

Ecosystem Issues Involving Prophylaxis Treatment for Ectoparasites of Pets in the UK

The commercial success of the animal health pet sector has been driven in part by tapping into identified market needs of veterinarians and pet owners. The development and the growth of the pet parasiticide market, especially flea treatments, has been at the vanguard in this success.

The introduction of fipronil and imidacloprid-containing ectoparasiticide treatments over the last 30 years made breaking of the flea life cycle possible. Over the same period, we have seen significant increases in both dog and cat populations, and utilisation of parasiticides, often on a year-round basis. This together with a reported decline in insect populations in nature in the United Kingdom (UK) high-lights the importance of the ecosystem pillar in the "One Health," principle being considered equally to the animal and human pillars in any risk assessment decision-making process relating to these product types (Holdsworth & Fisher 2025).

Year-round prophylactic usage of parasiticides with pets has been seen by some as best practice for many years with support and guidance offered by the not-for-profit organisations the European Scientific Counsel Companion Animal Parasites in Europe [ESCCAP] and the Companion Animal Parasite Council [CAPC] in the United States of America. On face value the argument presented for maintaining year-round pet protection/prevention from parasites has logic. It can offer convenience for pet owners in not having to remember multiple times of, or events in, the year related to treating their pets. This logic is further supported and driven by the veterinary pharmaceutical industry delivering purpose designed parasiticides now being used for year-round prophylaxis.

Concerns have been raised, however, on the appropriateness of this prophylaxis and this has come to a head in the UK by questioning the appropriateness of this approach. Linked to the prophylaxis issue are the UK emerging concerns relating to actual or perceived ecosystem risks involving the availability and usage of certain ectoparasiticides, in particular neonicotinoid-based flea treatment products for pets with perceived negative ecosystem impacts in general and on bees in particular. A definitive linkage between the usage of these product types on pets, especially based on advice for year-round prophylactic usage, and bee deaths, is controversial. The responsible UK regulator [Veterinary Medicines Directorate (VMD)] has explained how it regulates such products, and it has support via the National Office of Animal Health (NOAH), however the acceptance of these products based on their present usage remains in question.

As the type of insecticides at issue appear not to have been used in agricultural practices in the UK since 2016 there was an assumption that pet parasiticide products were the cause of the ecosystem contamination. In response to this concern the VMD with support from the Environmental Agency funded a project to examine the occurrence, using water samples, of the insecticides at issue in 20 English rivers from 2016 to 2018. Analysis of data emerging from that project indicated that

fiproles were a high risk and imidacloprid were a moderate risk to aquatic ecosystems. Sites immediately downstream of wastewater system works had the highest levels of fipronil and imidacloprid, supporting the hypothesis that potentially significant quantities of pesticides from veterinary flea products may be entering waterways via household drains and even from treated dogs permitted to swim in waterways. Ongoing field work in the UK reinforces these concerns.

During its joint VMD and Veterinary Products Committee open information day, (18 November 2020), the VMD indicated that the present data generation requirements to satisfy the regulatory environmental assessment of companion animal ectoparasiticide products, may need reviewing to establish whether the existing exemption for such product types from conducting a Phase II environmental assessment is now warranted.

The European Medicines Agency also became involved and initially issued a 2022 draft reflection paper, and then a final paper in 2023 that while confirming the concerns, advocated, among other things, for an awareness program as the way to progress at present.

Unpublished data from the VMD in 2022 confirm the significant increase in sales of both imidacloprid and fipronil based veterinary ectoparasiticide products in the UK. Sales in the UK of products containing the relatively new active isoxazoline are also showing prominence. Results of a survey of UK pet owners on their attitude and behaviour to usage of ectoparasiticides for flea treatment, has further raised the possibility of specific chemical ecosystem contamination being linked to ectoparasiticide availability and usage. Detection of fipronil and imidacloprid in wastewater effluent from multiple treatment plants occurred out of the 3rd UK Water Industry Research Chemical Investigation Programme further reinforcing concerns.

This development raises many issues for not just the veterinary pharmaceutical industry, but more so the veterinary profession, including on what role they play and what advice they should be providing their clients in relation to pet parasite management.

The other side of this emerging issue is the ethical component of what the veterinary profession advocates as best practice in relation to chemical intervention for parasite management for pets. The British Veterinary Association (BVA) highlighted their policy statement advocating that veterinary practices avoid year-round parasite treatment policies and alternatively encourage informed discussions to occur with the veterinarian and their client (British Veterinary Association 2021). Recently the BVA has announced its intention to review its policy relating administration of pet parasiticides (British Veterinary Association, 2025). Compounding the issue are the outcomes of a survey conducted on 2008 pet owners in the UK, that revealed 83.2% preferred to manage their dog's treatment at home on a weekly basis, rather than monthly visits to their veterinarian (Animalcare 2023). A further study focusing on down the drain emissions from 98 dogs treated with fipronil or imidacloprid based spot-on ectoparasiticides, through bathing, bed washing and washing of owners' hands



Figures 1: Dogs swimming in waterways or open water that have been treated with insecticide may pose a risk to the aquatic ecosystem

detected the targeted chemicals in 100 % of wash off samples. (Perkins et al 2024).

