

Visual Impact Provision (VIP)

Peak District (East) Project

Appendix 7D Badger Survey Report

August 2018 Rev03

Quality information

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The conclusions and recommendations contained in this Report take into account information provided by the Client about the Proposed Project and upon the assumption that all relevant information has been provided by those parties from whom it has been requested and that such information is accurate. Information obtained by AECOM has not been independently verified by AECOM, unless otherwise stated in the Report.

The methods adopted and the sources of information used by AECOM in providing its services are outlined in this Report. The work described in this Report was undertaken between 2016 and July 2018, and is based on the conditions encountered and the information available during those periods. The scope of this Report and the services are accordingly factual and therefore be subject to minor limitations as stated in Section 3.4.

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Where field investigations are carried out, these have been restricted to a level of detail required to meet the stated objectives of the services. The results of any measurements taken may vary spatially or with time and further confirmatory measurements should be made after any significant delay in issuing this Report.

Table of Contents

1. Introduction 1
1.1 The Proposed Project 1
1.2 Defining the Study and Survey Areas 1
1.3 Survey Aims and Objectives 1
2. Legislation and Planning Policy 2
2.1 Relevant Legislation 2
2.2 Planning Policy 2
3. Methodology 3
3.1 Desk Study 3
3.2 Field Survey 3
3.3 Evaluation Methodology 4
3.4 Survey Limitations 4
4. Results 6
4.1 Desk Study 6
4.2 Field Survey 6
5. Evaluation 7
6. References 8

Appendix A Background to Badger Ecology 10
Appendix B Photographs 12

Figures

Figure 7D.1 – Badger Survey 9

Tables

Table 3.1: Sett Classifications 4
Table 4.1: Badger Records within the Ecological Study Area 6

1. Introduction

1.1 The Proposed Project

AECOM was instructed by National Grid to conduct a badger (*Meles meles*) survey at Dunford Bridge, South Yorkshire (centred approximately on Ordnance Survey grid reference 416540 402440). The badger survey was undertaken as part of the Phase 2 protected species surveys to inform the Visual Impact Provision (VIP), Peak District (East) Project (hereafter referred to as the 'Proposed Project'). The Proposed Project is described in detail in Chapter 2 of the Environmental Assessment Report (EAR).

Habitat suitable to support badger was identified during an initial Preliminary Ecological Appraisal (PEA) undertaken by AECOM in late 2015 and subsequent ecology surveys in 2017 updated in 2018.

1.2 Defining the Study and Survey Areas

Within this report the following terminology is used:

- Ecological Study Area – the area which was subject to collection of background information e.g. desk study records to supplement the findings of the survey work; comprising of the Survey Area plus a 2km radius;
- Badger Survey Area – as shown on Figure 7D.1 (herein referred to as the 'Survey Area'). This is the extent of the badger survey which was undertaken and reflects an area within which the Proposed Project may have potential to result in direct or indirect disturbance effects on ecological features; in this case upon badgers. The Survey Area has taken into account the evolving design and layout of the Proposed Project (including elements such as construction access routes) since late 2016 and has been supplemented by additional survey effort where required. The badger survey, whilst focussed upon areas of most suitability for badger sett creation i.e. woodland or dense scrub, sought all land within the Survey Area subject to limitations described in Section 3.4.

1.3 Survey Aims and Objectives

The aim and objectives of the work and subsequent report presented here are:

Aim

- To determine the status and distribution of badger within the Survey Area in order to inform the Ecological Impact Assessment (EcIA).

Objectives

- Undertake a desk-based review to identify any records for badgers within the Ecological Study Area;
- Identify the presence or likely absence of badger within the Survey Area using recognised survey methodologies;
- Identify any incidental reports of badger evidence obtained during ecology surveys undertaken within the Survey Area;
- Where setts are identified, determine the type of sett e.g. main, annex, outlier, and the level of activity at each sett i.e. active, partially disused or disused; and
- Evaluate the survey results to determine the nature conservation value of the Survey Area for badger and inform the Ecological Impact Assessment for the Proposed Project.

