ESCCAP UK & Ireland
EUROPEAN SCIENTIFIC COUNSEL COMPANION ANIMAL PARASITES

Parasite roundup 2019

This article draws information from the ESCCAP UK & Ireland (European Scientific Counsel Companion Animal Parasites) Parasite Forecasts as well as other appropriate sources to provide a roundup of companion animal parasitology in the UK during 2019.

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Laura Stokes BA (Joint Hons), ESCCAP UK & Ireland National Coordinator; **Ian Wright** BVMS BSc MSc MRCVS, Veterinary Surgeon and Co-owner of the Mount Veterinary Practice, independent Parasitologist and Head of ESCCAP UK & Ireland.
laura@esccapuk.org.uk

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This article provides a roundup of parasitology related activities and events in 2019. Drawing from information published in the ESCCAP UK & Ireland Parasite Forecasts, recently published data and events of note, this article identifies key themes of 2019; analyses trends and interest from the public; and provides updates on a number of parasites and associated diseases.

Key themes and hot topics

Key themes and hot topics in 2019 were reflective of increased awareness about pet movement. This, in part, was down to Brexit and concerns over changing pet travel legislation, but also an ever-increasing number of exotic pathogens entering the UK via travelling pets and both legal and illegal pet importation. Another topic very much in the public domain is climate change. As climates are changing across Europe, we are seeing an increasing spread of exotic vectors closer to UK shores. This complements the concerns surrounding pet travel, as does our third key theme, tick awareness.

The big three themes of 2019 were:

- Illegal and legal pet movement
- Climate change
- Tick awareness.

Illegal and legal pet movement

The increasing trend of illegal and legal pet importation continued through 2019. Campaigns such as the BVA's 'Trojan dog' campaign and increasing numbers of exotic parasites being diagnosed in dogs from all over the world has spurred interest in this topic. Add Brexit to this, and the topic of pet movement is set to dominate for some time. Following the UK's departure from the EU, interest and enquiries regarding pet travel and exotic parasites will almost certainly increase.

Importation of rescue pets from abroad also remains a highly emotive issue, with increasing numbers of people wanting to help foreign stray and afflicted pets. The UK continues to witness the consequences of the increased risk of exotic parasite introduction that importing these pets brings. Policies such as the 14-day euthanasia policy for stray dogs in Romania is driving rescue imports into the country, and veterinary professionals must be vigilant for these dogs entering the UK and the possible pathogens they may be carrying.

During 2019 the UK has seen numerous cases of heartworm and exotic tick-borne disease in dogs imported from across the globe as well as the EU. Record numbers of enquiries have been received by ESCCAP UK & Ireland regarding *Leishmania infantum* — partially in light of the two recent untravelled cases of leishmaniosis in the UK, but also a reflection of the increasing numbers of infected pets relocating to our shores. It remains vitally important that we remain vigilant for undiagnosed positive dogs entering the country, and that we also know how to treat and manage positive dogs that are being knowingly rehomed in the UK.

Vigilance for exotic disease in all imported and travelled cats and dogs is essential. Four key steps, the 'four pillars' (*Figure 1*) are recommended by ESCCAP UK & Ireland when dealing with all imported or travelled pets arriving in the UK:

1. Check for ticks and subsequent identification of any found
2. Treat dogs again with praziquantel within 30 days of return to the UK, and treat for ticks if treatment is not already in place
3. Recognise clinical signs relevant to diseases in the countries visited or country of origin
4. Screening for *Leishmania* spp. and exotic tick-borne diseases in imported dogs.

Following the 'four pillars' concept will enable veterinary professionals to prepare owners if parasites are present, improve prognosis of clinical cases, minimise the risk of spread of any disease, carry out effective disease/parasite surveillance and help to maintain UK biosecurity.

Climate change

In April 2019, a Parliamentary Briefing Note highlighted the variety of ways that climate may influence the geographical spread of vectors and vector-borne disease (Parliamentary Office of Science and Technology (POST), 2019). Climate change has increased mean temperatures and affected seasonal variations. This affects all vector-borne diseases globally; however, the extent to which individual diseases are affected depends on the vector, the host and the environment. The distribution of vectors is notably changing across Europe, including within the UK, and the spread of vectors and diseases is exacerbated by globalisation and increased travel (including pet travel) (POST, 2019). Public Health England (PHE) has introduced a number of surveillance schemes over the years including The Tick Surveillance Scheme (TSS) and a mosquito reporting system. Mosquitoes are one of the vectors benefiting from a warmer, wetter climate in Europe. The UK's predicted weather currently benefits mosquito species and encourages the establishment of new species. ESCCAP UK & Ireland encourages anyone wishing to assist in these schemes to visit the Health Surveillance and Reporting Programmes area on the www.gov.uk website.