While the focus at present is on specific products targeting fleas on pets, the fundamental issue of year-round prophylaxis of pets is also bringing into focus the availability and usage of other pharmaceuticals including endoparasiticides/endectoparasiticide pet products. Bagster & Elsheikha (2022) highlighted that the prevalence of veterinary practice healthcare plans which promote year-round parasite control in pets complicates the issue. In contrast, a coalition of UK veterinary pharmaceutical industry companies has highlighted its own campaign called "Paws to Protect," aiming to raise with pet owners their awareness of, and compliance with, veterinary medication packaging information. Similarly, one veterinary pharmaceutical company has taken the initiative here and developed their own "Let's do it smart," program to provide veterinarians with appropriate tools to tailor parasiticide solutions to the pet and pet owners' specific needs. Additionally, the UK based NOAH, on behalf of its animal health company members, has launched a campaign called "Use it right, treat them right," to encourage responsible usage of ectoparasiticides (National Office of Animal Health 2025). It is likely that we will see further such programmes appearing overtime. Separately, the veterinary corporate CVS has steered its veterinarians to prescribe orally administered antiparasiticide products for dogs and cats as

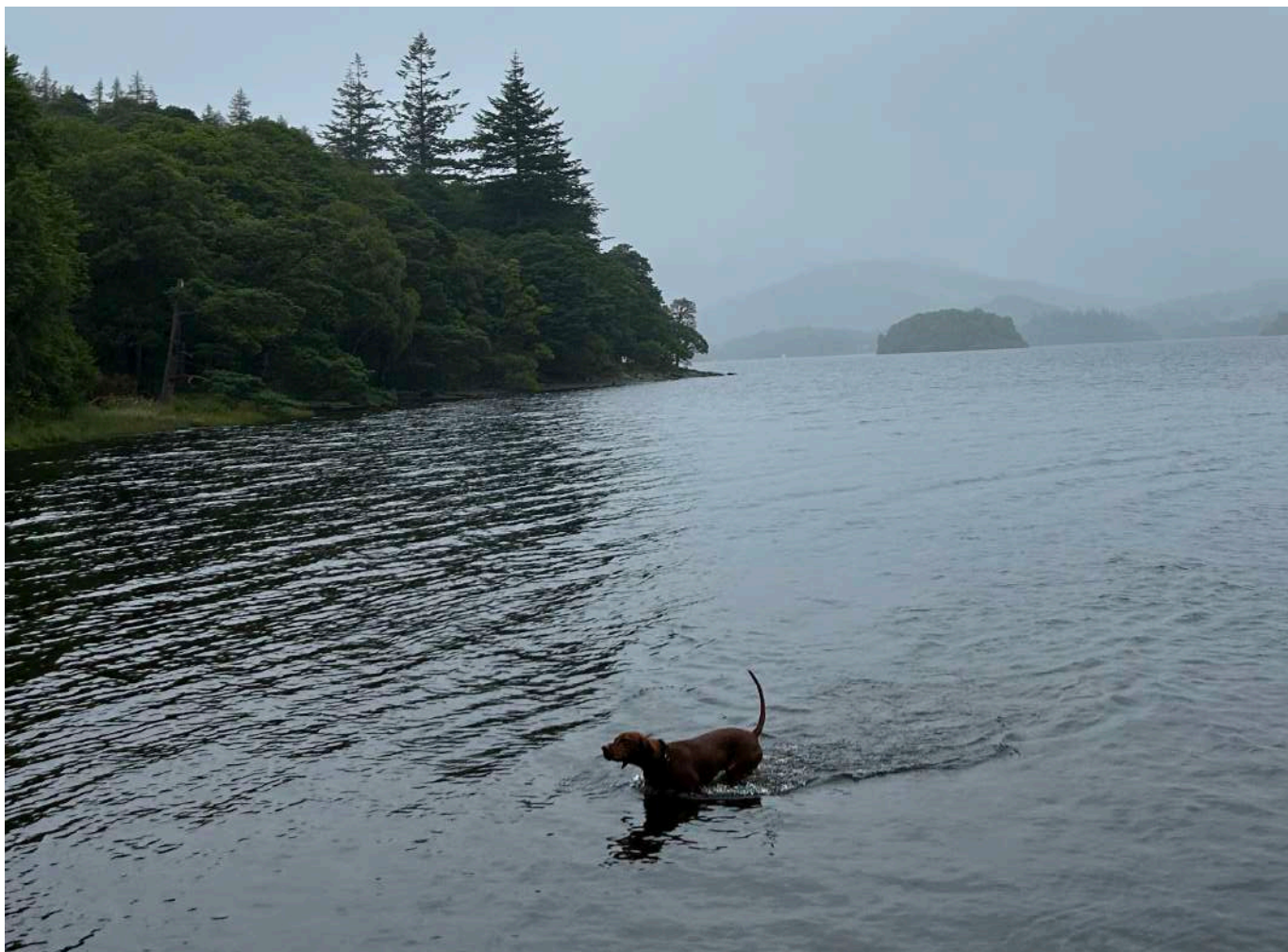
the first preference in relation to this emerging environmental risk issue.

