

Pets, Parasiticides, and Their Impact on Nature

Prepared for the Sidmouth Biodiversity Festival 2024

Stephen Blakeway BA VetMB MSc PGCE MRCVS, 7th June 2024, www.vetnetwork.org.uk

Background

- Pet parasiticides are contributing to the global decline in invertebrates.
- Pet tick and flea products enter the environment, persist, and remain toxic.
- Animal de-wormers kill dung beetles and other soil invertebrates.
- Veterinary pharmaceuticals do not currently require any environmental toxicity testing.
- Invertebrates play a central role in the web of life and their loss poses an existential threat.
- British Veterinary Association and Royal College of Veterinary Surgeons recognise the need to address this problem.

Ticks, fleas, worms and other parasites – the fear

- There is a lot of fear about ticks, fleas, worms and other parasites. They exist. We have all evolved together for millennia, and some may be beneficial. On rare occasions, directly or by carrying disease, they can cause problems to people and pets.
- However, attentive, informed pet owners will consider them a manageable part of pet life.

New information

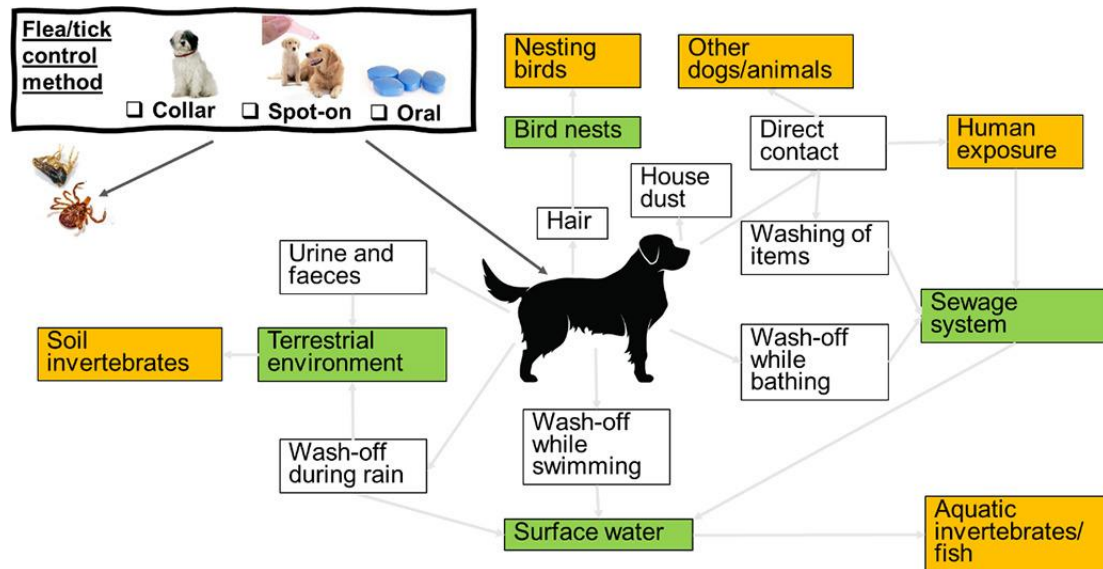
- Parasiticide products currently researched are 'spot-on' formulations containing the active ingredients fipronil (a phenyl pyrazole) and imidacloprid (a neo-nicotinoid) (trade names include Frontline, Advocate, Moxiclear, Bob Martins). Other spot-ons containing eg fluralaner (trade names include Bravecto & Nexguard) or permethrins, are likely to be similar.
- These products can enter rivers directly (when dogs swim) and indirectly - through washing your dog (or cat), pet bedding, your own clothes, your hands or anything else that has touched your treated pets. All water that goes down the plug or toilet ends up eventually in rivers and the sea.
- Tablet formulations might enter the environment less readily, but this has not been investigated. However, we do know these products can pass out in faeces and/or urine.

Potential threat to humans and pets

- Pesticide Action Network raises additional concerns about the long-term effects of these chemicals on human health.
- We do not put these products directly on ourselves, yet by putting them on your pet they will be on you, on your children, and probably in your food.
- Some parasites are already resistant to some drugs. Routine use will exacerbate this.

What Can I Do?