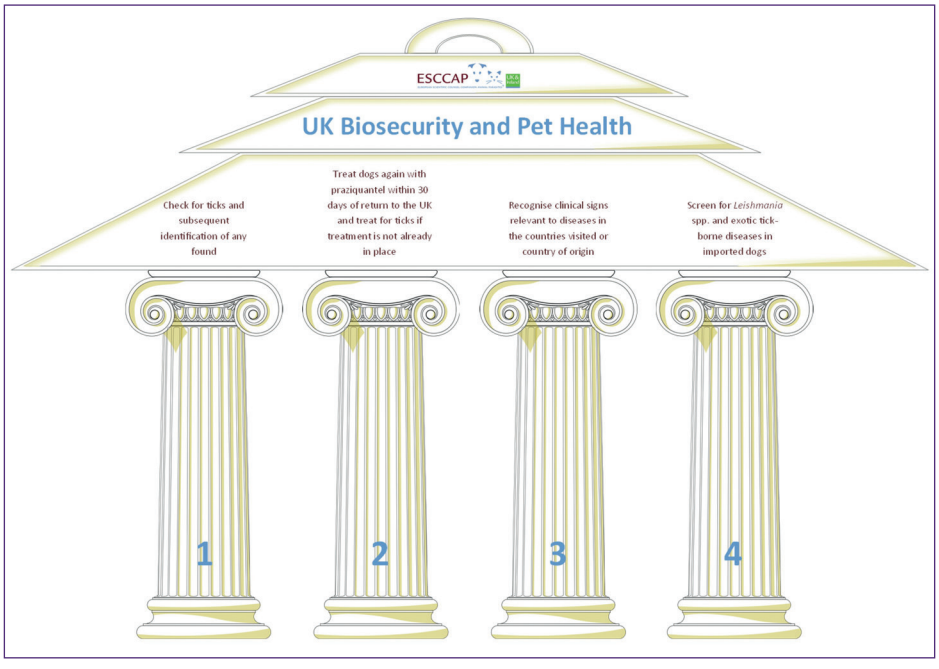

Figure 1. ESCCAP UK & Ireland's Four Pillars for maintenance of UK biosecurity and pet health.

As well as ticks and mosquitos, there are other vectors to be aware of, such as sand flies. Additionally, there have been two reported cases of leishmaniosis in untravelled UK dogs this year, acting as a reminder that although we do not currently have the sand fly vector in the UK, we should not be complacent about the possible establishment of *Leishmania* spp. here.

Tick awareness

During 2019, ESCCAP UK & Ireland worked with Tick Aware Hampshire to promote awareness of the endemic and zoonotic Lyme disease. Increased awareness among pet owners and the public is especially important after a recent study that supported an association between Lyme-positive dogs and human exposure, linked to shared environmental exposure (Liu et al, 2019). Positive dogs are therefore sentinels for human infection, and owners of positive dogs should be aware of the possibility that they may also have been exposed. Tick awareness also overlaps significantly with exotic disease and pet travel, with both exotic ticks and their vector-borne diseases posing a risk of entering the UK, with the end of 2019 already having seen the tick-borne pathogens *Babesia venatorum* and tick-borne encephalitis virus (TBEV) confirmed as endemic in the UK.

Upcoming research

A study by Nottingham Veterinary School, funded by ESCCAP UK & Ireland, has been investigating the prevalence of *Toxocara* spp. eggs in public sandpits in the UK, the degree of contamination and the risk it may pose to public health; this will be published in 2020. The study will provide much needed statistics for environmental *Toxocara* spp. contamination, and will be used to raise awareness of toxocarosis within the UK.

