

WOLD ECOLOGY LTD



www.woldecology.co.uk

Crayke Village

NATURAL HERITAGE ASSESSMENT

01/10/2019

	Staff Member	Position
Habitat Survey:	Richard Baines MCIEEM	Ecologist
Report prepared by :	Richard Baines PGDip, MCIEEM	Ecologist
Signed off by :	Chris Toohie MSc MCIEEM	
Notes.	This report contains sensitive information concerning protected species and caution should be exercised when copying and distributing to third parties.	

TABLE OF CONTENTS

1.0	EXECUTIVE SUMMARY	3
2.0	INTRODUCTION	4
3.0	COMPANY PROFILE	4
4.0	SITE DESCRIPTION	5
5.0	FIELD SURVEY METHODOLOGY	8
6.0	LIMITATION OF FIELD SURVEY	9
7.0	SURVEY RESULTS	9
8.0	EVALUATION OF SURVEY RESULTS; BIODIVERSITY	22
9.0	EVALUATION OF SURVEY RESULTS; WELLBEING	26
10.0	RECOMMENDATIONS – FUTURE HABITAT PROJECTS	26
11.0	RECOMMENDATIONS – FUTURE SPECIES PROJECTS	29
12.0	BIBLIOGRAPHY	30
13.0	APPNEDCIES	32

1.0 EXECUTIVE SUMMARY.

- 1.1 In March 2019, Wold Ecology was commissioned by Crayke Parish Council to undertake an ecological walkover assessment to include selected habitats and species on land within and immediately surrounding Crayke Village in North Yorkshire.
- 1.2 The brief included both the identification of important features currently surviving in the area i.e. habitats and species, and recommendations for the enhancement of key features. The title of this report as a 'Natural Heritage Assessment' reflects the strong connection between the biodiversity of a given area and the cultural heritage of a community of people.
- 1.3 In order to accomplish the brief, a desk top study, consultation with the local parish and an abridged Phase 1 habitat field survey was undertaken by Wold Ecology staff.
- 1.4 The study concluded the landscape within and immediately surrounding Crayke Village is important for the following habitat and species features:
- Rivers
 - Ponds
 - Mesotrophic Lakes (linked with pond features)
 - Arable Field Margins
 - Hedgerows
 - Lowland Mixed Deciduous Woodland
 - Lowland Meadows
 - Lowland Fens
 - Nesting birds of conservation concern
 - Protected mammals
 - Amphibians of conservation concern
- 1.5 The report also identifies key benefits to wellbeing by ensuring community links are included wherever possible in the report findings and recommendations.
- 1.6 Species list within this report may be forwarded to the local biodiversity records centre to be included on their national database. No personal information will be sent. Please contact Wold Ecology if you do not wish any species accounts and six figure grid references to be shared.

2.0 INTRODUCTION

- 2.1 In March 2019, Wold Ecology was commissioned by Crayke Parish Council to undertake an ecological walkover assessment to include selected habitats and species on land within and immediately surrounding Crayke Village in North Yorkshire.
- 2.2 The brief included both the identification of important features currently surviving in the area i.e. habitats and species, and recommendations for the enhancement of key features.

3.0 COMPANY PROFILE

- 3.1 Wold Ecology Ltd is a well-established, professional company. Our staff have over 30 years' experience in providing a bespoke service for environmental management. Wold Ecology employs a number of experienced and qualified associates to undertake specialist survey work. Professional service is of primary importance and Wold Ecology only employs staff who can demonstrate knowledge and expertise to an exceptional standard.
- 3.2 Wold Ecology provides a wide range of specialised advice aimed at integrating business with nature. We specialise in ecological surveys, land management planning and site assessments, these include:

- **European Protected Species Surveys**
Bats, Birds, Great Crested Newts, Water Vole, Badger, Crayfish and Fungi surveys. Phase 1 and Phase 2 NVC Habitat Surveys, Landscape Character Assessment and Environmental Impact Assessments.
- **Environmental Grant Applications**
Natural England Higher Level Scheme, Farm Environmental Plans, English Woodland Grant Scheme and Heritage Lottery Funding, Breathing Places.
- **Land Management**
Management Plans, Landscape Designs, Monitoring and Site Evaluation.
- **Practical Conservation.**
Habitat Creation, Tree Planting, Maintenance Programmes and Access Management.

