

Topic Summary

The behavior that was researched in this literature review was badger habitat selection specifically badger sett/den choice. Many factors affect a badger's choice of sett (Roper 1992, B) and it is an important topic to study since badgers rely heavily on their setts. Setts, burrows, and dens can all be used interchangeably as they describe underground habitats that have been created through digging.

Badgers are considered ecosystem engineers (Andersen et al. 2021) and nocturnal and semi-fossorial carnivores meaning they mainly eat prey through digging (Apps et al. 2002, Doyle et al. 2019). This lifestyle, therefore, has a large impact on their habitat selection. Since badgers are ecosystem engineers, Andersen et al. (2021) were interested in observing species interactions that took place in and around burrows. They placed cameras outside of burrows for observation and found that many other species rely on them and utilize their dens for foraging, bathing, shelter, etc. (Andersen et al. 2021). This makes badgers an important species to utilize conservation efforts on.

Many factors affect badger habitat selection one of which is the availability of food. Through surgically implanting radio transmitters and observing badger locations, it was found that badgers are more likely to place dens in areas with large amounts of prey species (Apps et al. 2002). This suggests that badgers are selective with the spots they choose to burrow and prefer to decrease the time spent foraging (Apps et al. 2002).

Researchers were also interested in determining the number of setts that a group of badgers has. Brøseth et al. (2021) and Symes et al. (2019) both utilized surgically implanted tracking devices to study the setts that were being used. Both studies found that badgers have multiple setts and different uses for specific burrows (Brøseth et al. 2021, Symes et al. 2019). Some proposed suggestions for this behavior include reducing ectoparasitic loads (Roper 1992 A, Brøseth et al 1997), a larger area to avoid conflict with dominant group members (Roper 1992 B) as well as whether an individual was caring for young (Brøseth et al. 1997, Symes 2019).

Another important influencing factor on badger habitat selection that researchers were interested in was the effect that environments have on badger habitat and burrow choice. By locating ingested and defecated colored pellets, Feore and Montgomery (1999) determined that habitat quality influenced group size and the number of burrows found. Utilizing radiotracking methods, Duquette and Gehrt (2014), Doyle et al. (2019), and Apps et al. (2002) found that badgers were more likely to select for open habitats. This is likely due to the increased number of prey and soils that are easier to dig in (Apps et al. 2002, Duquette and Gehrt 2014). This suggests that the environment has a great impact on the habitat selection and the choices that badgers make.

Research completed by the same authors (Duquette and Gehrt 2014, Apps 2002) also found soil composition to be a large influencing factor and it is suggested it is important as badgers require soils that are easy to dig in while still being structurally stable.

Symes (2019) and Symes (2020) were interested in the effect that season had on badger activity and collected data utilizing surgically implanted trackers. Symes (2020) determined that season likely affects badger's habitat selection as individuals decreased the number of setts they were utilizing in the winter to decrease their activity and movement (Symes et al. 2020). Badgers were also found to choose burrows that have more canopy cover suggesting that it provides insulation during the cold seasons (Symes et al. 2019).

Although lots of research has been completed many badgers' behavior and the reasons for these behaviors are still relatively unknown. More research needs to be conducted on the evolution of habitat selection in badgers and how their choices have developed. Further research also needs to be completed to determine why badgers utilize multiple setts and switch burrows so frequently (Broseth et al. 1997, Symes et al. 2019). It would also be beneficial to look more into the internal environment of burrows because this could potentially tell us more about why badgers are selected for certain areas or soil types.

References

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