2. Legislation and Planning Policy

2.1 Relevant Legislation

2.1.1 Protection of Badgers Act 1992

Badgers are protected under the Protection of Badgers Act 1992 which, although primarily introduced to prevent animal cruelty, includes a number of offences potentially applicable to development activities. In particular the Act makes it an offence to intentionally or recklessly interfere with a badger sett by:

- Damaging a badger sett or any part of it.
- Destroying a badger sett.
- Obstructing access to, or any entrance of, a badger sett.
- Causing a dog to enter a badger sett.
- Disturbing a badger when it is occupying a badger sett.

The Act also makes wilfully killing, injuring or taking, or attempts to kill, injure or take, a badger an offence.

Construction or preparation work that may cause disturbance to badgers should not be undertaken near an active sett without a licence. Distances from sett entrance/s have previously been produced which used to be applied to determine whether disturbance would arise, depending on the nature of the activity. Since that time, Natural England have moved away from rigid distance criteria and have recommended instead that the focus should be on whether any disturbance is likely to arise taking account of background activities to which the badgers will be habituated (e.g. farming operations). However, the distances are still useful as broad guidelines to trigger when consideration should be given to the potential for disturbance: earthworks with heavy plant within 30m of a sett, earthworks involving wheeled plant within approximately 20m of a sett and earthworks with hand tools within approximately 10m of a sett.

2.2 Planning Policy

The National Planning Policy Framework (NPPF) was published in 2012 and details the Government's planning policies for England and how these are expected to be applied.

The NPPF states the commitment of the UK Government to minimising impacts on biodiversity and providing net gains for biodiversity where possible, contributing to the Government's commitment to halt the overall decline in biodiversity. It specifies the obligations that the Local Authorities and the UK Government have regarding statutory designated sites and protected species under UK and international legislation and how this it to be delivered in the planning system. Protected or notable habitats and species can be a material consideration in planning decisions and may therefore make some sites unsuitable for particular types of development, or if development is permitted, mitigation measures may be required to avoid or minimise impacts on certain habitats and species, or where impact is unavoidable, compensation may be required.

Biodiversity 2020: A strategy for England's wildlife and ecosystems services (DEFRA, 2011) set out the strategic direction for biodiversity policy for the next decade on land (including rivers and lakes) and at sea.

In July 2012 the UK Post -2010 Biodiversity Framework was published. This covers the period 2011 - 2020 and forms the UK Government's response to the UN convention on Biological Diversity held in Nagoya in 2010. This contained 5 strategic goals ("Aichi" Goals). The Framework recognised that the Biodiversity Action Plan should now be delivered through strategies for each of the four countries comprising United Kingdom and Northern Ireland. In England this is embodied in Biodiversity 2020: A strategy for England's wildlife and ecosystems services (DEFRA, 2011) set out the strategic direction for biodiversity policy for the next decade on land (including rivers and lakes) and at sea. These country strategies replace the UK Biodiversity Action Plan (BAP).

3. Methodology

3.1 Desk Study

A data search was conducted in November 2015 as part of initial ecological survey work conducted within the Ecological Study Area. Numerous ecological consultees were contacted to request ecological data for the Ecological Study Area. With respect to badger, the following consultees were contacted:

- Barnsley Biological Records Centre, Barnsley Council; and
- Peak District National Park Authority.

The desk study was restricted to post 2005 records, so that the data collated would be more likely to reflect the current (rather than historic) baseline conditions associated with the site. Further species records for 2016-2018 were obtained from Barnsley Biological records Centre in August 2018 to supplement existing data, however no records for this species were returned for this time period.

3.2 Field Survey

The habitat considered suitable for badger which was subject to the detailed badger survey comprises coniferous plantation, broadleaved woodland and scrub which provides suitable sett building, foraging and commuting habitat. A specific badger survey of the Trans Pennine Trial corridor, Wodgen Foot and land located on the northern side of the River Don was initially undertaken in March 2016 to survey the optimal habitat identified during the PEA for evidence of badger. Subsequent surveys have been conducted within these areas during 2017 and 2018.