3.3 Ethical Policy.

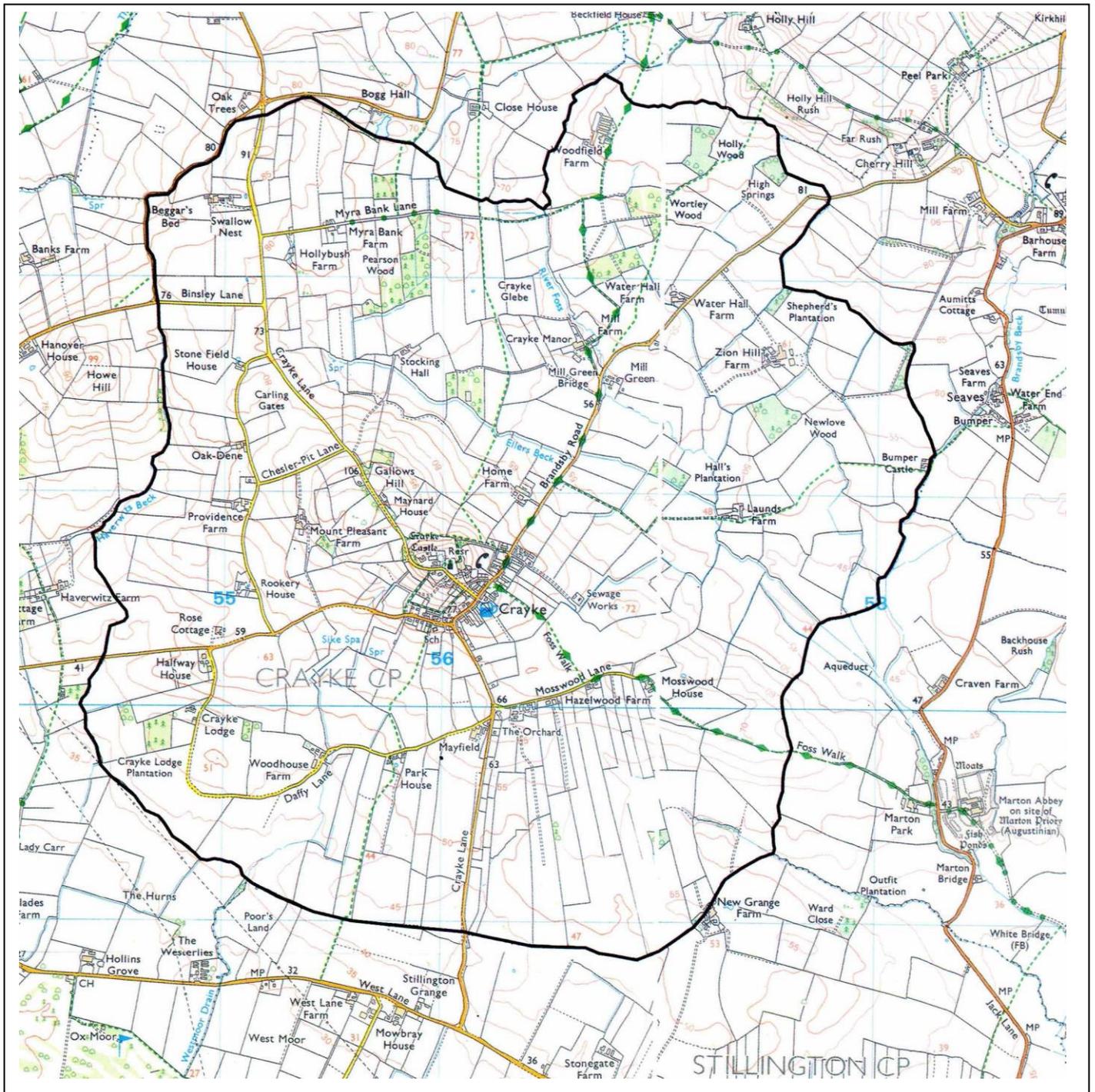
- 3.3.1 Wold Ecology provides a dedicated countryside management service in compliance with all relevant Local Agenda 21 directives and Biodiversity Action Plans.
- 3.3.2 We aim to raise awareness of current environmental issues amongst our clients, including UK and European legislation, industry guidelines such as BREEAM/CODE and case studies.
- 3.3.3 We strive to deliver the highest standards of ecological assessment and management.
- 3.3.4 We aim to purchase, wherever possible, environmentally friendly products and services, in order to limit negative effects on the environment.

- 3.3.5 Wold Ecology is committed to working towards the conservation of our natural heritage. Wold Ecology support The Wolds Barn Owl Study Group, Driffield Millennium Green and RSPB projects with volunteer staff time and financial resources. Wold Ecology has adopted an important site for nature conservation on Flamborough Head. North Marsh is owned by a local farmer and is an integral part of an exciting Higher-Level Stewardship Scheme, supported by Natural England and RSPB. Richard Baines and Chris Toohie have provided free advice and practical conservation work for nearly 10 years on this site. The recent work on the marsh and the return of scarce breeding birds, such as Corn Bunting, has given a huge sense of achievement for all concerned.

