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- Fleas
- Environment
- F.A.D.
- Ticks
- Lice
- *Trombicula*
- *Cheyletiella*
- *Sarcoptes*
**Fleas**

**Life cycle**
- 12-180 days, faster in warm temperatures
- Adult lives on host
- Eggs, larvae and pupae exist in the environment
- Up to 1,500 eggs can be laid in adult’s life time

**Ctenocephalides felis**
- Most common flea found on both dogs and cats in the UK
- Dark brown, wingless insect
- Laterally compressed body
- 2-3 mm in length
- Identified by 6 notches bearing setae found on dorsal border of hind tibia

**Ctenocephalides canis**
- Less common than *Ctenocephalides felis* on dogs in the UK
- Similar in size and appearance
- Identified by 8 notches bearing setae found on dorsal border of hind tibia

**Flea eggs**
- Pearly white oval structures
- 0.5 mm in length

**Flea larvae**
- 3 larval stages 2-5 mm in length
- Newly hatched larvae are white, segmented and covered in short hairs
- Older, fed larvae are darker in colour

**Pupae**
- Oval, white, silk-like pupa (cocoon), often covered in debris from the environment
- 5 mm in length
- Dissected pupa shows developing adult

**Flea Allergy Dermatitis (FAD)**
- Hypersensitivity to flea bites

**Possible disease transmission**
- *Dipylidium caninum* (tapeworm)
- *Zoonosis* Bartonella henselae (Cat scratch disease)
**Life cycle**
- 2-3 weeks to complete
- All stages occur on the host

**Trichodectes canis**
- Biting louse of dogs
- Head is broader than it is long
- Broad yellowish body
- 1-2 mm in length
- Antennae with 3 segments

**Linognathus setosus**
- Sucking louse of dogs
- Small pointed head with terminal mouthparts
- Bluish-black in colour
- 1-2 mm in length
- Eggs exceptional being dark blue

**Felicola subrostratus**
- Biting louse of cats
- Broad body
- Approx. 1mm in length
- Triangular head, pointed anteriorly

**Eggs**
- Small whitish structures visible with naked eye
- Firmly bound to hairs
- Clear operculum (‘lid’)
- *(Linognathus setosus eggs are exceptional being dark blue)*

- Lice (eggs and adults) are visible in situ on the animals
Ticks

Life-cycle of a 3 host tick

- Total life-cycle up to 3 years
- Larvae feed for 2-12 days then drop to the ground
- Nymphs feed for 3-10 days then drop to the ground

Ixodes spp (3 host ticks)

I.ricinus. (sheep tick)
I.hexagonus. (hedgehog tick)
I.canisuga. (British dog tick)

- Engorged female lays from 1,000 to 10,000 eggs. She then dies
- Larvae, 3 pairs of legs, usually yellowish, less than 1.0 mm
- Nymphs, 4 pairs of legs, less than 2.0 mm
- Adult
  - 4 pairs of legs
  - Engorged female light grey, bean shaped body, 1.0 cm in length
  - Males 2-3 mm long, legs visible due to small abdomen

Most common tick species in UK, mainly found in areas of upland, moorland and woodland, parks and gardens.

Rhipicephalus sanguineus
(brown dog tick)
(3 host tick)

- 4 pairs of legs
- Hexagonal base to capitulum
- Inornate scutum
- Eyes, festoons
- IV coxae no larger than I-III

Reported in the UK, most commonly found in Europe, will survive in arid exposed areas even indoors

Dermacentor reticulatus
(3 host tick)

- 4 pairs of legs
- Rectangular base of capitulum (mouthparts including their base)
- Ornate scutum (chitinous plate on dorsum)
- Eyes, festoons (notches on posterior border of body)
- IV coxae (proximal leg section) larger than I to III

Reported in the UK, most commonly found in Europe, prefers heavily wooded areas.

