Badger Survey

Salhouse, Norfolk

On Behalf of:

Lanpro Ltd.

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1.0 Introduction and Aims

1.1 Southern Ecological Solutions (SES) were commissioned to undertake a badger *Meles meles* survey at Salhouse, Norfolk (the site). The badger survey study area covered the site as well as readily accessible adjacent habitats (Appendix 1).

1.2 The aims of this badger survey were to:

- Establish the location of any badger setts within the study area;
- Classify any setts identified (if possible) and make an assessment of activity at the setts;
- Establish the number of main setts and social groups within the study area;
- Establish the importance of different habitat types and habitat networks; and
- Ensure legal and policy compliance.

1.3 The site survey was undertaken by suitably qualified ecologist Michelle Tyrrell BSc 9Hons) Grad CIEEM on 15th December 2016. All areas of the site were readily accessible.

2.0 Badger Ecology

2.1 The ecology of badgers has been studied at length and it is discussed in detail in numerous publications, several publications are referenced (Kruuk, 1978; 1989; Neal and Cheeseman, 1996) and a brief summary of this work is provided in the paragraphs below.

2.2 Adult badgers can grow up to a metre long and males can weigh up to 14kg. They have strong claws and legs which they dig and move earth. During late summer and autumn they accumulate fat reserves for the winter months, however, they do not hibernate but are much less active and spend most of their time below ground.

2.3 Badgers can be found throughout the UK and have an estimated population of 300,000 animals living in around 50,000 clans or social groups. Badger clans/social groups consist of related mature and young adults and cubs. A social group’s territory consists of feeding grounds and one or more setts. Badger territories in England generally range from 15-90ha in size with the average being 60ha, although in lower quality habitat (such as in East Anglia) this can increase to around 180ha and above. Although there maybe some slight overlap in territories, badgers nearly always defend their territory vigorously and mark the boundaries with latrines (pits filled with dung). These latrines are normally located along important features such as hedgerows, paths or woodland edges.

2.4 Badgers are mainly nocturnal mammals, with clans of badgers using a network of setts for day time cover and breeding purposes. A variety of sett types exist (these are described in more detail within the methods section); although badger social groups only have one main sett, thus by counting the number of main setts it is possible to establish the number of social groups. Opening up new setts and maintaining old setts is a constant occupation with badger clans preferring to excavate setts in woodland and hedgerows although badgers can be found in a variety of habitats if the soil is easy to dig. Main setts are usually found on the boarders of woodland and grassland habitat as both cover and foraging habitat are nearby.
2.5 Badgers mate throughout the year but pregnancy starts around the end of November due to the process of ‘delayed implantation’. Cubs are born between January and March with females looking after the cubs up until spring when they emerge from the sett. Consequently Natural England have identified the period between 30 November and 1 July as the badger’s ‘breeding season’ during which there is a general presumption against licensing operations that involve occupied setts.

2.6 Badgers are members of the carnivore order, but are actually omnivorous meaning they eat a wide variety of plants and animals, depending on availability on the seasons. Badgers are immensely adaptable but they do thrive best in an environment that contains a mosaic of different habitats and associated food types, which provide food throughout the year. In less varied habitat there is generally a reduction in population density and an increase in territory size. In England, earthworms Lumbricus terrestris are an extremely important food item; these are collected from short grassland habitat, especially just after periods of rain. Their diet is supplemented by other food items, such as insects, birds, small mammals, berries and cereals. These food items become very important during the summer months when earth worms are not so readily available. It should be noted that hedgerow bases (when managed appropriately) often offer a moist microclimate that facilitates the collection of earth worms even during the summer months.

3.0 Legislation

3.1 This document has not been prepared by a legal or planning professional and should be read as an interpretation of relevant statutes and planning policy guidance only. The information presented within this document has been reported in good faith and are the genuine opinion of SES on such matters. SES do not accept any liability resulting from outcomes relating to the use of this information or its interpretation within this document.