4.0 SITE DESCRIPTION.

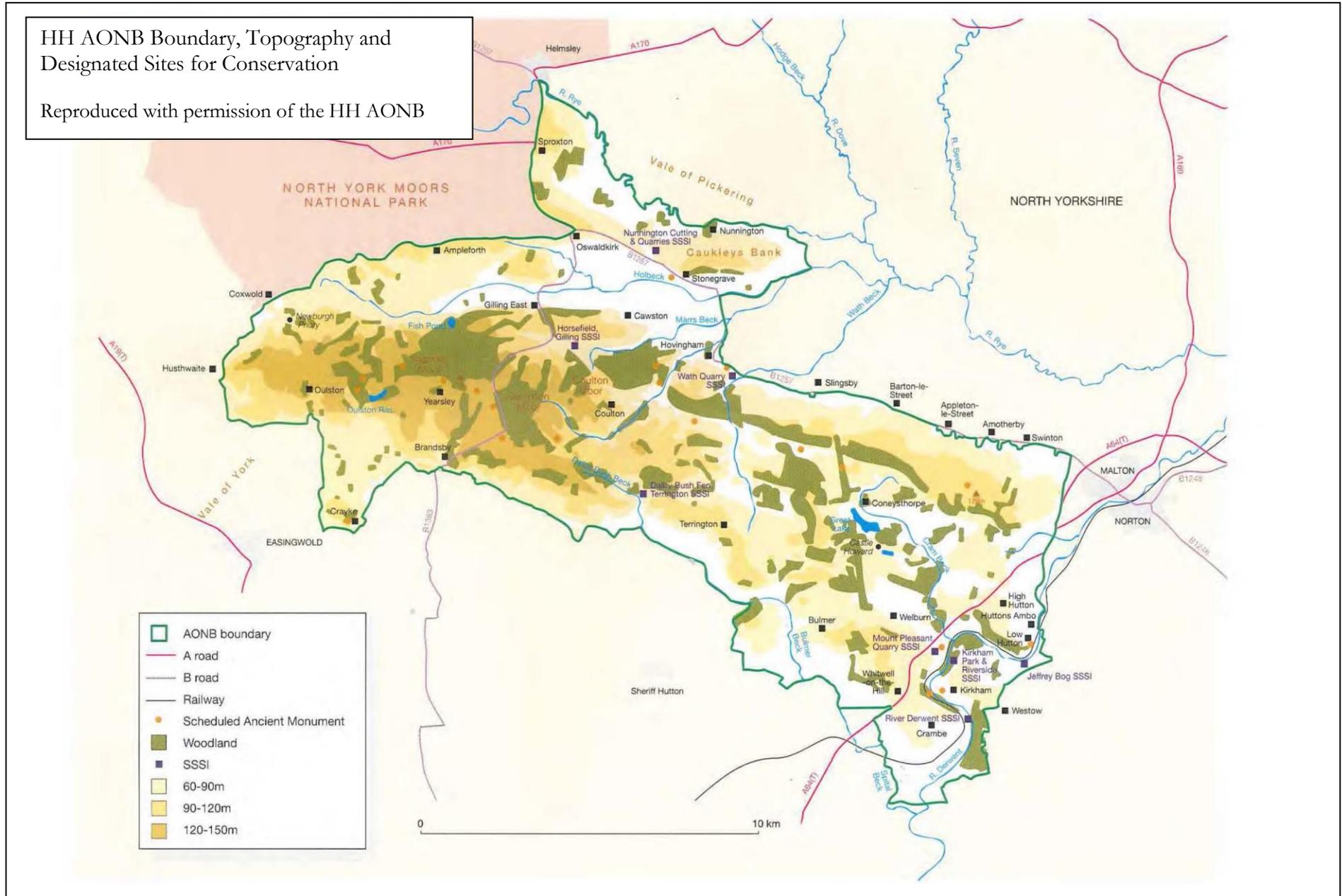
- 4.1 This section is aimed at providing a general overview of the study area in relation to the following attributes:
- Geography
 - Geology
 - Landscape
 - Habitats
 - Nature Conservation Designations
- 4.2 Crayke village is located approximately 13 miles due north of York. The village lies almost central to the parish which encompasses a total area of approximately 11 km² (see parish boundary figure 1 page 6). The parish occupies an area of transitional landscape between the Vale of York to the south and the Howardian Hills to the north. The village is dominated in its traditional centre by the ancient remains of Crayke Castle built upon one of the few hills in the area.
- 4.3 Standing close to the castle with extensive views across the landscape one can appreciate the historic importance of the location. To the south the relatively flat lands and flood plains extending towards York and to the north, the rising hills, extensive woodlands leading to the moors and forests of the North York Moors beyond. A very impressive view and powerful hill-top vantage point. The geology of the area is dominated by boulder clay deposits to the north and river terrace deposits to the south as the geology and soils are progressively influenced by historic floodplain deposits.
- 4.4 The Howardian Hills Area of Outstanding Natural Beauty (HH AONB) covers approximately one-third of the parish area. The boundary of the AONB is Mill Lane which runs east of Easingwold into Crayke village then north-east towards Brandsby (see AONB boundary figure 2 page 7).

Figure 1 – Crayke Parish Boundary



Reproduced with permission of Crayke Parish Council 2019

Figure 2 – Howardian Hills AONB



- 4.5 The habitats within and surrounding Crayke parish are typical of a relatively low-lying landscape within the north of England which is dominated by agriculture. There are however distinct differences between the area to the south and south-east of the village and to the north and north-west. Historic strip field systems to the south and close to the village transition to larger arable fields, the majority of which are bounded by hedges many of which are managed intensively to <2m height and <1m wide. The historic drainage of the lower lying land in this area can also be seen with the presence of narrow and steep ditches alongside hedges and/or without hedgerows. In these lower lying areas woodlands become less frequent than to the north of the village. However historic road side trees are still evident. This intensively managed landscape is diversified in places by the presence of agri-environment schemes where some pond creation has taken place.
- 4.6 To the north and north-west of the village the gently rolling landscape is characterised by more frequent woodland areas than to the south of the village and larger hedges many of which are managed to a height >3m and >2m wide. Within these boundaries' hedgerow trees are more frequent and the more enclosed landscapes hide a wide diversity of habitats such as fen, watercourses and semi-improved grassland.
- 4.7 There are no statutory or non-statutory nature conservation designations within the parish boundary.

5.0 FIELD SURVEY METHODOLOGY.

- 5.1 An abridged Phase 1 Habitat field survey was undertaken in the form of an ecological walkover survey on three dates in Table – 1 below.

Table – 1 Survey Visits and Weather Conditions

Date	Time		Wind Speed	Wind Direction	Temperature		Rainfall	Cloud Cover
	Start	Finish			Start	Finish		
16-04-19	0830	1400	4	SW	8	12	0	2
03-06-19	0530	1300	1	SE	11	18	0	6
01-07-19	0800	1500	3	W	14	20	0	4

- 5.2 The habitats within the study area have been categorised according to the techniques described in the publication *Handbook for Phase 1 Habitat Survey* (JNCC 2010). This standard method was followed as a guide during the field surveys and in the results section. However, the be-spoke nature of this contract did not require precise mapping over such a large area.
- 5.3 Target notes were used on the field surveys to provide descriptions of the most valuable habitats to wildlife found within the area, including information about species composition, habitat structure, evidence of management, and transitional or mosaic habitats. Target notes were also noted for species; birds, mammals, amphibians, reptiles and/or invertebrates, paying particular attention to species of conservation concern, protected by law
- 5.4 Significant hedgerows within the area were highlighted as target notes and characterised using the Hedgerow Evaluation and Grading (HEGS) (Clements

and Toft, 1993) method. The aim of the assessment is to allow the rapid recording and ecological appraisal of any given site in the UK and allow the grading of individual hedgerows present, in order to identify those which are likely to be of greatest significance for wildlife.