The results of the *Echinococcus granulosus* study, HyData, are likely to be published in 2020; current evidence suggests unknown foci of *E. granulosus* in Britain in addition to known endemic areas. A question and answer conference panel alongside a wider media campaign is planned to raise awareness of these results and give preventative advice. The 3-year (2016–2018) multi-centre collaborative study has been investigating the national distribution of *E. granulosus* in high-risk dog populations (hunting hounds, farm dogs and pet dogs in rural areas), livestock (cattle, sheep) and horses at slaughter in England, Wales, Scotland and Northern Ireland (Collins et al, 2016). The study aims to build the most comprehensive picture of *E. granulosus* geographic distribution in the UK and explore associated risk factors for animal and human infection.

ESCCAP UK & Ireland are collaborating with IDEXX Laboratories to carry out a seroprevalence study in dogs across the UK, testing for *Borrelia* spp. and *Anaplasma* spp. This will create the first meaningful data set indicating how these pathogens in *Ixodes* spp. ticks are translating into infection in dogs. The results of this study, its aims and results will be promoted through the website, blogs and articles. This will raise awareness of these parasites as well as giving some indication of where higher risk areas of canine exposure may be. The study will also generate heartworm and *Ehrlichia* spp. data, giving a reflection of prevalence of these parasites in travelled and imported dogs.

ESCCAP UK & Ireland enquiry data

Each year, ESCCAP UK & Ireland provides an enquiry answering service for the public and produce quarterly reports of the topics raised in order to identify possible trends (*Figure 2*).

January–March 2019 (Q1) saw some unusually mild weather with record high temperatures and humidity. These are ideal conditions for domestic parasites to thrive. Despite this, and following on from 2018, the highest number of queries this quarter regarded imported cases of *L. infantum* infection, including a case in an untravelled dog. There were also queries concerning *Ehrlichia canis*, *Babesia* spp. and heartworm, reminding us of the ever-increasing number of exotic pathogens being seen in travelled and imported pets. With Brexit at that time set for 29th March 2019, concerns over pet travel regulation post-Brexit meant pet travel enquiries were high. But following on from ESCCAP UK & Ireland campaigns to highlight the need for domestic worm control in UK cats and dogs, interest was maintained in *Toxocara* spp. and domestic tapeworms. In Q1 ESCCAP also received our first equine enquiry, following the launch of ESCCAP Equine Guideline 8 (ESCCAP, 2019).

April–June (Q2) saw record numbers of enquiries regarding *L. infantum*. This followed on from recent untravelled cases of leishmaniosis in the UK, but was also reflective of the increasing numbers of infected pets relocating to our shores. There were also enquiries concerning *E. canis*, *Babesia* spp. and heartworm. With Brexit postponed, the continuing uncertainty also saw pet travel enquiries remain high. Enquiries regarding dog tapeworms also increased, possibly because of ESCCAP UK & Ireland's concerted effort to raise awareness of hydatid disease through the veterinary literature.

July–September (Q3) saw record-breaking temperatures and rainfall. These were ideal

conditions for both tick and slug activity, as well as flea reproduction. However, the most enquiries this quarter were once again about imported cases of *L. infantum*. This period also saw increasing numbers of questions regarding the diagnosis and management of heartworm in imported dogs, as more cases of infected rescue dogs were seen by veterinary surgeons. Following Bayer's renewed lungworm campaign in the veterinary press, there was a spike in *Angiostrongylus vasorum* enquiries. This increase could also have been down to an increased number of cases linked to the warm and wet weather. This quarter also saw ESCCAP UK & Ireland's first enquiries about tapeworms in rabbits and hamsters.

As with all previous quarters this year, the largest number of enquiries in October–December (Q4) regarded imported cases of *L. infantum*. Continuing from Q3, questions about the diagnosis and management of heartworm in imported dogs also remained high. The recent news that both *B. venatorum* and TBEV have endemic foci in the UK subsequently led to new and increased numbers of enquiries regarding these pathogens and other tick-borne parasites. Enquiries about parasites in rabbits, guinea pigs and hamsters has also continued from the previous quarter.

Overall in 2019, *L. infantum* has consistently had the most enquiries each quarter, as well as receiving the most enquiries throughout 2019 by nearly double that of the next highest contender, heartworm (*D. immitis*). However, in Q3 and Q4, heartworm enquiries were only one enquiry behind *L. infantum,* which may indicate a shift into 2020 as both knowledge about treating *L. infantum* increases and numbers of heartworm cases in the UK rise. As expected, along with heartworm, pet travel, *B. canis* and *E. canis* enquiries all were included in the top 10 enquiry topics in 2019. Domestic parasite topics such as flea control, Lyme disease, dog tapeworms, toxocarosis, lungworm and giardiasis also place at the top of the enquiry totals list, with enquiries about *Giardia* spp. coming joint 3rd highest with Lyme disease in Q4. During 2019, ESCCAP UK & Ireland received the first enquires about equine parasites and small companion mammals such as hamsters, guinea pigs and rabbits, which suggests a growing awareness of the enquiry service within the veterinary industry.

