

Investigating parasitic burden across latrines of a badger sett.

Laura Pawley – s1907891@glos.ac.uk

Supervisor: Richard Rolfe



1. Introduction

The European badger (*Meles meles*) is the largest British carnivore and one of the most iconic animals of Britain; although often a divisive one due to their ability to transmit Bovine tuberculosis (bTB) to cattle. There has been much debate over the use of culling to reduce bTB transmission rates especially given their important role in managing other populations within a grassland ecosystem.

Notorious for keeping a clean sett and using designated latrines within their territory boundary they are still a host to a number of parasites but it is uncommon for parasitic load to be high enough to lead to fatality. A literature review has identified that there is not a wealth of information on parasitic burden across the latrine sites of a sett; many studies focus on a particular parasite (Jones, 1980) and (Byrne, 2019), or parasite prevalence dependent on age, gender, season, or habitat (Cottrell, 2011) and (Torres, 2001). This study aims to identify parasite species found and to assess if there is a difference in the parasitic load of faecal samples taken from latrines across one badger sett.



2. Field work & methodology

- The field site studied was an active sett located in Cranham, Gloucestershire. The sett is set within a mixed, predominantly broadleaf woodland which borders on grassland used for livestock grazing.
- An initial scoping and bait marking phase was carried out for 10 days. A mixture of corn and honey was deposited near sett entrances with evidence of recent cleaning, the corn-honey mixture was covered by a small rock to reduce the chance of consumption by other wildlife.
- Identified badger latrines (purple triangles in Fig1. below) were sampled from over a 2 day period. 4g of faecal matter was taken and mixed with ethanol for a minimum of 24 hours before being analysed to destroy any bTB bacteria (Cottrell, 2011).

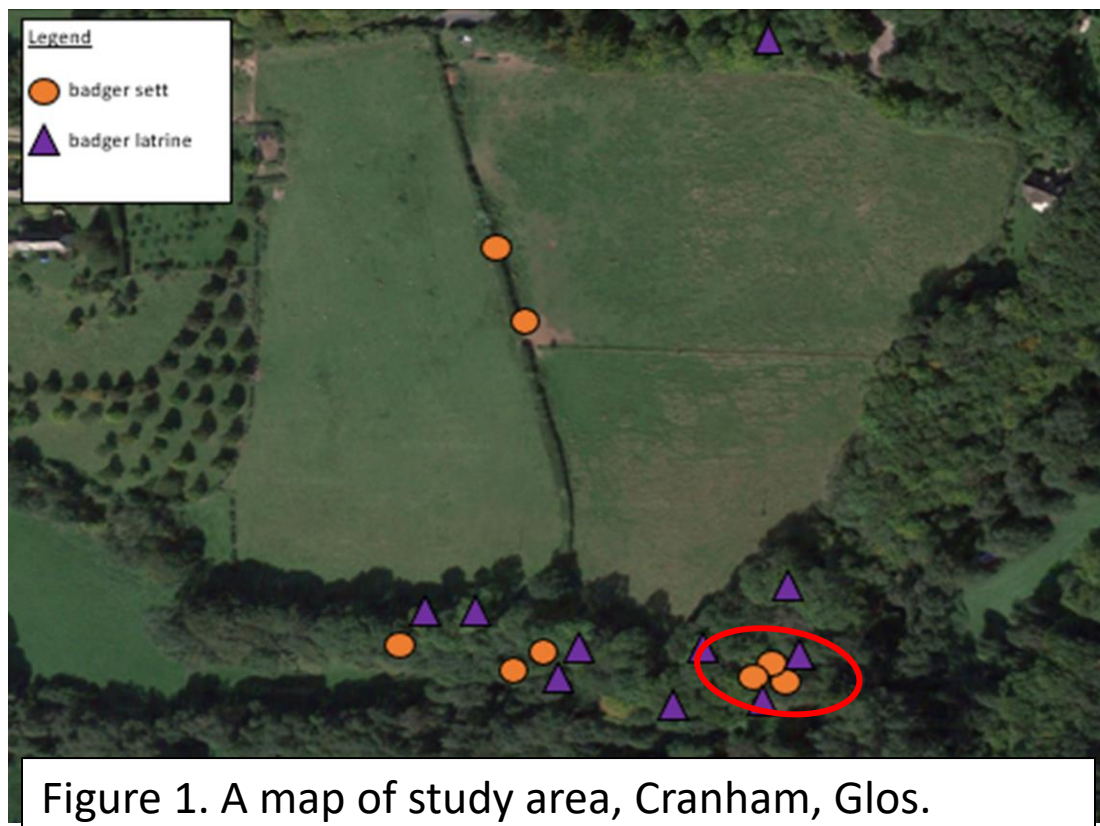


Figure 1. A map of study area, Cranham, Glos.



Figure 5. The European badger (*Meles meles*)

5. Discussion

- Early results indicate that there is a difference of parasitic burden across the latrines of a sett.
- Results are limited however, and does not answer why there is variation; further tests may provide more data.
- If data shows a distinction between parasitic burden and distance from the main sett then could indicate which members of the sett are most likely to carry parasites.
- Also could benefit farming management in reducing movement of vulnerable animals away from boundary latrines to reduces cross-infections between species.

Number of challenges:

- The study was carried out in late autumn/ early winter when badger activity is lowest so a further study when activity is higher is necessary.
- Not all latrines samples showed evidence of the bait used to identify latrines used by the badger sett studied; some samples therefore did not contain corn but were deemed close enough to the sett to be within the territory.



6. Conclusions

- Preliminary results show there is variation in parasitic burden across the latrines of a badger sett.
- Further testing is necessary to reinforce current correlation
- Results could be applicable to land/livestock management on land with close interactions with badgers.