- Check pets for fleas & ticks routinely. Learn to remove (& kill) ticks and fleas manually. Regular grooming will also strengthen your relationship. Ask your vet to show you how if necessary.
- Wash pet bedding and vacuum your home regularly to stop fleas and flea eggs becoming established.
- If you have to use a parasiticide, choose tablets over spot-ons. If you do use spot-ons, stop your pet going into water and do not wash them until the product has expired on their coat (2 months +).
- Always pick up your dogs' faeces (using a compostable poo bag) particularly when you have used a parasiticide of any type and dispose of them in your household waste or council bin.
- Choose a sustainable veterinary practice. Talk to your vet. Explain your concern for the environment. Ask to avoid routine parasiticides. Opt for occasional lab tests (eg for puppies and kittens or if lungworms are a worry). Ask for a green puppy club. Ask them to share the latest research with you.
- Talk to your friends and family and ask them to do the same.



from: N.J. Diepens, D. Belgers, L. Buijse, I. Roessink, 2023

References and Resources: Parasites and Parasiticides

- Perkins et al 2024: Down-the-drain pathways for fipronil and imidacloprid applied as spot-on parasiticides to dogs: Estimating aquatic pollution. *Science of the Total Environment* 917 (2024) 170175 <https://doi.org/10.1016/j.scitotenv.2024.170175>
- Perkins R, Goulson D. 2023. To flea or not to flea: survey of UK companion animal ectoparasiticide usage and activities affecting pathways to the environment. *PeerJ* 11:e15561 <https://doi.org/10.7717/peerj.15561>
- N.J. Diepens, D. Belgers, L. Buijse, I. Roessink, 2023: Pet dogs transfer veterinary medicines to the environment, *Science of The Total Environment*, Volume 858, Part 1, 2023, 159550, ISSN 0048-9697, <https://doi.org/10.1016/j.scitotenv.2022.159550> .
- Vet Sustain: <https://vetsustain.org/resources/webinar-responsible-parasiticide-use>
- Veterinary Prescriber Resources:
- Tarr, A 2024, Cat and Dog Parasiticides and the Environment: https://veterinaryirelandjournal.com/images/2024/february/sa_feb_2024.pdf
- <https://www.veterinaryprescriber.org/free-articles/towards-more-rational-use-of-parasiticides-but-how?>
- <https://www.veterinaryprescriber.org/free-articles/environmental-effects-of-parasiticides-have-your-say>
- <https://www.veterinaryprescriber.org/free-articles/is-there-a-pet-parasiticide-that-is-safer-for-the-environment>
- <https://www.veterinaryprescriber.org/free-articles/advice-on-worming-cats-and-dogs-depends-on-whos-giving-it>
- British Small Animal Veterinary Association: <https://www.bsava.com/article/new-resource-to-guide-pet-owners-on-responsible-use-of-parasiticides/>
- British Equine Veterinary Association: [Environmental impacts of equine parasiticide treatment: The UK perspective - Haseler - 2024 - Equine Veterinary Education - Wiley Online Library](https://www.beva.org.uk/content/new-bcva-policy-prioritises-parasite-control)
- British Cattle Veterinary Association: <https://www.bcva.org.uk/content/new-bcva-policy-prioritises-parasite-control>
- Imperial College Grantham Institute: <https://spiral.imperial.ac.uk/bitstream/10044/1/102699/6/Are%20urban%20areas%20hotspots%20for%20pollution%20from%20pet%20parasiticides.pdf>
- Pesticide Action Network, Pets and Pesticide Poisoning: <https://www.pan-uk.org/pets/>

References and Resources: Biodiversity

- <https://www.theguardian.com/environment/article/2024/jun/14/wildlife-experts-urge-action-on-pesticides-as-uk-insect-populations-plummet>
- <https://www.theguardian.com/environment/article/2024/jun/19/i-have-seen-the-decline-pesticides-linked-to-falling-uk-insect-numbers>
- <https://www.theguardian.com/environment/article/2024/jun/19/what-are-highly-hazardous-pesticides-how-are-they-used-uk>
- [Briefing-Note-Biodiversity-and-Ecosystem-Function.pdf \(imperial.ac.uk\)](https://www.imperial.ac.uk/media/2024/06/19/briefing-note-biodiversity-and-ecosystem-function.pdf)
- Hochkirch A, Bilz M, Ferreira CC, Danielczak A, Allen D, Nieto A, et al. (2023) A multi-taxon analysis of European Red Lists reveals major threats to biodiversity. *PLoS ONE* 18(11): e0293083. <https://doi.org/10.1371/journal.pone.0293083>

Thank you for looking after our precious and fragile environment.