3.2 Badgers have historically been given legal protection since 1973 however the Protection of Badgers Act (1992) consolidated and strengthened previous legislation. It is a criminal offence to:

- Wilfully kill, injure, or take any badger;
- Possess or cruelly ill-treat a badger;
- Possess any dead badger or part of one;
- Possess or control a living, healthy badger; and
- Intentionally or recklessly damage, destroy or obstruct access to a sett, or disturb a badger whilst it is occupying a sett.

3.3 The maximum fine per offence is £5000; the Countryside and Rights of Way Act (CRoW) (2000) amendment contains a provision for a custodial sentence of up to 6 months instead of, or in addition to, a fine. Along with a lengthy development delay until an appropriate mitigation programme has been agreed and completed.

3.4 Local authority planning departments should also meet the requirements of the National Planning Policy Framework (NPPF) (2012); which requires planners not only to protect biodiversity, but where possible to enhance it. Planning authorities are required to take into account of protected species so an ecological survey is normally required.
4.0 **Methods**

4.1 Badger surveys can be undertaken anytime, but ideally outside of the summer months when vegetation is dense. However, they are best undertaken when vegetation is low in February and April; which also coincides with a peak in territorial activity. A second peak in activity occurs in October but vegetation can potentially hinder the location of setts in dense vegetation.

4.2 The survey consisted of a review of aerial photographs and a detailed systematic walkover survey, with particular attention being paid to areas where vegetation and/or topography offered suitable sett sites. The badger signs looked for were:

- Setts;
- Prints;
- Badger runs;
- Hairs;
- Latrines;
- Scratching posts and
- Snuffle marks.

4.3 All accessible holes were examined to determine if they were or ever had been badger setts. The number of entrances and levels of use were recorded and the sett was classified according to the criteria used in the National Badger surveys (Harris et al. 1989). The classification criteria are given below:

- **Main setts** – a large well established, often extensive and in continuous use. There is only one main sett per social group of badgers. This is where the cubs are most likely to be born;
- **Annexe setts** – occur in close association with the main sett and are linked to the main sett by clear well-used paths. If a second litter of cubs are born, they will be reared here;
- **Subsidiary setts** – these often have 3-5 holes and are normally over 50m from a main sett and are not linked by clear paths. These setts are not continually active; and
- **Outlying setts** – these usually have 1-3 holes, have small spoil heaps and are sporadically used. Foxes and rabbits may move in.

4.4 An assessment of the activity of each sett was undertaken; the following categories were assigned to the entrance holes to make this assessment:

- **Well-used:** Entrances clear of debris and vegetation and are obviously well used;
- **Partially-used:** Entrances are not in regular use and have debris such as leaves or twigs across the entrances. These holes could come into regular use with minimal clearance; and
- **Disused:** Entrances have not been used for some time, are partially or completely blocked. There maybe a depression in the ground where the hole used to be.

4.5 Natural England define a badger sett as the system of tunnels and chambers, in which badgers live, and their entrances and immediate surrounds or to other structures used by badgers for shelter and refuge. More specifically the Badger Protection Act (1992) says that these structures and places must show signs indicating current use by a badger. "Signs indicating current use" are those such as fresh spoil heaps and clear entrances.
Badger territories are likely shaped by the dispersion of food resources (Kruuk & Parish, 1982) as it is known that badgers often feed in patches, where food resources are more easily obtained. We know that badgers may live within a territory that contains a significant earthworm biomass, but there is no correlation between earthworm biomass (most important badger food resource in England) and badger group size as the earthworms may not be accessible. For instance they may be present in high numbers within arable fields, where it is difficult to extract them. Certain habitats constitute high-quality foraging habitat, especially deciduous woodland, the base of hedgerows and close grazed pasture as earthworm biomass is high and extracting them is relatively easy (Hoffer, 1988). Thus if a small proportion of earthworm rich habitat is present in a territory, large quantities of other habitat types are also included.

