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| **here Parasite name**  | **Host range**  | **Host encounter**  | **Feeding behaviour**  | **Life cycle**  | **Length of infestation**  |
| Flea spp.  | Small to medium-sized burrowing mammalsHost specificity varies between flea species, most fleas are associated with one or few principal hosts and some auxiliary hosts (Krasnov *et al.*, 2003, 2004) | Within a host nest or burrow Direct transmission between host individuals during physical encounters | Several blood meals as an adult  | Weeks-monthsSeveral generations are produced per yearSeasonal cycles of reproduction and infection rates found for several flea species infecting voles in the UK(Telfer *et al.*, 2007; Oliver *et al.*, 2009)Longevity is influenced by environmental conditions and the host lifecycle Reproductive diapause as adults (Krasnov, 2008) observed for several species Diapause in egg and pupal stages observed for fleas infecting rabbits in NE Spain (Osácar *et al.*, 2001) | Unknown Time spent on the host vs burrows or nests can vary between species of flea, host and season (reviewed in Krasnov, 2008) Minutes – days per feed depending on species, host, age and season  |
| *Ixodes trianguliceps* | Small mammals  | Nidicolous, hosts nests and burrowsSome indications that larvae are exophilic | Once per life stage (Randolph, 2004) | 2-5 years (Randolph, 1995, 2004)Moults off-hostThe time between moults (21-250 days) Seasonal cycles well documentedDevelopmental and behavioural diapause (Randolph, 1975) | Larvae: ~ 7 daysNymphs: ~ 9.5 daysAdult females: 12-17 days(Randolph, 1975) |
| *Ixodes ricinus* | Host generalist:Small mammals, birds, lizards, and larger mammals (cattle, deer) | All stages exophilicQuesting behaviour in vegetation  | Once per life stage (Randolph, 2004) | 2-3 yearsMoults off-hostSeasonal cycles well documentedDevelopmental and behavioural diapause documented in Scotland  | Adult females: ~6-8 daysUp to 30 days observed (Campbell, 1948) |

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| **Parasite name**  | **Vertebrate hosts** | **Invertebrate hosts/Vectors**  | **Transmission mode**  | **Transstadial/transovarial transmission in vector** | **Length of infection (mammal host)** |
| Rodent-specific *Bartonella spp.* |  Rodents  | Arthropods Fleas are known to be vectors and potential reservoirs (Birtles, 2005; Gutiérrez et al., 2015)*I. ricinus* is indicated as a potential vector but transmission is not yet proven (Król *et al.*, 2021) | Flea-borne | No transovarial transmission Alternative vertical non-transovarial transmission (Morick *et al.*, 2013) | Acute Bacteraemia lasts from a few weeks to several months, with evidence of recrudescence in some wild rodents (Birtles *et al.*, 2001) |
| *Babesia microti (Babesia sensu lato)*  | Rodents  | *Ixodes* ticks (Jalovecka *et al.*, 2019)*I. trianguliceps* main vector in natural rodent populations (Bown *et al.*, 2008) | Tick-borne  | Transstadial transmission provenUnlikely to persist in vector for more than one moult (Gray *et al.*, 2002) No transovarial transmission (Jalovecka *et al.*, 2019) | Chronic Laboratory studies suggest that transmission to ticks is only possible in the acute phase (several days); no evidence for this in wild rodents (Randolph, 1995; Gray *et al.*, 2002) |
| *Hepatozoon spp.*  | Reptiles (Tomé *et al.*, 2013)Mammals and birds (Smith, 1996) | DNA detected in fleas, tick, lice and mite spp. Fleas are indicated as the main invertebrate host for rodent-associated Hepatozoon (Rigó *et al.*, 2016)Invertebrates are the definitive host (Smith, 1996) | Ingestion of infected definitive host | Some species are transstadially and transovarially transmitted  | Unknown |

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