6.0 LIMITATION OF FIELD SURVEY.

- 6.1 Whilst the majority of the area was examined at the macro scale, many species will have been overlooked at the micro level because it is not the purpose of a walkover survey to classify all taxa occurring in a given area.
- 6.2 This report will serve to indicate the value of the area in nature conservation terms based upon the survey and desk top data gathered. As with any survey of this kind, it cannot be seen as a definitive description of the site and its associated habitats and species.
- 6.3 Access was granted within the area available to the client; neighbouring land was studied from nearby vantage points, maps and aerial photography and it is possible that habitats important to the ecology of the area may not have been recorded fully.
- 6.4 However, a walkover survey of this nature, supported by a thorough desk top survey, is sufficient to make a number of general assumptions about the ecology of the study area.

7.0 SURVEY RESULTS.

- 7.1 Habitats and associated species: This section deals with the results of the field surveys. Each section highlights the most important features from the following broad habitat categories:
 - Buildings – farm buildings and residential properties
 - Hedgerows
 - Woodlands
 - Mature trees in hedges and/or roadside
 - Arable crops
 - Residential gardens
 - Ponds and watercourses
 - Grassland
 - Wetland and Fen
- 7.2 Each habitat category also deals with species results from the field surveys and desk stop study. In this particular case the desk top study analysed historical data provided by the client and local landowners. Each section highlights the most important features from the following species categories recorded on the survey:
 - Birds
 - Insects focusing on Lepidoptera (butterflies and moths)
 - Amphibians
 - Reptiles
 - Mammals

7.3 Habitats and Associated Species

7.3.1 Buildings

7.3.1.1 The most significant building within Crayke is undoubtedly the castle. Whilst buildings are not in themselves categorised as of high value for nature conservation. They do provide many opportunities for wildlife to thrive. Within the fabric of the castle structure, many gaps could be seen on the field surveys which have the potential to provide opportunities for roosting and/or breeding bats. Gaps between bricks, soffits, chimney stacks etc. In many cases gaps do not need to be deep or large to provide good habitat a tiny pipistrelle bat can fit into a gap of 10mm. Many other buildings within Crayke provide similar opportunities.

7.3.1.2 On the evening survey 1st July 2019 several pipistrelle sp. of bats were observed in the area close to the castle.



Photo 1 – Crayke Castle 16-04-19

7.3.1.3 A wide range of traditional farm buildings can be excellent habitat for wildlife.



Photo 2 – Traditional Farm Building Crayke Parish 16-04-19

- 7.3.1.4 Traditional pan-tile roof structures can be excellent habitat for a range of species. The combination of clay tiles and wooden roof structures create suitable semi-natural materials which can support a wide range of wildlife.
- 7.3.1.5 On the field surveys 16th April and 3rd June 2019 several small groups of 'hirundines' (collective term for house martins and barn swallow) were observed within the centre of the village. These species habitually nest either within buildings; swallows or in relation to house martins under the eaves or overhang on the outside structure of a building. In addition to these hirundines, 21 common swifts were recorded in the centre of the village on the 3rd June 2019. Swifts nest within the fabric of a building where they seek out gaps within the connection between the wall and roof structure or similar location. In an area of traditional farm buildings to the south of the village (see photo 2 page 11) both house sparrows and tree sparrows were found in small numbers. Both species build their nests under roof tiles and/or within gaps between timber beams and brick work.
- 7.3.1.6 It is highly likely these species were nesting in or close to the village, within buildings either traditional farm buildings or residential properties at the time of the survey.
- 7.3.1.7 **Buildings either traditional or more recent have therefore been identified on the survey as providing important habitat for a wide range of wildlife from bats to nesting birds.**

7.3.2 Hedgerows

- 7.3.2.1 Crayke Parish has a diverse range of hedges. Many of the hedges especially on the north side of the village were species rich. A species rich hedge is defined as any hedge which has 5 or more woody plant species in a 30m stretch. In the north of England this is reduced to four species. On the survey care was also taken to note the richness of flowering plants beneath the hedge and the width of the protective grass margin adjacent to the hedge.
- 7.3.2.2 The following woody plants were recorded in the hedgerows surveyed on the three field visits:
- Hawthorn
 - Blackthorn
 - Crab Apple
 - Field Maple
 - Dog Rose
 - Guelder Rose
 - Elder
 - Ash
 - Oak
 - Elm



Photo 3 – Hedgerows to the south of the village adjacent to arable crops. Relict ancient woodland flora in the form of English bluebells can be seen beneath the hedge. Photo taken 16-04-19



Photo 4 – Species rich hedgerow to the north of the village adjacent to a wide grass margin buffering the feature from chemical and machinery damage. This hedge provides high value to wildlife offering a large resource of nectar for pollinators and a diverse structure offering many opportunities for nesting and shelter for birds and mammals. Photo taken 03-06-19