Additional areas within the Survey Area were subject to badger survey on subsequent occasions in 2017 and 2018. The eastern part of the survey area was surveyed for the presence of badger in combination with supplementary Extended Phase 1 habitat surveys conducted in March 2017. The land surrounding Brookside Farm to the north of the Survey Area was subject to a detailed walkover survey which included a search for evidence of badger sett/badger activity in January 2018.

The survey methodology involved recording all evidence of badger activity, which is detailed below.

- **Setts** – Comprising of a number of excavated tunnels and chambers. Outside each hole there can often be large quantities of excavated material (spoil heaps), which may also contain old bedding and fur. If the sett is in use, fresh bedding may often be found at the entrances to the setts, where it has been left to air.
- **Paths** – Badger frequently use the same routes within their territory, so their paths can become well worn and obvious, being at least 20 cm in width.
- **Excavations** – Badgers will often excavate shallow depressions under fencing and often push the fencing up to enable them to slide underneath.
- **Hair** – Badger hair is often left behind when the badger slides underneath fencing. The hair is long and coarse and distinctively black and white.
- **Footprints** – These are usually distinctive and easily recognisable, being broader than they are long. Badgers have five toes and long claws on each foot, the footprints left behind have a distinctive kidney shaped heel and five toes, although many tracks are left with only four toe impressions.
- **Dung pits** – Found along territory boundaries and near to inhabited setts. The pits are on average 150 mm across and 150 mm deep (Woods, 1995). Where dung pits are grouped together they are termed latrines.
- **Scratching posts** – These are trees situated near to the entrance of a sett, usually elder (*Sambucus nigra*). The bark on these trees is scored, shredded or completely removed up to a height of 2 to 3 feet.
- **Feeding evidence** – These include snuffle holes, where the badger is chasing retreating worms, excavated depressions where the badger has been searching for insects, and remains of arable crops.
- **Bedding trails** – Often left when badgers are dragging bedding from the gathering area to the sett.

If setts were recorded, an attempt would be made to classify them according to the sett categories derived from Natural England's Badgers and Development Guidance (2009). The classifications are given in Table 3.1.

Table 3.1: Sett Classifications

Sett classification	Definition
Main sett	• Multiple entrances (used and disused) • Large spoil heaps • Continually active • Well used paths between entrances and leading away from the sett
Annex sett	• Multiple entrances • Well worn paths to main sett (50 - 150 m away) • Not always in use
Subsidiary sett	• Variable number of entrances • No paths to other setts • Not always in use
Outlier sett	• 1- 2 entrances • No defined paths to other setts • Only sporadically used.

3.3 Evaluation Methodology

The method of evaluation that has been utilised has been developed with reference to the Chartered Institute of Ecology and Environmental Management (CIEEM) 'Guidelines for Ecological Impact Assessment in the UK and Ireland – Terrestrial, Freshwater and Coastal – Second Edition (CIEEM, 2016). These give advice on scoping and carrying out environmental assessments and place appraisal in the context of relevant policies. Data received through consultation, desk-based studies and field-based surveys are used to allow relevant ecological features (i.e. designated sites, ecosystems, habitat and species) of value (or potential value) to be identified, and the main factors contributing to their value described and related to available guidance.

Ecological features may be important for multiple different reasons (e.g. rarity in a particular geographic context; role in habitat connectivity; or a species on the edge of their range). Relevant reasons for which an ecological feature is important are described and considered in order to assign each relevant ecological feature an overall value in accordance with the following geographical frames of reference:

- international (European);
- national (England);
- regional (Yorkshire and Humber);
- county (South Yorkshire/Derbyshire);
- district (Barnsley Metropolitan Borough/Dark Peak)
- local (i.e. Survey Area and up to 2km radius); and
- negligible (used where the value is lower than the Local level).

3.4 Survey Limitations

Ecological surveys are limited by factors which affect the presence of animals such as the time of year, migration patterns and behaviour. Therefore, absence of evidence is not always conclusive proof that the species is not present or that it will not be present in the future. Nevertheless, the results of this survey have allowed an evaluation of the potential for badger to be present and whether there will be an impact in relation to the Proposed Project.