A single badger sett was identified onsite during the survey (T1) close to an active dog kennels. See Appendix 1 for the location of the sett and Appendix 2 for Plates. The potential sett included two entrance holes which appeared to have been closed using wire mesh in the past but have now been reopened. Both entrances had a small spoil heap with no obvious pathways. A red rope had been pulled partially into the southern entrance hole since the Phase 1 survey (18th November 2016) and the rabbit-proof fencing has been pushed down to allow access into the arable field. The potential badger sett is surrounded by an active rabbit Oryctolagus cuniculus warren, obvious by a large number of droppings found in the area. No other field signs of badger were found in the area.

Other than the potential sett described above no other badger field signs were found throughout the remainder of the site.

The survey results suggest that the site is used by one local badger social group utilising a potential outlier sett with two entrance holes on the northern tip of the site adjacent to the railway. This sett is categorised as partially used with only sporadic usage. The local badger population most likely utilise the railway line for a commuting route and sett building habitat. No field signs of badger were found throughout the remainder of the site. Rabbit-proof fencing along the north-western boundary neighbouring the railway line limits badger movement on to the site, plus there is minimal suitable habitat within the remaining habitats on the site that could be utilised by badgers.

It is illegal to disturb, damage or destroy a badger that is occupying a sett under the Protection of Badgers Act (1992). To define what will disturb a badger within a sett is difficult; Natural England do not consider that removing vegetation over or adjacent to setts (using hand tools and/or machinery) or development close to setts as likely to cause disturbance to badgers, however, this depends on what the badgers are used to and the type of works proposed.

Presently the site is managed in intensive arable use with a well-used railway line neighbouring the site. The masterplan (Appendix 3) for the site provides extensive open space in the locations
where the potential badger sett is currently located. This will ensure the retention of the sett in-situ with sensitive landscaping being employed to mitigate against the risk of excessive disturbance from the proposed development. It is recommended that a 20m exclusion zone is established with fencing between the sett and major development works to avoid interference and/or disturbance offences. If works are required to be undertaken within the 20m exclusion zone a suitably qualified ecologist should be consulted.

6.4 To comply with legislation it is recommended that the following badger-sensitive construction methods are used during the development of site to reduce the risk of injuring or causing distress to badgers which utilise the site. These methods include:

- The covering of trenches at night, with scaffold planks left as a means of escape if trenches can’t be covered.
- The storing of chemicals in sealed compounds.

6.5 Soft landscaping should include fruiting trees such as apple *Mallus sp.* In combination with provision of significant grassland and wooded areas as per the current layout, this will result in an increase in foraging resources for the local badger population.

6.6 It should be noted that badgers are prolific sett builders and the site offers some sett building habitat. As such it is recommended that this survey be updated prior to construction commencing.
**Conclusion**

7.1 A single badger sett was identified onsite during the survey (T1) close to an active dog kennels. The sett included two entrance holes which appeared to have been closed using wire mesh in the past. Both entrances had a small spoil heap with no obvious pathways. A red rope had been pulled partially into the southern entrance hole since the Phase 1 survey (18th November 2016) and the rabbit-proof fencing has been pushed down to allow access into the arable field. The potential badger sett is surrounded by an active rabbit warren, obvious by a large number of droppings found in the area. No other field signs of badger were found in the area.

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7.4 It should be noted that badgers are prolific sett builders and the site offers some sett building habitat. As such it is recommended that this survey be updated prior to construction commencing. It is also recommended that a 20m exclusion zone is established with fencing between the sett and major development works to avoid interference and/or disturbance offences. If works are required to be undertaken within the 20m exclusion zone a suitably qualified ecologist should be consulted.

7.5 The development of the site and habitat creation will have a positive effect on the local badger population through the provision of enhanced habitats for foraging badgers. This is in accordance with planning policy and best practice guidance.
8.0 References


Appendix 1: Phase 1 habitat map
Appendix 2: Plates

Plate 1. Southern entrance hole

Plate 2. Northern entrance hole