- 7.3.2.3 The majority of hedges within the areas surveyed were managed to provide a 2m height and at least 1.5m width. To the south of the village many hedges were managed more intensively than in the north. To the north of the village in the Stocking Hall and Crayke Manor area virtually all of the hedgerows were (in part or the whole length) species rich (>4 woody species in a 30m stretch) and managed to provide maximum height and width with many above 3m and 2m width.
- 7.3.2.4 A limited number of flowering ancient woodland plants in the form of English bluebells, ramsons, primrose and dog's mercury were recorded under a small number of hedges. The majority of these were connected to the village. Examination of first edition maps revealed many of these village connected hedges were present on the 1856 map. These hedges are therefore classed as ancient boundary hedgerows of high historical and wildlife value.
- 7.3.2.5 On the field surveys the following nesting birds of conservation concern, treated here as 'key species' were recorded in the hedgerows
- Dunnock *Prunella modularis*
 - Song thrush *Turdus philomelos*
 - House sparrow *Passer domesticus*
 - Tree Sparrow *Passer montanus*
 - Linnet *Carduelis cannabina*
 - Bullfinch *Pyrrhula pyrrhula*
 - Yellowhammer *Emberiza citrinella*
- 7.3.2.6 Key species are defined as: species breeding and/or feeding birds, using the habitat which are either notified Schedule 1 species, Wildlife and Countryside Act 1981 (as amended), breeding Red-listed species (high conservation concern), Amber-listed species (medium conservation concern) as described in The Population Status of Birds in the UK (Birds of Conservation Concern 4: updated 2015), or UK Bio-diversity Action Plan priority species (BAP species).
- 7.3.3 Woodlands
- 7.3.3.1 Three habitat categories of woodland were recorded on the field surveys, listed below. Some woodlands exhibit clear characteristics of one category whereas other woodlands show several characteristics within one area.
- Mixed Plantation
 - Ancient Woodland
 - Semi-natural Woodland
- 7.3.4 Mixed Plantation
- 7.3.4.1 This category includes any woodland which has been planted with either native trees and/or non-natives. Typical species recorded on the surveys included sycamore, sitka spruce, Norway spruce, Scots pine, Italian alder, oak, ash. It is important to note that plantation woodland can be planted on land formerly ancient woodland. Good examples of areas with ancient woodland flora within plantation woodland are the woodland blocks east of Stocking Hall. Crayke Whin

is marked as a bog or rough grassland on the 1891 map of the area. This site is now woodland but does harbour some ancient woodland flora indicative of land which has been under woodland or not farmed for a very long time.

7.3.5 Ancient Woodland

7.3.5.1 This woodland type was the rarest woodland habitat within the survey area. However, several small areas were uncovered especially on the borders of the village; St Cuthberts Church woodland and woodland strips adjacent to Crayke Lane running north-west from the village and church area. These woodlands exhibit both a natural structure and are dominated by native tree species; oak, ash, hazel, elm. The ground flora included typical species associated with ancient woodlands; English bluebell, dogs' mercury, primrose. These woodland areas are also marked as woodland on the 1856 maps of the area.

7.3.6 Semi-natural Woodland

7.3.6.1 Semi-natural woodlands are very common in our countryside. They include woodlands which have developed 'naturally' over time on pieces of land which may not have been woodland for very long. Some areas of regenerating woodland exhibit typical semi-natural woodland characteristics whereas other woodlands found on the survey included areas within a plantation which have developed 'naturally'. Typical tree species associated with this type of woodland include sycamore and ash. These fast-growing species often out compete other species such as oak on new land under woodland.



Photo 5 – Ancient woodland adjacent to Saint Cuthbert's Church. This woodland area is marked on the first edition map 1856, therefore is highly likely to be classed as ancient woodland may be Photo taken 03-06-19



Photo 6 – Mixed non-native plantation woodland adjacent to a pond and fen habitat within ‘The bogs’ area. Whilst non-native species can make a contribution to wildlife value, the tree species shown here have a detrimental affect on the adjacent habitats of high value. Photo taken 01-07-19

7.3.7 Mature trees in hedges and/or roadside

7.3.7.1 Mature and semi-mature trees are relatively numerous within the Crayke parish area. The area to the north-west of the village around Gallows Hill and Stocking Hall has many trees within the hedgerows. Some of these trees are mature and/or over mature exhibiting a good range of standing dead wood within the canopy. Trees on roadsides and in hedges are dominated by ash and oak within the area with a smaller number of sycamore and occasional crab apple and field maple.

7.3.7.2 On the survey many ash trees were found to have ash die back, a disease caused by the fungus *Hymenoscyphus fraxineus*.

7.3.7.3 The grass and arable fields south-east of the school on the border of Daffy Lane have a good range of mature sycamore trees and ash within their boundary hedges and occasional in-field trees. In-field trees are rare in the Crayke area however a small number do still exist (see photo 8 page 16). These trees benefit from a large area of space from which to grow so consequently often exhibit a more natural structure than trees within hedgerows which may have been trimmed as part of hedgerow management in the past.



Photo 7 – Semi-mature and mature trees with hedges. The majority of ash trees within the parish area show extensive signs of ash die back. Grassland strips and fields such as the field shown in this photo offer important protection for mature trees. Photo taken 03-06-19



Photo 8 – Infield oak north of Mill Lane. This important tree may be a relic of a previous field boundary or wood pasture habitat. It exhibits a classic oak structural shape being given the benefit of space and a grassland are surrounding the tree. Photo taken 01-07-19

7.3.8 Arable Crops

- 7.3.8.1 The Crayke area has a wide range of agricultural habitats for wildlife. The commonest land use encountered on the surveys was arable crops dominated by a rotation of winter wheat, oil seed rape and some spring barley. Wide margins of grassland i.e. buffer strips were found on land currently within an agri-environment scheme.



