

CPD course

In conjunction with CPD vets at The University of Liverpool, TEST-A-PET is running a one-day CPD course on Wednesday 16th September 2009 - **Diagnosis of Parasitism in Dogs and Cats.**

This course is suitable for both vet nurses and vets and will include analysis of faecal samples for helminth eggs, larvae (including lungworm) and parasitic protozoa, and skin scrapings for ectoparasites.

Practical demonstrations and lectures which accompany sample analysis will be given by:

Professor Sandy Trees

BVM&S PhD DipEVPC MRCVS

Dr. Jackie Barber

BVetMed PhD MRCVS

Dr. John McGarry MSc PhD

The key elements of tick identification that are presented in this issue's in-focus article will be covered in greater detail during the CPD course.

Further details can be found on the course booking form (enclosed) additional copies of which are available upon request or on-line at www.liv.ac.uk/cpdvets.

Free Clinical Advice at TEST-A-PET

As part of the TEST-A-PET diagnostic service, our consultant Dr. Jackie Barber can provide free pre and post-test clinical advice. This service is for veterinary surgeons only and can be accessed during office hours - please see contact details on page four of this newsletter.



TEST-A-PET
The Veterinary Parasitology
Diagnostic Service

SAVSNET



Our colleagues in the Small Animal Infectious Diseases group have recently set up the Small Animal Veterinary Surveillance Network (SAVSNET) to monitor the current prevalence and emergence of small animal disease in the UK, initially in dogs and cats.

The scheme has two related elements:

Laboratory Surveillance - To collate test results from small animal diagnostic laboratories (including TEST-A-PET). This will enable numbers of suspected clinical cases to be determined and prevalence of disease to be estimated.

Real Time Surveillance - To explore incidence of disease by collecting data from veterinary practices which use Vet Solutions software, with the aim of obtaining 'real-time' clinical information from consultations.

Resulting data will provide a valuable insight into the status of disease in our small animal population which, due to a lack of surveillance, is something which has not been possible until now.

Surveillance is particularly relevant to small animal health at the moment because of the substantial rise in the number of animals travelling abroad, increasingly open national borders and climate change, which will inevitably affect prevalence of disease in the future. Not only will these factors affect the spread of endemic disease but they also have the potential to facilitate the establishment of exotic disease in the UK, and so it is clear that there is now a pressing need for effective surveillance to help combat these threats.

In meeting this need, the outputs from SAVSNET will benefit veterinarians, animal owners, teaching, research and pharmaceutical companies alike and in recognition of this, TEST-A-PET is participating in the SAVSNET scheme.

SAVSNET co-ordinator Áine Tierney said, "TEST-A-PET plays a vital role in veterinary diagnostics and disease control. Specialising exclusively in veterinary parasitology, it will make an important contribution to the scheme".

Client confidentiality is ensured as only sample references, test results and the first letter(s) from the postcode of the submitting vet practice will be used.

Data will be freely available on the SAVSNET website in the form of quarterly reports.

More information is available at www.liv.ac.uk/savsnet.

SAVSNET is supported by the BSAVA, Defra, the AHT, NOAH, Vet Solutions and seven industrial partners.

Paul Gilmore BSc (Hons)

IN FOCUS Ticks under the microscope

Surveillance for ticks is important both in the clinical context and in the light of proposals to deregulate the Pet Travel Scheme (PETS) requirement to treat dogs and cats with acaricide before re-entry to the UK. In this article, John McGarry explains how to identify the important disease vector ticks that dogs and cats may pick up in the UK and Europe. This article is the first of two on ticks, the diseases they carry and treatments.

