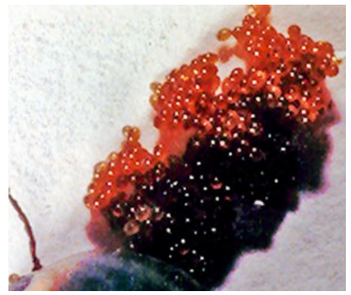
THE LIFE CYCLE OF THE SHEEP TICK *IXODES RICINUS*

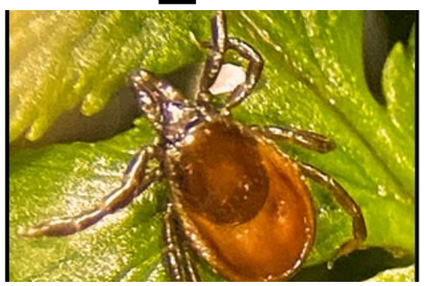
Ixodes ricinus is the most widespread tick species across Europe, found in humid, dense ground layer habitats such as rough grassland, moorland and woodland. The three parasitic stages – the larva, nymph and adult - are most active from April to May; adults tend to diapause in mid summer but reappear in early Autumn however the precise pattern of seasonal activity is highly variable, influenced by habitat, climate and host availability. *Ixodes ricinus* is a 'three-host' tick which means that they seek a host, feed and drop off to moult into a new stage in the environment. Thus the active stages of this generalist species feed on a separate host and are found free living between feeding periods. In the UK, each stage feeds for just a few days per year and the full life cycle from egg to adult tick takes three years. *Ixodes ricinus* is an important disease vector, involved in the transmission of a large variety of pathogens of medical and veterinary importance including for example, *Borrelia burgdorferi* causing Lyme borreliosis and tick-borne encephalitis virus.

1. Following initial attachment to a suitable large host, **the female tick** osmoregulates for the first few days and releases pheromones which attract a **male**; he embeds his mouthparts into the female genital pore on the ventral surface as shown here above (arrow) and transfers a sperm packet to inseminate the female. After the first two or three days on the host, there is an exponential increase in the size of the female as she engorges with blood. Full engorgement of adult females can take 6-13 days. Males move around and can fertilise several females.

Relative sizes of unfed adult, nymph and larva of *I. ricinus*

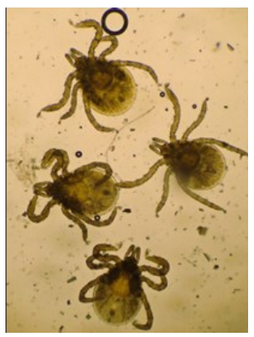
2. When the fertilized adult female has fully fed, she drops off and lays a single batch of some 1000-2000 eggs deep in the vegetation. Eggs hatch to become the 6-legged larva, the so-called seed ticks which are only approx. 1mm in size. Once their cuticle has hardened, larvae ascend vegetation and await a passing small host on which to climb.





5. Adult ticks position themselves on the tips of vegetation and 'quest' with their front legs to locate a passing host; hosts for adult ticks are mainly larger animals, including sheep on rough upland pasture, woodland deer and companion animal such as dogs.

4. Nymphs seek a host such as a rabbit or a ground-feeding or ground-nesting bird. Feeding takes 3-5 days and the engorged nymph will digest the blood and moult to become an adult



3. Larvae seek hosts such as rodents and other small mammals or birds. Feeding takes 3-5 days and blood-engorged larvae then drop off the skin and shelter in grass where they moult to the nymph stage, which is approx. 2.5mm in size. Once the cuticle has hardened, the nymph is ready to feed.

Credits. Roe deer: Simon Eardley; sheep and pheasant: Rob Michelle; European rabbit: Gianluigi.