Photo 9 – Arable winter sown cereal crops. The larger areas south of Crayke village hold small numbers of endangered native bird species such as grey partridge and yellow wagtail. The open habitats are important for these species but they need grassland and/or wild flower habitats to improve their survival. Photo taken 16-04-19

7.3.9 Residential Gardens

- 7.3.9.1 Gardens in Crayke are typically diverse in scale ranging from small back yards with little vegetation through to large extensive gardens. The older central area of the village, gardens running along and connected to Crayke Lane benefit from lying adjacent to ancient and semi-natural woodland strips and small field habitats. These linear wildlife corridors allow wildlife to move, feed, nest and shelter in these valuable habitats. On the field survey in June 2019 a range of post breeding birds were encountered in this area. Small flocks of songbirds were found feeding in the roadside hedges and gardens these flocks were relatively species rich and contained bullfinch, greenfinch, chaffinch, blackcap, house sparrow, song thrush, blackbird, robin, wren dunnock, long-tailed tit, blue tit, great tit and coal tit on the 3rd June 2019.

7.3.10 Ponds and Watercourses

7.3.10.1 On the surveys two ponds were recorded (see photos 10 and 11 below). Both had been created mechanically within areas of flooding/wet hollows suitable for pond creation. The pond south of Mosswood Lane had been created with advice from the Farm and Wildlife Advisory Group (FWAG) in 2009. The land manager should be complemented on the resulting design and value for landscape and wildlife. The structure at the time of survey in April 2019 showed many benefits for wildlife; natural shape, gently sloping edges with shallow draw down margins, limited but diverse low scrub on the eastern margin providing habitat for hibernating amphibians and small mammals and set within a grassland area protecting the feature from arable operations.

7.3.10.2 A contrasting pond within the area locally known as 'The Bogs', was heavily shaded by non-native trees at the time of survey, encroaching onto the water area. This pond may have been created for the purpose of private fishing but access at the time of survey was difficult with no signs of recent management or use by visitors.



Photo 10 and 11. Two contrasting images. The first a new pond created with a diverse structure providing many opportunities for wildlife with an open aspect protected on all sides by grassland. Photo 11 shows the pond adjacent to The Bogs fen habitat. This pond is suffering from adverse shade and associated algal blooms shaded on three sides by tall non-native trees





Photo 12. The River Foss south-east of Mill Green Farm. At the time of survey, the pro-active management of this stretch of the river has created a watercourse with clear water, open banks protected from poaching by grazing animals and adjacent semi-natural habitats good for wildlife cover

7.3.10.3 One of the most important watercourses in the Crayke area is the River Foss. The stretch of the river running through the eastern part of the parish is at the upper limits of the catchment which then flows south into the Vale of York widening on its route south. Throughout recent history of agricultural improvement and drainage adjacent floodplains have been mechanically altered to reduce flooding. Adjacent fields to the Foss in the Crayke area are now mostly dry and under agricultural management or mixed and semi-natural woodland. At the time of survey, the only species noted was grey wagtail which may breed along the Foss within the parish boundary.

7.3.11 Grassland

7.3.11.1 The surveys identified three types of grassland important to wildlife;

- Semi-improved species poor
- Species rich grassland
- Tall 'tussocky' grassland

7.3.11.2 Semi-improved Species Poor

7.3.11.2.1 Several grassland areas were surveyed in the area west and south of Stocking Hall which exhibited characteristics typical of both sown meadows and naturally regenerating meadow habitat. These grasslands were at the time of survey relatively rich in fine grasses such as crested dogtail and sweet vernal with a varied herb layer; birds-foot trefoil, sorrel and betony. Within these meadows

good numbers of common butterflies were found on the June survey; meadow brown, ringlet and common blue alongside typical day flying moths such as chimney sweeper.

7.3.11.3 Species Rich Grassland

- 7.3.11.3.1 Within the meadow grasslands close to Stocking Hall which were dominated by species poor semi-improved grassland several smaller areas of species rich grassland were found. These areas contained a greater variety of species with common knapweed, birds-foot trefoil, betony, chickweed, yarrow, yellow rattle, common spotted orchid and meadow vetchling recorded on the June survey. These areas were undoubtedly benefiting from their proximity to semi-natural hedge and woodland strips which had been managed to conserve their natural heritage and wildlife value for many years.



Photo 14. Species rich grassland with birds-foot trefoil and betony. A fantastic splash of wild flower colour and great habitat for pollinators; butterflies, moths and bees etc. Photo taken 01-07-19

7.3.11.4 Tall 'tussocky' Grassland

- 7.3.11.4.1 This grassland habitat is potentially the commonest semi-natural grassland habitat within the parish. Areas of this habitat vary from large field corners which have been left unmanaged to strips of field margins both narrow and wide which have been left uncut. Dominant species within this grassland include cocksfoot, false oat grass and tall ruderal plants such as hogweed. On the margins of these areas' bramble can often be found regenerating alongside larger hedges and/or woodland margins. A small mammal nest was found within one of these grasslands on the June survey illustrating the high value for rodents within this type of habitat. This habitat is also one of the most important habitats for foraging barn owls. Whilst barn owls were not recorded on the surveys Crayke parish and local villagers have reported many sightings in the area.