Ticks, tick-borne diseases and PETS

The hard ticks (Ixodidae) comprise several major genera that parasitise mammals, birds and reptiles worldwide. They are vectors of diverse and sometimes multiple disease agents including protozoa, viruses, rickettsias and spirochaetes. There are some 850 described species of hard ticks worldwide but relatively few have evolved as vectors of serious animal diseases. In Europe, certain tick species pose a serious infectious disease threat to dogs and cats. Current control measures under PETS require a certified tick treatment such as Fipronil within a 24-48 hour window of return, so that ticks and their exotic pathogens do not become established here. The ruling on tick treatment applies to the UK and Malta; it is presently being reviewed and may be removed. In this event, it is inevitable that exotic ticks carrying exotic pathogens will arrive here from other EU states and potentially from anywhere in the world.

This is very worrying because pet travel is likely to increase in future years - the number of dogs and cats which have travelled abroad has increased each year since DEFRA launched PETS in 2000. More than 56,000 dogs and cats re-entered the UK in 2008, the majority having visited European countries between May and September, when tick activity is at its peak. In southern Europe, *Rhipicephalus sanguineus* is the main vector of *Babesia canis vogeli* and *Ehrlichia canis*. Another species, *Dermacentor reticulatus*, occurs in most European states and transmits *Babesia canis canis*, which causes a more severe disease than *B. canis vogeli*. Another type of babesiosis, due to *Babesia gibsoni* (a smaller piroplasm), is less responsive to treatment and is also thought to be transmitted by *R. sanguineus*. Both these tick species occur in the UK at the moment but at a very low density and are rarely seen on dogs. *Ixodes ricinus* is a major pest of dogs and cats in the UK and throughout mainland Europe. It can transmit *Borrelia burgdorferi*, *Anaplasma phagocytophila*, Louping ill virus and *Bartonella* spp. Populations of *I. ricinus* in parts of central and eastern Europe carry tick-borne encephalitis virus (TBE), a serious zoonotic agent, which is not found in the UK.

Regardless of the proposal to deregulate the treatment on re-entry rule, there is at the present time the potential for live ticks to enter the UK on travelled pets, on their bedding or via transport, particularly if the animal is exposed to tick habitats anytime after the re-entry treatment, since products may not be fully effective for 2 days. Furthermore, there is a lack of efficacy data for acaricides against several important vectors; some ticks (particularly the large species found outside Europe), may be less susceptible.

The importance of recognising and removing ticks

Knowing the type of tick, country of origin and how long it has been on the host, may assist the vet in disease diagnosis or in assessing the risk of a specific disease developing. This is important even for ticks found dead on the animal, as pathogens may have already been transmitted. Furthermore, surveillance is necessary because a number of tick-borne diseases such as babesiosis and encephalitis virus are spreading in the western hemisphere, as ticks extend their range due to the impact of global warming, increases in deer and other wildlife populations, and animal transport around the world.

Studies have shown that transmission of pathogens normally occurs after a prolonged period of feeding on the host. For example, vector-to-host transmission of *Anaplasma phagocytophila*, the agent of granulocytic ehrlichiosis, occurs within a narrow window of 40-48 hours. For the rickettsias, *R. rickettsii*, the agent of Rocky Mountain Spotted Fever (transmitted by *Dermacentor* spp. in the USA) requires an attachment period of 5-20 hours. Viruses may be transmitted in as little as 4 hours.

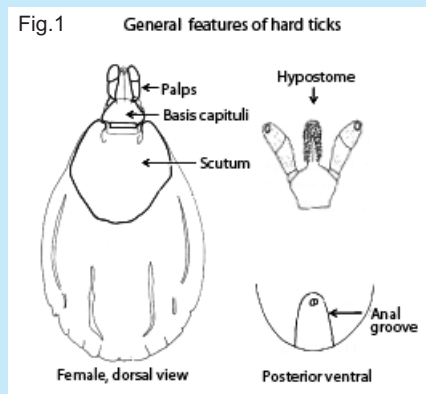
Unfortunately, ticks usually hide themselves well and only become noticed when they have started to swell with blood approximately 36-48 hours post-attachment. Thus, the sooner the tick is removed the better; dogs and cats should be checked thoroughly each day during the tick season after walks in tick habitats, particularly when abroad. Ticks should be dislodged using a special tick remover or hook if possible. Precautions should be taken when removing attached ticks from dogs and cats, to prevent the possibility of exposure to pathogens such as borreliae, which may be released from the salivary glands of squashed ticks.