Updates by parasite/disease

Fleas and flea/borne pathogens

The Big Flea Project results have been released, finding 28.1% of cats and 14.4% of dogs positive for fleas (Abdullah et al., 2019). But fleas do not just bring with them the risk of frustrating house infestations; they also present high risk for the transmission of vector-borne diseases such as bartonellosis or *Dipylidium caninum* tapeworm. Further results from the Big Flea Project state that 11.3% of infested pets were found to be harbouring fleas infected with *Bar-*

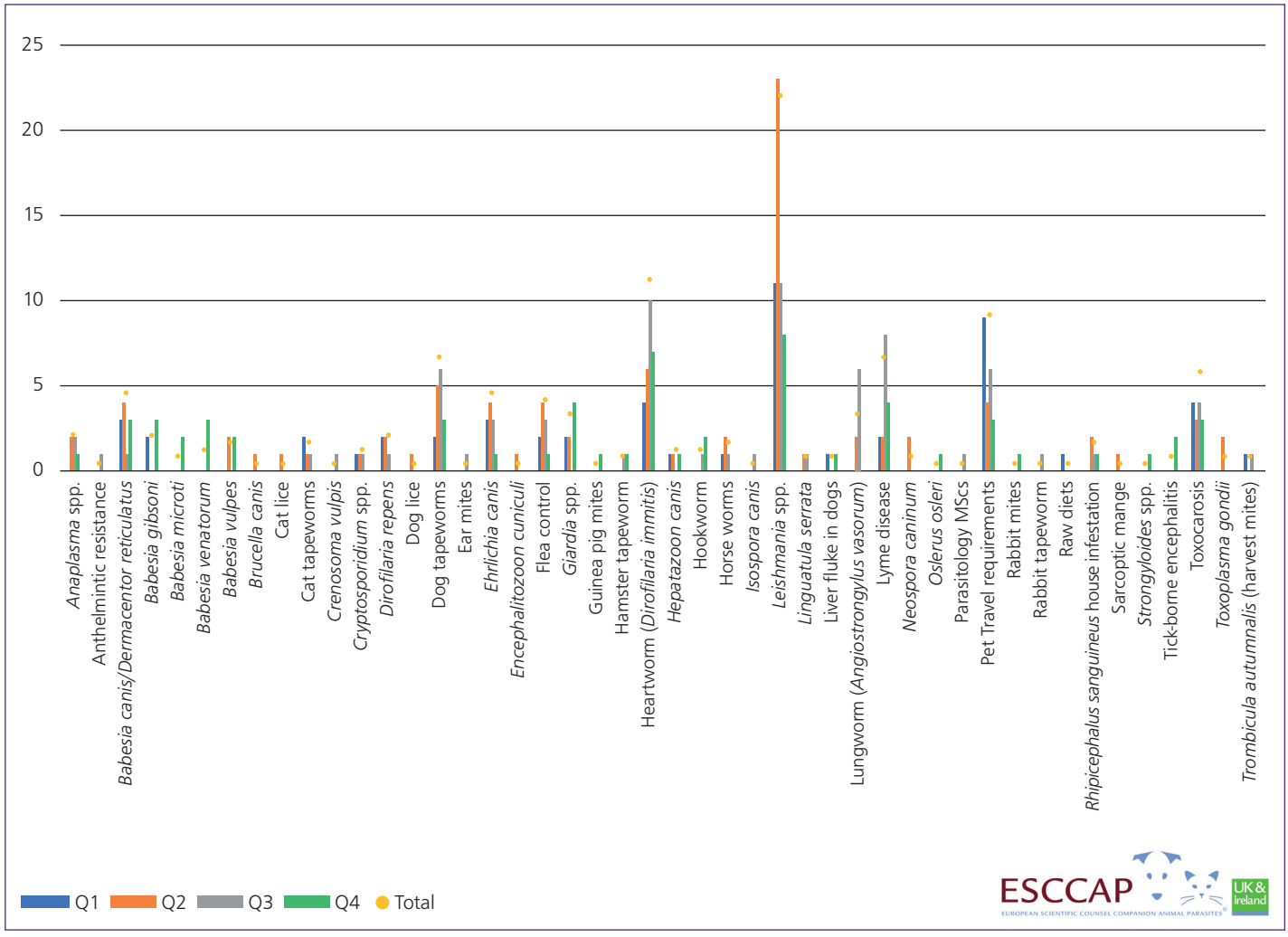

Figure 2. ESCCAP UK & Ireland Enquiry Statistics 2019

tonella spp. An infected population of this size puts the UK pet owning population at significant risk of exposure to this zoonotic pathogen, making routine flea control essential for all domestic cats and dogs. Veterinary professionals should continue to advise year-round preventative treatment against fleas, not only to prevent house infestations but also to protect against flea-borne disease.

Ticks and tick-borne pathogens

The tick-borne pathogens *B. venatorum* and TBEV have both now been confirmed as endemic in the UK. While pets and their owners should continue to enjoy the beautiful New Forest and Thetford Forest, where there is evidence for establishment the need for effective tick prevention has never been more important for those working there and for people and pets using the areas for regular recreational activity.

A recent study has been released for another tick-borne zoonosis, Lyme disease, which supports an association between Lyme positive dogs and human exposure linked to shared environmental exposure (Liu et al., 2019). Positive dogs are therefore sentinels for human infection and owners of positive dogs should be aware of the possibility that they may also have been exposed.

Finally, it is important to remember that *B. canis* is still endemic in Essex, and probably in surrounding counties. Infected ticks have also been found in an endemic focus of *Dermacentor reticulatus* in Wales. A recent case of a *Babesia microti*-like infection in an untravelled UK dog is a timely reminder that small *Babesia* species are endemic, as well as *B. canis* (MacLeod and Wright, 2019). Babesiosis should now be considered as a differential for immune-mediated hemolytic anaemia (IMHA) in untravelled UK dogs, and tick prevention used for high risk pets.

Lungworm

