



**Lungworm,**  
***Angiostrongylus vasorum***  
**a continuing threat**



**Advocate®**

# Lungworm, *Angiostrongylus vasorum* prevalence in foxes on the rise

A study from the University of Bristol published in 2015 confirmed a dramatic spread with **18.3%** of foxes across the UK found to be infected (**50% in the South-East**). Prevalence had more than doubled in all regions compared to a 2008 publication of the same design.



**Map 1: 2008 publication<sup>1</sup>**

546 foxes sampled in 2005-6

**Map 2: 2015 publication<sup>2</sup>**

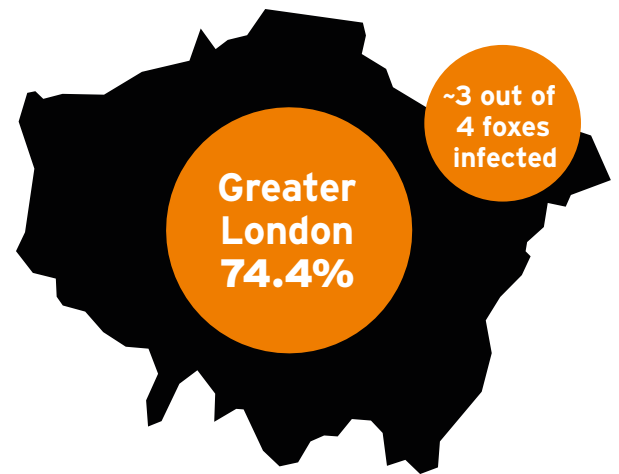
442 foxes sampled in 2013-14



# New Royal Veterinary College Study<sup>3</sup>

*"Overall prevalence of infection in foxes in Greater London was very high at 74%, with no seasonal variation, presenting a significant reservoir for *Angiostrongylus* infection for domestic dogs throughout the year."* Prof. Mark Fox, RVC.

- The number of parasites harboured varied, with many foxes found to have a few adult worms and some having a very large number - **up to 157**
- Some foxes passed few larvae while some excreted large numbers in their faeces - **more than 3000 larvae per g**



176 foxes sampled in 2016

## Slug and snail data confirms *A. vasorum* a continued risk across the UK

The results of 3 separate studies, totalling over 500 field collected samples, demonstrate that there is a risk of transmission of *A. vasorum* to domestic dogs from the gastropod population in urban and suburban areas.

Slugs sampled positive for *A. vasorum*:<sup>4,5,6</sup>



The University of Glasgow study highlighted how **the parasite can easily establish in a new area, with this level being found soon after the first case was confirmed in a dog in the area. This shows this threat should not be overlooked in areas that currently do not see cases.**

With increased prevalence of *A. vasorum* in foxes and a large number of slugs found to be carrying the parasite, *A. vasorum* continues to be a potentially fatal risk to dogs in the UK.



# Prof. Mark Fox, Royal Veterinary College

## *Angiostrongylus vasorum* research-request for worm specimens



### Genetic Diversity Research Ongoing

In 2009, Prof. Mark Fox (Royal Veterinary College, London) and colleagues conducted a nationwide survey of all small animal practices in the UK to establish how widely the canine lungworm, *Angiostrongylus vasorum*, was distributed in the UK. They found that (a) the parasite was widely (albeit patchily) distributed; and (b) that there were two 'hot spots' of infection in Greater London/south-east England and south Wales. Further work, seeking to identify factors responsible for the distribution of these hot spots, revealed that the mere local presence (rather than density) of red foxes increased the risk of *Angiostrongylus* infection in dogs five-fold. Work conducted by Prof. Eric Morgan and colleagues at the University of Bristol has also shown that red foxes may harbour the same genetic strains of *Angiostrongylus* as those seen in domestic dogs, making them a potential wildlife reservoir of the parasite for dogs.

The RVC has recently completed a year-long study of *Angiostrongylus* in red foxes in the Greater London area, looking at overall prevalence of infection, seasonal fluctuations and parasite genetic variation.<sup>7</sup> They found that (a) the overall prevalence of infection was very high (74%); (b) there was no seasonal variation in prevalence; (c) the majority of infected foxes harboured just a few adult worms and passed few larvae in their faeces; (d) one or two foxes harboured very large numbers of adult worms (up to 157) and passed large numbers of larvae in their faeces (more than 3,000 larvae per g faeces); and (e) **there was significant genetic diversity in the adult worms recovered. For example (a) individual foxes harboured up to 8 different strains; and (b) foxes in the Greater London area collectively harboured 19 different strains of which 8 were new to the UK.**

### So, what is the significance of these findings?

They reveal that (a) a large proportion of foxes in a 'hot spot' of infection, such as Greater London, may act as a reservoir of *Angiostrongylus* infection for domestic dogs throughout the year; and (b) parasites harboured by infected foxes exhibit marked genetic diversity. This, coupled with the fact that adult parasites

may live for up to five years in the same host, suggests that there is ample opportunity for cross-fertilisation and the emergence of novel hybrid parasite strains which may exhibit greater pathogenicity or resistance genes. In view of the close proximity between dogs and foxes in urban environments, it is easy to envisage new strains jumping host indirectly through mollusc intermediate hosts.

Prof. Mark Fox and his colleagues would like to extend their investigation of parasite genetic diversity in foxes to include domestic dogs, to see if infected dogs exhibit a similar degree of parasite diversity as that seen in foxes, and whether the different clinical syndromes caused by *Angiostrongylus* infection in dogs are associated with particular parasite strains. He is urgently appealing to vets in general practice for adult *Angiostrongylus* worms recovered during post mortem examination of dogs anywhere in the UK.

Vets finding worms, amongst blood clots in the pulmonary artery or right-hand side of the heart, should place them in a small bottle containing 70% ethanol. If no ethanol is available, please store the worms without preservative in a bottle in the freezer at -20°C. Either way please let Prof. Fox know and he will send a stamped-addressed envelope/preservative directly to you as necessary. Anyone wishing to participate in the study can contact him at the RVC on [mfox@rvc.ac.uk](mailto:mfox@rvc.ac.uk)



*"I would like to ask colleagues in general practice to assist with this research project by providing adult *Angiostrongylus* worms recovered during post mortem examination of dogs anywhere in the UK"*

**Prof. Mark Fox, RVC**