3. Lab work & methodology

- Once safe, samples were mixed with a salt-sugar flotation solution and a faecal egg count (FEC) was carried out using the McMaster technique (RVC, nd).

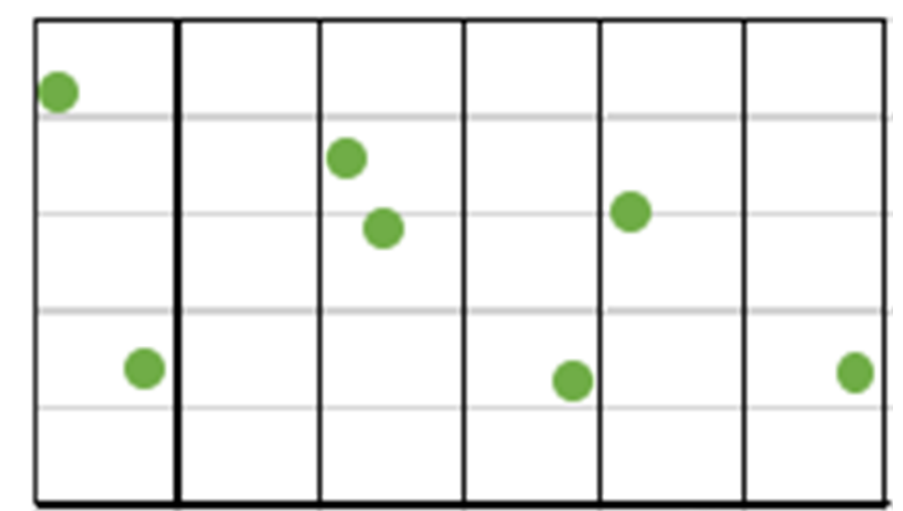


Figure 2. Example of FEC recording.

- Figure 3 shows an example of the slides, figure 2 shows how eggs within the boundary of the chambers are recorded and counted.



Figure 3. Example of McMaster slides used.



4. Results



Figure 4 shows the results of the FEC when eggs per gram of faeces has been calculated. A large variation can be seen, between 50-1000 egg per/g.

- Values that fall below the orange line have a low FEC, those above the red line have a high FEC, and those that fall in between are classed as moderate.

- Further statistical testing is needed to understand if these differences are significant.

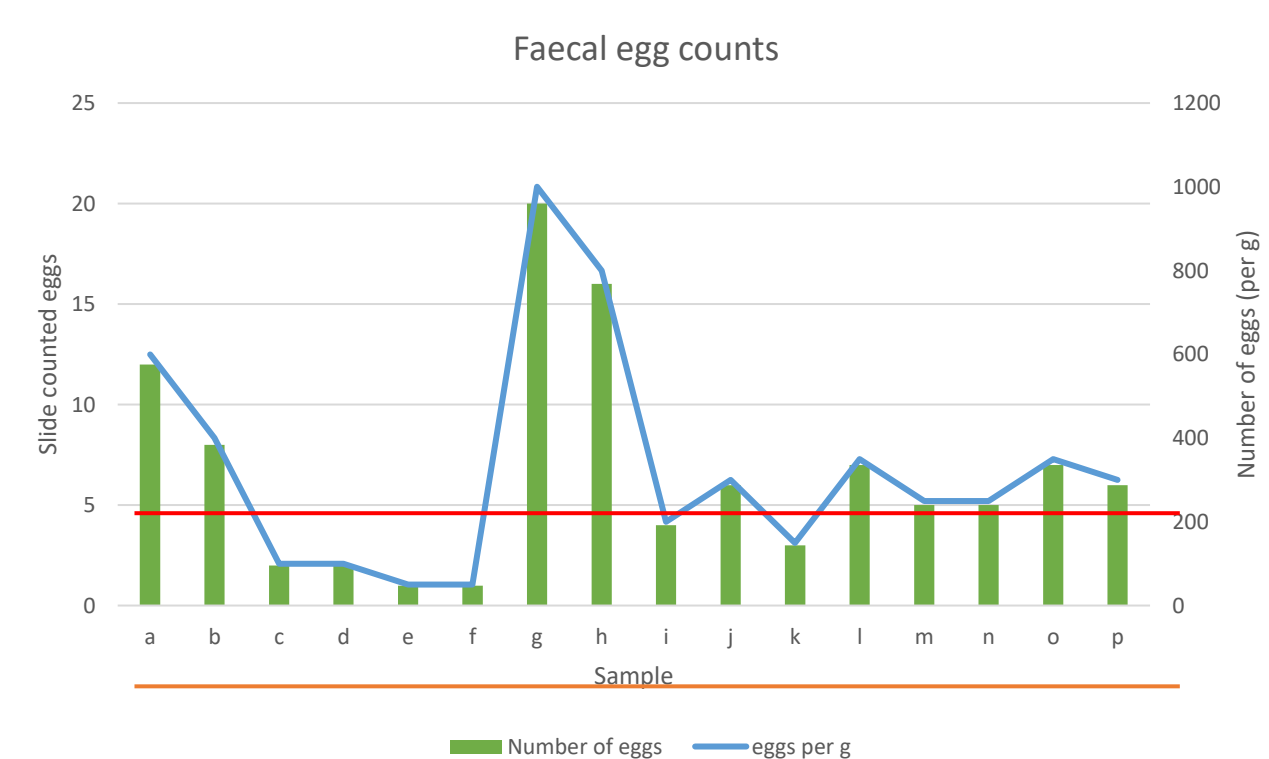


Figure 4. A graph to show faecal egg results.

7. Next steps

- Identify parasite eggs found
- Carry out statistical tests
- Use mapping software to identify difference in burden across latrines vs. distance from sett
- Carry out further field work and sampling