Photo 13. Rough tall tussocky grassland is a great habitat for small mammals and barn owls. This type of habitat supports many species of wildlife. Its rough/wild nature is often under appreciated. The complex structure offers many opportunities to wildlife and is just as attractive as a colourful wild flowers! Photo taken 01-07-19



Photo 14. Small mammal nest discovered in the tall grassland on the field survey. Photo taken 01-07-19

7.3.12 Fen

- 7.3.12.1 Within the area known as 'The Bogs' a field area composed of tall herbage which exhibited several features consistent with a classification of fen and/or relict fen at the time of survey. The area is very low lying, wet underfoot at the time of survey, crossed by shallow blocked drains and has several plants associated with fen habitats; meadowsweet, juncus species, water figwort and bog stitchwort.

However, at the time of survey in July 2019 the majority of the area had been colonised by tall ruderal plants such as hogweed and willowherb species. The lack of open water and/or vegetation height and age diversity was indicative of an area without management. Willow regeneration was evident in several areas and the margins of the site were being colonised by the large hedgerows and bramble.

- 7.3.12.2 This area has been surveyed by a local naturalist Bill Thompson in 2000 and 2014. An indicative list of 93 species were recorded. Bill noted species rare in the Howardian Hills AONB and species present in 2014 but not recorded in 2000. Amongst these species were many woody plants such as ash and blackthorn which illustrate how the site may be changing over time.



Photo 16. The Fen area known as ‘The Bogs’. At the time of survey this area showed signs of drying with tall ruderal plants such as meadowsweet and willowherb and willow scrub regenerating within the drier substrate. Photo taken 01-07-19

8.0 EVALUATION OF SURVEY RESULTS; BIODIVERSITY

8.1 Overall Approach to Technical Assessment.

- 8.1.1 The overall approach to assessment followed in this report can be summarised as: A baseline identification of the nature conservation value within the area surveyed by establishing levels of interest for ecological features measured against definable criteria. The term Valued Ecological Receptor (VER) is often used to describe the species, communities, habitats or sites.

8.2 Evaluation Criteria.

- 8.2.1 The thorough evaluation of the ecological importance of a site is essential in order to assess the significance of the ecological assessment
- 8.2.2 The evaluation criteria are given in detail in Appendix 6. Their aim is to consider the habitats, communities and species present on site in relation to the following:
- The legislative framework (e.g. the Wildlife and Countryside Act 1981, Habitats and Species Regulations 2010 and the EC Directive on the Conservation of Habitats and Wild Fauna and Flora (92/43/EEC) for the presence of protected species and habitats).
 - Nature conservation designations, including national site designations (Sites of Special Scientific Interest, National Nature Reserves etc), local designations (Sites of Importance for Nature Conservation, Local Nature Reserves, County Wildlife Sites etc).
 - Accepted criteria for species rarity and declining populations, and rarity of habitat types or communities, including species and habitats identified in the British Red Data Books, national biodiversity action plan, and species and habitats identified in regional or local biodiversity action plans where available.
 - Accepted criteria for overall site evaluation (including rarity, diversity, naturalness, historical factors and issues relating to landscape ecology).

8.3 Evaluation of Survey Results.

- 8.3.1 The field survey work did not identify the presence of any habitats or plant species considered rare in the United Kingdom.

Rarity is defined in this report as:

Rare—species not recorded in more than 100, 10 x 10 km grid-squares in the British Isles.

Very Rare—species not found in more than 15 different 10 x 10 km grid-squares in the British Isles.

8.4 Habitats

8.4.1 Biodiversity Action Plans (BAP) and Species and Habitats of Principal Importance for the Conservation of Biological Diversity

- 8.4.1.1 In 1995, 'Biodiversity: The UK Steering Group Report' was published, which aimed to conserve and enhance biological diversity within the UK, including action plans for 38 key habitats and for 402 of our most threatened species. These plans describe the status of each habitat and species, outline the threats they face, set targets and objectives for their management, and propose actions necessary to achieve recovery. The Biodiversity Action Plans (BAP) have recently been updated, new ones added and others removed, so there are now 1,149 species and 65 habitats that have been listed as priorities for conservation action. A list of these UK BAP species and habitats can be found at <http://www.ukbap.org.uk/NewPriorityList.aspx>.

- 8.4.1.2 In addition there are approximately 150 Local Biodiversity Action Plans (LBAP), normally at county level. These plans usually include actions to address the needs of the UK priority habitats and species in the local area, together with a range of other plans for habitats and species that are of local importance or interest.

Table – 2 BAP Habitats recorded within the survey area in 2019.

UK BAP broad habitat.	UK BAP priority habitat.	Habitat present within the survey
Rivers and Streams	Rivers	Y
Standing Open Waters and Canals	Oligotrophic and Dystrophic Lakes	N
	Ponds	Y
	Mesotrophic Lakes	N
	Eutrophic Standing Waters	Y
	Aquifer Fed Naturally Fluctuating Water Bodies	N
Arable and Horticultural Boundary and Linear	Arable Field Margins	Y
	Hedgerows	Y
Broadleaved, Mixed and Yew Woodland	Traditional Orchards	N
	Wood-Pasture and Parkland	N
	Upland Oakwood	N
	Lowland Beech and Yew Woodland	N
	Upland Mixed Ashwoods	N
	Wet Woodland	N
	Lowland Mixed Deciduous Woodland	Y
	Upland Birchwoods	N
Coniferous Woodland	Native Pine Woodlands	N
Acid Grassland	Lowland Dry Acid Grassland	N
Calcareous Grassland	Lowland Calcareous Grassland	N
	Upland Calcareous Grassland	N
Neutral Grassland	Lowland Meadows	Y
	Upland Hay Meadows	N
Improved Grassland	Coastal and Floodplain Grazing Marsh	N
Dwarf Shrub Heath	Lowland Heathland	N
	Upland Heathland	N
Fen, Marsh and Swamp	Upland Flushes, Fens and Swamps	N
	Purple Moor Grass and Rush Pastures	N
	Lowland Fens	Y
	Reedbeds	N
Bogs	Lowland Raised Bog	N
	Blanket Bog	N
Montane Habitats	Mountain Heaths and Willow Scrub	N
Inland Rock	Inland Rock Outcrop and Scree Habitats	N
	Calaminarian Grasslands	N
	Open Mosaic Habitats on Previously Developed	N
	Limestone Pavements	N
Supralittoral Rock	Maritime Cliff and Slopes	N
Supralittoral Sediment	Coastal Vegetated Shingle	N
	Machair	N
	Coastal Sand Dunes	N
Marine Habitats		N