Research conducted at the Royal Veterinary College has demonstrated that foxes are an important all year round source of infection, with a mean prevalence of infection of >74% in Greater London and no significant seasonal variation in prevalence. This means year-round exposure for intermediate hosts, so it is vital that dogs receive year-round preventative treatment if living in high-prevalence endemic foci such as London.

A recently published paper has demonstrated a low but significant prevalence (1.7%) of *Aelurostrongylus abstrusus* lungworm infection in cats across the UK. Outdoor access was identified as a major risk factor, with a greater chance of infection in the East Midlands and South East of England (Elsheikha et al, 2019). A fatal case in a kitten has also been documented, demonstrating that although *A. abstrusus* infections are often mild or subclinical, they can be severe, especially in kittens and immunosuppressed individuals (Dobromylskyj et al, 2019). These reports demonstrate the widespread presence of feline lungworm across the UK and the importance of considering it in parasite control programs for cats with outdoor access. Lungworm should now be considered as a differential in feline respiratory cases and as part of parasite control programs in at-risk cats

An outbreak of *Filaroides (Oslerus) osleri* (*Figure 3*) has been reported in a greyhound kennel in Yorkshire. Infected dogs presented with a dry cough and the distinctive larvae confirmed by the Baermann technique. In damp or multi-dog environments where infective larvae can build up, this parasite is an important differential in the coughing dog. Baermann testing of faeces remains very useful in potentially diagnosing a range of canine lungworms in dogs with relevant clinical signs.

Exotic parasites

A BVA survey has revealed that more than nine out of ten companion animal veterinary surgeons (93%) in the country are concerned about the import of rescue dogs from abroad, with three-quarters feeling that numbers have increased over the last year. Cases reported to ESCCAP UK & Ireland reflect this, with leishmaniosis, heartworm and *E. canis* in imported dogs remaining high. There have also been two recent cases of leishmaniosis confirmed in UK dogs with no travel history. The mechanism of transmission is unknown in these cases, so it is important to consider the risk to uninfected dogs when considering importing *Leishmania* spp. positive dogs to the UK, as well as potential risks to wider UK biosecurity.