Within the understanding of "One Health," companion animal ectoparasiticide usages at issue here appear to support animal health (parasite and vector borne disease management) and human health (management of certain zoonoses disease risks), however they appear to be found wanting, as far as ecosystem health is concerned. While acknowledging awareness campaigns initiated in the UK by specific pharmaceutical companies and by NOAH, key regulators and the veterinary profession as a whole needs to decide how they intend to manage this developing risk. It is noted that within the livestock industry the ecosystem risks of acaricide usage have been recognised and initiatives are already underway to manage these concerns (Food and Agricultural Organisation 2025).

This overall issue will likely continue to occupy the attention of veterinarians, regulators, the pharmaceutical industry, scientists and environmentalists for time to come with continuing pressure being mounted for specific chemical regulatory reviews; chemical/usage restrictions or bans.

Whilst this has largely been a UK issue, there are indications that these issues are being considered further afield.

Please contact the authors for a complete list of references.



Figures 2: Dogs swimming in waterways or open water that have been treated with insecticide may pose a risk to the aquatic ecosystem

REFERENCES

1. Animalcare Dog Owner Survey 2023. <https://www.animalcare.co.uk/dog-owner-survey/>
2. Bagster A & Elsheikha H. Perception of UK companion animal veterinarians on risk assessment based parasite control. *Veterinary parasitology: regional studies and reports*. (2022);34(March):100774. doi: 10.1016/j.vprsr.2022.100774.
3. British Veterinary Association. BVA. (2025) <https://www.vettimes.com/news/vets/small-animal-vets/bva-to-review-parasiticide-policy>
4. British Veterinary Association. BVA, BSAVA and BVZS policy position on responsible use of parasitocides for cats and dogs. (2021) Available at: <https://www.bva.co.uk/media/4352/bva-bsava-and-bvzs-policy-position-on-responsible-use-of-parasitocides-for-cats-and-dogs.pdf>
5. Food and Agricultural Organisation. https://www.linkedin.com/posts/laetitia-lempereur-7b2283a0_fao-webinar-on-ecotoxicity-of-acaricides-activity-7304917351265718272-XFdR
6. Holdsworth PA & Fisher MA. 'The ecosystem impacts of pet parasite management must be addressed'. *Veterinary Record*, 196: 238-238. <https://doi.org/10.1002/vetr.5360> (2025)
7. National Office of Animal Health. https://www.linkedin.com/posts/national-office-of-animal-health-limited_useitrighttreatthemright-veterinarymedicine-activity-7310958624997081088-957e/
8. Perkins R, Barron L, Whitehead M, Woodward G & Goulson D. Down-the-drain pathways for fipronil and imidacloprid applied as spot-on parasitocides to dogs: Estimating aquatic pollution. *Science of the Total Environment*. 917. <https://doi.org/10.1016/j.scitotenv.2024.170175> (2024)



Dr. Peter Holdsworth

Dr. Peter Holdsworth AO BSc (Hon) PhD FRSB FAICD was the founding Chief Executive Officer of Animal Health Alliance (Australia) Ltd – the peak industry body in Australia representing R,D&E companies, registrants, manu-facturers and marketers of veterinary medicines, veterinary chemicals and biologics in Australia. Dr. Holdsworth is a past president of WAAVP and a former president of the Australian Society for Parasitology.

Email: peter.paragon60@gmail.com



Dr. Maggie Fisher

Dr. Maggie Fisher BVetMed CBiol MSB MRQA DipEVPC MRCVS graduated in 1986 from the Royal Veterinary College and is director of VRM Ltd, a project management company (www.vrm.uk.com). Dr. Fisher has been active in the establishment and advancement of a number of animal health associations including WAAVP and ESCCAP. She is a Diplomate of the European Veterinary Parasitology College.

Email: maggie@shernacre.co.uk