This article explains how to recognise the three important adult ticks of dogs and cats in Europe: *Rhipicephalus sanguineus*, *Dermacentor* and *Ixodes* spp. It is vital to remove the tick from the host with the mouthparts intact. This can be done in a number of ways, for example, by killing the tick prior to removal with locally applied acaricide or using a tick removal device.

Under the microscope, they can be distinguished fairly easily.

How to identify ticks

For identification, a stereo (dissecting) microscope with incident light will be needed. To confirm you have a tick, examine the mouthparts of the specimen for the presence of a finger-like projection (the toothed hypostome), situated between the palps and present only in ticks. Virtually every tick recovered will be an adult female, as males and the immature stages of nymphs and larvae are rarely seen in surveys (Ogden et al., 2000). Identifications are based on the following morphological features. The **anal groove**, located underneath the tick at the posterior end, is a fold of cuticle in front of, behind, or completely surrounding the anus. Figure 1 shows the anal groove surrounding the anus in front. The **basis capituli**, which supports the **palps**, is the 'head' of the tick and its shape is important in tick identification. The **scutum** is an area of cuticle behind the basis capituli; it may have a metallic sheen or be brightly coloured - in which case the tick is said to be 'decorated'. **Festoons** are folds of cuticle (like the edges of a pie crust) at the posterior end.



1. Is the anal groove in front of the anus?

If so, this is a species of *Ixodes* (Fig 2), most likely to be *I. ricinus*, although *I. hexagonus* (the hedgehog tick) is commonly found on both dogs and cats. *Ixodes canisuga* may also occur on dogs but is less common. Also note, these ticks are reddish in colour, the palps are long, the scutum is dark and festoons are absent. *Ixodes* spp. are found throughout the UK and Europe.

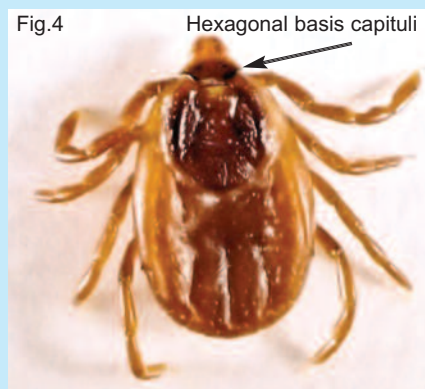


2. Is the anal groove behind the anus and is the scutum decorated with a silver base colour with dark markings? In addition, are the palps club-shaped?

The specimen is either *Dermacentor reticulatus* or *D. marginatus*. (Fig 3). *D. reticulatus* is widely distributed from Europe to central Asia but is scarce in north western Europe, including the UK. *D. marginatus* occurs in Spain, Italy, southern and central France, Germany and elsewhere in Europe but is not endemic in the UK.



3. Is the anal groove behind the anus but the scutum undecorated and the basis capituli hexagonal in shape? This is *Rhipicephalus sanguineus*, (Fig 4) the brown dog tick. Found throughout the world, rare in the UK.



Note: Two species, *Haemaphysalis* spp. and *Hyalomma* spp. are also found in Europe but are rare and not usually associated with diseases in dogs or cats. These are described in -

McGarry, J. W., Barber, J. and Fisher, M. (2005). Identification of Ticks on dogs and cats. UK Vet. 10 (2): 86-90.

Tick identification at TEST-A-PET.

- Our staff have thirty years experience in this field.
- Specimens should be sent in 70% alcohol.
- Results are available within 1-3 working days of us receiving the specimen.
- For more information, please see page four of this newsletter and our website.

Dr. John W. McGarry MSc PhD