Land that is within the Survey Area but located over 100m south of the Trans Pennine Trail (see Figure 7D.1) has not been subject to extensive walkover surveys, however as the habitat present in that area is heathland/wet grassland it is considered sub-optimal for supporting badger and no evidence of mammal tracks or paths leading into this area has been recorded from within the remainder of the Survey Area. Residential gardens within properties located at Dunford Bridge, Townhead and Carlecotes were not subject to detailed badger survey due

to access restrictions. It is not considered likely given the absence of any badger activity within accessible land surrounding the properties that badger setts would be present in these locations and would not have been detected.

4. Results

4.1 Desk Study

Barnsley Biological Records Centre provided two badger records from within the Ecological Study Area. Table 4.1 provides a summary of the results obtained.

Table 4.1: Badger Records within the Ecological Study Area

Consultees	Date of record	Details	Location
Barnsley Biological Records Centre	21/01/2014	Fresh tracks in wet peat	Record provided for SE10 (10 km square) indicating badger is present in the wider area.
	06/02/2013	Sett	Record provided for SE10 (10 km square) location specified as Little Don Valley near Langsett. The edge of the SE10 kilometre square is located within the Ecological Study Area, however Little Don Valley is located approximately 2.5km from the Survey Area.

Peak District National Park Authority provided no records of badger from within the Ecological Study Area.

The early stakeholder engagement (Peak District National Park Eastern Section Options Appraisal Study, August 2015) highlighted the potential presence of badger setts within the eastern extents of Wogden Foot Local Wildlife Site (LWS). However no formal desk study records of these setts were provided by either the Barnsley Biological Records Centre or Peak District National Park Authority by the desk study request either in 2015 or 2018.

4.2 Field Survey

No badger field signs (setts of other signs) were identified within the Survey Area during the survey. Furthermore no incidental badger activity has been recorded within the Survey Area during the completion of other ecological surveys conducted in 2017 and 2018.

These surveys included repeated survey visits throughout this period to the Survey Area and included those conducted during hours of dusk, night and dawn. No evidence of the presence of badger (badger sighting, road traffic casualties or other evidence) has been recorded during these subsequent surveys. Photographs of typical habitats subject to badger survey are provided in Appendix B.

Extensive rabbit activity was recorded within the Survey Area with numerous burrows and field signs present. The highest concentration was found to occur within Wogden Foot LWS. Widespread activity was present across the woodland and grassland within the LWS including burrows within spoil mounds (Photograph 3, Appendix B).

Due to the presence of suitable habitats it is possible that badger may use the Survey Area in low numbers on a transient basis for foraging as they have been recorded in the surrounding area as detailed by the desk study.

5. Evaluation

Habitat suitable for supporting badger was recorded during the PEA survey and the data search revealed the presence of badger within the Ecological Study Area. However no setts or other signs were found within the Survey Area during surveys conducted between October 2015 and July 2018 so it is very unlikely that the area is regularly used by badgers. Badger is therefore not considered a constraint to the Proposed Project and will be scoped out from further assessment in the EAR.

As badger has been recorded in the surrounding areas (closest sett record is 2.5km from the Survey Area), it is considered possible that they could utilise suitable habitat within the Survey Area on a transient basis.

Overall therefore, with reference to the evaluation criteria in Section 3.3, the Survey Area is considered to be of no more than Negligible value for badgers, given its potential to provide a foraging resource for badger which may occupy setts located outside the Survey Area.

6. References

AECOM (2016) Peak District Visual Impact Provision Preliminary Ecological Appraisal. AECOM, Leeds.

CIEEM (2016) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal, 2nd Edition. Charted Institute of Ecology and Environmental Management, Winchester

Harris, S., Morris, P., Wray, S & Yalden, D (1995) *A Review of British Mammals: Population Estimates and Conservation Status of British Mammals Other than Cetaceans*, JNCC, Peterborough.