Heartworm cases have been reported in 2019 in dogs imported from Romania as well as from South America and Asia, demonstrating the need for vigilance in dogs imported from all endemic countries. UK veterinary surgeons need to be extremely vigilant for exotic pathogens entering the UK from South America, where the zoonotic health risk as well as the impact on the health of the pet from a range of endemic pathogens could be considerable.

Conclusions

There has been a large focus in 2019 on exotic diseases; the spread of parasites and diseases due to global warming and pet movement; and the role ticks play in spreading zoonoses at home and abroad.

The end of 2019 saw the tick-borne pathogens *B. venatorum* and TBEV confirmed as endemic in the UK. Both these pathogens, transmitted by *Ixodes* spp. ticks, are zoonoses, and understandable concern has arisen at their arrival.

During 2020 we will probably see our pet importation rules and the Pet Travel Scheme (PETS) discussed as part of negotiations as we prepare to leave the EU. Compulsory tick treatment for pets entering the UK, screening of imported dogs for tick-borne pathogens and increased regulation regarding the importation of rescue dogs from abroad have all been suggested as means of reducing the risk of exotic ticks and tick-borne pathogens arriving on our shores. Such measures, however, will only be successful as part of a wider approach.

Pet owners taking their pets abroad need to be given correct advice and preventative products applied before, during and after travel. Vigilance for ticks on travelled pets and their safe removal is vitally important, as is the identification of other exotic diseases in travelled and imported pets. Lyme disease also remains a growing endemic risk in the UK, and ticks will remain a major focus for ESCCAP UK & Irland in 2020. CA

Figure 3. Filaroides (Oslerus) osleri larva

KEY POINTS

- This article draws on recently published data, events of note and the activities of ESCCAP UK & Ireland to provide a roundup of companion animal parasitology in 2019.
- As climates are changing across Europe we are seeing the increasing spread of exotic vectors closer to UK shores.
- Vigilance for exotic disease in all imported and travelled cats and dogs is essential and ESCCAP UK & Ireland recommend four key steps (the 'four pillars').

ESCCAP UK & Ireland is a national association of the European organisation ESCCAP and brings together some of the UK and Ireland's leading experts in the field of Veterinary Parasitology. ESCCAP UK & Ireland provides country-relevant information to veterinary and animal care professionals and pet owners in order to raise awareness about the parasite situations relevant to the UK and Ireland and to help protect against pet parasites. For more information please visit www.esccapuk.org.uk.

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References

Abdullah S, Helps C, Tasker S, Newbury H, Wall R. Pathogens in fleas collected from cats and dogs: distribution and prevalence in the UK. Parasit Vectors. 2019;12(1):71. doi: 10.1186/s13071-019-3326-x.

Collins M, McGarry J, Michalopoulou E, Rogan M, Brouwer A, Jones P. The HyData Project: Investigating the distribution of *Echinococcus granulosus* (sensu lato) in the UK. [conference lecture]. 14 Apr 2016. British Association for Veterinary Parasitology, Bristol

Dobromylskyj M, Elsheikha H, Gunn-Moore D. Aelurostrongylosis in a young kitten in the UK. Vet Rec. 2019;184(8):257. doi: 10.1136/vr.l764

European Scientific Counsel Companion Animal Parasites. GL8: A guide to the treatment and control of equine gastrointestinal parasite infections. 2019. http://bit.ly/EquineGITparasitesGuide8

Elsheikha H, Wright I, Wang B, Schaper R. Prevalence of feline lungworm *Aelurostrongylus abstrusus* in England. Vet Parasitol Reg Stud Reports. 2019;16:100271. doi: 10.1016/j.vprsr.2019.100271.

Liu Y, Nordone SK, Yabsley MJ, Lund RB, McMahan CS, Gettings JR. Quantifying the relationship between human Lyme disease and *Borrelia burgdorferi* exposure in domestic dogs. Geospat Health. 2019;14(1). doi: 10.4081/gh.2019.750

MacLeod L, Wright I. *Babesia* in an untravelled dog in the UK. Vet Rec. 2019;184(10):320. doi: 10.1136/vr.l1013

Parliamentary Office of Science and Technology. Climate Change and Vector-Borne Diseases in Humans in the UK. POSTNOTE 597, April 2019. Available at: http://researchbriefings.files.parliament.uk/documents/POST-PN-0597/POST-PN-0597.pdf (Accessed 20 Oct 2019)