Possible disease transmission

- Usually after 48 hours of attachment
- Lyme disease (Borrelia burgdorferi)
- Ehrlichiosis (Ehrlichia canis or Ehrlichia phagocytophila)
- Babesiosis (Babesia canis)
- Zoonosis: Lyme disease, Ehrlichiosis
**Tick-borne disease**

**Lyme disease**
- Borrelia burgdorferi
- Transmitted by *Ixodes* spp
- Found in UK
- Zoonosis

**Ehrlichiosis**
- *Ehrlichia phagocytophila*
- Transmitted by *Ixodes* spp
- Throughout Northern Europe including UK. Endemic. Not related to importation
- Zoonosis

**Ehrlichia canis**
- Transmitted by *Rhipicephalus sanguineus* and *Dermacentor reticulatus*
- Only found in the UK in dogs having travelled through Europe (Disease possible in cats)

**Babesiosis**
- *Babesia canis* and *Babesia gibsoni*
- Transmitted by *Dermacentor reticulatus* and *Rhipicephalus sanguineus* in Europe
- Common throughout Southern Europe and now extending into the more northern areas of Europe

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**Mange mites**

**Life-cycle**
- 2-3 weeks
- Adult females lay eggs for up to 60 days

**Sarcoptes scabiei**
(Dog mange mites, burrowing mites of dogs)
- 0.2-0.4 mm in length
- Seen in deep skin scrapings (in liquid paraffin under the microscope)
- Difficult to find, best results from non-excoriated sites e.g. ear margins, elbows, hocks
- Oval white body, 4 pairs of short legs
- Anterior legs have suckers, posterior legs do not extend beyond body
- Many transverse ridges and triangular scales on dorsum
- Zoonosis

**Eggs**
- Only seen in deep skin scrapings
- 0.2 mm in length
- Dark brown, oval shaped
- Often found in clutches

**Notoedres cati**
(Cat mange mites)
- Smaller than *Sarcoptes scabiei*
- Many concentric striations on dorsum
- Zoonosis
Cheyletiella spp
(Fur mites, Walking dandruff)

Life cycle
- 4-5 weeks

Cheyletiella yagisuri (dog)
Cheyletiella blakei (cat)

- Approx. 0.4 mm in length
- Just visible to the naked eye
- Saddle-shaped with a ‘waist’
- 4 pairs of legs
- Visible by direct examination of coat brushings with magnifying glass
- Confirm microscopically by superficial skin scrapings in liquid paraffin or acetate strips
- Zoonosis

Eggs
- Oval shape, 0.1-0.2 mm in length
- Attached to hair by filaments
- Blunt at one end, more pointed at the other

Neotrombicula autumnalis
(Harvest mites, berry bugs)

Life cycle
- 50-70 days
- Adults can survive 1 year
- Larvae only parasitic form

Neotrombicula autumnalis
(larva)

- 0.2-0.4 mm in length
- 3 pairs of legs
- Just visible with naked eye
- Bright red pin-head dots, typically found between paws and on ears, typically in late summer
- Confirm microscopically by superficial skin scraping in liquid paraffin
**Demodex spp**

**Life-cycle**

- Duration unknown

**Demodex canis**

**Demodex cati**

- 0.25-0.3 mm in length
- Seen under the microscope in deep skin scrapings from areas of comedones
- Squeeze skin to extrude mites from follicles
- Hair plucks from dogs with foot lesions
- Long cigar-shaped body with 4 pairs of very short legs

**Larva**

- Up to 0.2 mm in length
- Broader than adult
- 3 pairs of short legs on anterior aspect of body

**Eggs**

- 0.05-0.1 mm in length
- Characteristically lemon shaped

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**Otodectes cynotis** *(Ear mites)*

**Life-cycle**

- Approx. 3 weeks
- Adults can survive 2 months

**Otodectes cynotis**

- Approx. 0.3 mm in length
- Just visible in-situ with otoscope
- Adults and eggs seen microscopically in ear wax
- Large white oval body, 4 pairs of projecting legs
- Whip-like setae attach terminally to 3rd and 4th pairs of legs
- Adult mites occasionally seen in skin scrapings from other body areas

**Eggs**

- Elongated oval shape
- Brown in colour

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**Life cycle of Otodectes cynotis**

**Egg**

- Elongated oval shape
- Brown in colour

**Larva**

- Up to 0.2 mm in length
- Broader than adult
- 3 pairs of short legs on anterior aspect of body

**Eggs**

- 0.05-0.1 mm in length
- Characteristically lemon shaped