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Natural England (2009) *Badgers and Development – A Guide to Best practice and Licensing (Interim Guidance Document)*

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Woods, M. (1995) *The Badger*. The Mammal Society, London

Figure 7D.1 – Badger Survey

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KEY

Badger Survey Area

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Trans-PennineTrail route is indicative based upon information on 1:10K mapping

Purpose of Issue
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Client
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PEAK DISTRICT (EAST) PROJECT

Drawing Title
BADGER SURVEY

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Appendix A Background to Badger Ecology

Badgers are social animals living in family groups of on average six individuals, although groups ranging between two and 23 individuals have been recorded (Woods, 1995). Groups occupy a territory which can be between 14 to 300ha, depending on the quality of the habitat; however, the average size is around 50ha. Territories are well defended and boundaries are marked by urine and more obviously dung pits, accompanied by scratch marks.

The territory of badgers in the countryside usually encompasses a number of different habitats to ensure that there is a regular food supply throughout the year. Habitats utilised include pasture, arable land and deciduous woodland, although it should be noted that arable land is not considered to be primary foraging habitat. The main diet of the badger is earthworms, forming on average 50% of the diet (Woods, 1995). However, throughout the year other foods are taken, such as berries, cereal crops, fruit, insects, amphibians, birds and small mammals such as rabbits and hedgehogs.

Within a badger territory the social group lives within setts. These comprise a number of excavated tunnels and chambers, which are shared for communal warmth. There may be a number of setts within a territory, classified depending on their size and frequency of use into main, annex, subsidiary or outlying. Although a main sett is always present within a badger territory, it may not necessarily contain the other sett types. This depends on the size of the social group and suitability of habitat.

The majority of setts are located within woodlands and hedgerows, however setts have been found at a number of different sites, including caves, quarries, railway embankments, moorland and open fields.

Badgers are active throughout the year, although the level of activity varies at certain times of the year, as detailed in the calendar below:

- **January** – Activity limited and there may be no emergence from the sett for several days.
- **February** – Most cubs are born, with litters usually containing between 2-3 cubs. It is a peak time for long-duration mating and territorial marking. Only long-duration mating appears to lead to conception. However, usually only one female in a social group produces viable cubs (the dominant sow).
- **March** – Bedding collection reaches a peak, signs of territorial marking (dung pits and scratching) are obvious.
- **April** – Emergence before full darkness. Cubs come above ground for the first time, as the amount of food available increases.
- **May** – The second peak for long-duration mating. Cubs begin to explore with more confidence.
- **June** – Most cubs weaned and foraging with the sow. Emergence can be very early especially for more independent cubs.
- **July** – Cubs play less often and adult badgers will go off to feed soon after emergence if the weather is dry.
- **August** – Drought can affect badgers at this time, particularly cubs. Cereals and wasps nests are often taken.
- **September** – Sows come into oestrus a second time and further mating occur. A peak time for digging with frequent bedding collection.
- **October** – Fruit and nuts included in the diet and weight is put on rapidly. Dung pits become obvious again.
- **November** – Emergence is later and food is scarcer. Badgers begin to rely on their fat reserves.
- **December** – Badgers sleep longer and more deeply, emerging less frequently. Blastocysts are implanted in mated females' uterine wall after having floated free in the uterus in a state of suspended animation for a period of up to 9 months (Woods, 1995).

Badgers are most territorial between February and May, when mating activity is greatest. Signs of presence such as dung pits are therefore more commonly encountered during this period. The time of year also influences location of dung pits. Middleton and Paget (1974) found that during the winter and spring only the area in the immediate vicinity of the sett was used, whereas in the summer and autumn only the pits further away were used.

One of the main known causes of badger deaths in England is fatalities on the road, with approximately 50,000 thought to be killed every year. An estimated 10,000 are thought to be killed annually by illegal diggers (Harris et al, 1995). However, the loss of a sett rather than mortality of individual badgers could pose the most significant population threat; destruction of a main sett could lead to the loss of an entire social group.

Appendix B Photographs



Photograph 1 - Woodland adjacent to Wogden Foot LWS



Photograph 2 - Coniferous plantation at the western end of the Survey Area.



Photograph 3 - An example of the rabbit activity within Wogden Foot LWS

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