternatively, consider the cumulative environmental impact of our furry friends. The US, which tops the list for both cat and dog ownership in absolute terms, is home to over 76 million felines and 61 million canines. Taking the estimated cat population for the top 10 cat-owning countries, the Vales calculate that the land required just to feed these cats is over 400,000 square kilometres. That's equivalent to one-and-a-half times the area of New Zealand. A further five New Zealands are required to feed the pooches living in the top 10 dog-owning countries - which, perhaps surprisingly, does not include the UK.

Then there are the other environmental impacts of pets. Every year, for example, the UK's 7.7 million cats kill over 188 million wild animals (*Mammal Review*, vol 33, p 174). That works out at about 25 birds, mammals and frogs per cat. Similar figures have emerged from surveys in the US and Australia. There is also a knock-on effect because cats feasting on wildlife can leave wild predators such as hawks and weasels short of food.

Every year the UK's 7.7 million cats kill over 188 million wild animals. That's 25 per cat

Dogs are not entirely blameless either. In 2007, Peter Banks and Jessica Bryant from the University of New South Wales in Sydney, Australia, monitored bird life in woodlands just outside the city to assess the impact of dogs being walked there (*Biology Letters*, vol 3, p 611). They showed that bird life in areas frequented by dogs, even when kept on a lead, had 35 per cent less diversity and 41 per cent fewer birds overall. Areas with off-lead dogs seem to suffer even more: ongoing studies in the UK indicate that dogs are aiding the decline of some rare species of bird, such as European nightjars (*Ibis*, vol 149, p 27).

Another major environmental problem, particularly in urban areas, is pet faeces. A study carried out in Nashville, Tennessee, indicated that it is a significant cause of high bacterial levels in local rivers and streams, particularly after heavy rain. As well as making the water unsafe to drink, high bacterial levels can starve waterways of oxygen and kill aquatic life.

Cat excrement is particularly toxic. In 2002, it emerged that sea otters along the Californian coast are dying from a brain disease caused by *Toxoplasma gondii*. The parasite, which is found in cat faeces, ends up in rivers and estuaries thanks to cat owners who flush their cat litter down the toilet or allow their cats to defecate outside. Dolphins and whales are also affected (newscientist.com/article/dn14037).

So what is an eco-friendly animal lover to do? If you already have a pet, then changing its diet can help. Meat is the key, since its production is so energy-intensive. You can almost halve the eco-pawprint of your dog simply by feeding it many of the same sort of savory foods that you eat, which are likely to be far less protein-rich than most dog foods. As well as quantity, think about quality. "If pussy is scoffing 'Fancy Feast' - or some other food made from choice cuts of meat - then the relative impact is likely to be high," says Robert Vale. "If, on the other hand, the cat is fed on fish heads and other leftovers from the fishmonger, the impact will be lower."

Dog owners might also want to avoid walking their dog in wildlife-rich areas, and cat owners could consider keeping Tiddles indoors. "Cats are nocturnal, so the single most important thing people can do to reduce predation is to keep cats in at night," says Michael Woods of the Mammal Society in Southampton, UK.

And if you are thinking of acquiring a pet? "Shared pets are the best - the theatre cat or the temple dogs," says Robert Vale. But if you must own your own, think about getting an animal that serves a dual purpose. He recommends hens, which partly compensate for their eco-footprint by providing eggs. Or there is an even better alternative, if you can stomach it. "Rabbits are good," he says, "provided you eat them."

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Back to article

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