8.4.1.3 In summary eight BAP habitats were found within the survey area. These habitats should be considered as the most important habitats for future conservation projects. In addition to these eight habitats this report has established the importance of residential gardens which provide important wildlife corridors and contribute greatly to the wellbeing of the residents of Crayke.

8.4.1.4 These habitats support a wide range of protected species, species of conservation concern, and/or BAP species; The following species have been recorded within the on the surveys in 2019 and/or by local villagers;

- Barn Owl *Tyto alba*
- Common Kingfisher *Alcedo atthis*
- Red kite *Milvus milvus*
- Northern Lapwing *Vanellus vanellus*
- Eurasian Curlew *Numenius arquata*
- Common Snipe *Gallinago gallinago*
- Eurasian Woodcock *Scolopax rusticola*
- Sky Lark *Alanda arvensis*
- Yellow Wagtail *Motacilla flava*
- Common Starling *Sturnus vulgaris*
- Mistle Thrush *Turdus viscivorus*
- Grey Wagtail *Motacilla cinerea*
- Mallard *Anas platyrhynchos*
- Spotted flycatcher *Muscicapa striata*
- Willow Warbler *Phylloscopus trochilus*
- Meadow Pipit *Anthus pratensis*
- Dunnock *Prunella modularis*
- Song thrush *Turdus philomelos*
- House sparrow *Passer domesticus*
- Tree Sparrow *Passer montanus*
- Linnet *Carduelis cannabina*
- Bullfinch *Pyrrhula pyrrhula*
- Reed bunting *Emberiza schoeniclus*
- Tree sparrow *Passer montanus*
- House sparrow *Passer domesticus*
- Yellowhammer *Emberiza citronella*
- Common Cuckoo *Cuculus canorus*
- Common frog *Rana temporaria*
- Common toad *Bufo bufo*
- European Hedgehog *Erinaceus europaeus*
- Eurasian Badger *Meles meles*
- Bat species *pippistrellus*

Note: It is likely this list will not be comprehensive. There may be species not included in this list which have been recorded in the area. Additional records of 'key species' will be helpful when planning future projects. Records should be shared with both the local parish council and the Howardian Hills AONB.

9.0 EVALUATION OF SURVEY RESULTS; WELLBEING

9.1 The benefits of a rich natural environment (our natural heritage) on people's wellbeing is now being taken seriously throughout our communities. Spending time in green space or bringing nature into your everyday life can benefit both your mental and physical wellbeing. Benefits identified by the charity Mind include:

- improve your mood
- reduce feelings of stress or anger
- help you take time out and feel more relaxed
- improve your physical health
- improve your confidence and self-esteem
- help you be more active
- help you make new connections
- provide peer support.

9.1.1 The village of Crayke is set in a rural location with good access to nature. However, bringing nature closer into the home and garden will benefit an individual and the community greatly.

9.1.2 Wold Ecology recommends ensuring the village community can access, appreciate, respect and understand the countryside areas outside of the village whilst also ensuring the farming community realise the impact their guardianship of the farmed landscape has on the community within the village.

10.0 RECOMMENDATIONS – FUTURE HABITAT PROJECTS.

10.1 The following recommendations are based on each key habitat identified as of value in this report. The aim being to conserving and/or increase the value of a key feature for both its individual integrity and the wellbeing of the residents and visitors of Crayke Parish.

10.1.1 Rivers

10.1.1.1 The River Foss is an important habitat network for many species and a feature of high wellbeing value to the parish and its residents. Recommendations:

- Liaise closely with the HH AONB and the [River Foss Society](#) to ensure the integrity of the Foss is maintained within the parish.

The River Foss Society have the following objectives:

- Opening up rights of way along the river and regularly walking them
- Ensuring that paths and stiles are maintained
- Running litter picks
- Promoting improvements in water environments
- Establishing nature reserves by the river
- Raising awareness of the Foss by talks, exhibitions and information boards
- Monitoring development and planning applications along the river

- Organising visits to many canals

10.1.2 Ponds

10.1.2.1 Ponds are a crucial habitat for many forms of wildlife and features of high wellbeing value to the parish and its residents. Ponds within this section also include the BAP category eutrophic standing waters. Recommendations for ponds and standing waters:

- Commission a parish pond audit to establish the current location and condition of all ponds within the village area and/or parish boundary.
- Use the results of the audit to identify pond restoration and creation projects
- Prioritise pond projects which serve both species and habitat integrity and community wellbeing, i.e. ponds which form part of corridor habitat which are also accessible to the local community.

10.1.3 Arable Field Margins

10.1.3.1 Field margins support a wide range of wildlife. They contribute greatly to the integrity of other habitats by providing links in semi-natural vegetation free from pesticides and herbicides. Recommendations:

- Form a farm/parish wildlife forum with a mixture of local farmers and community specialists with a view to promoting agri-environment grant opportunities and/or good wildlife provision on local farms.
- Prioritise habitat restoration and creation highlighted in this report which includes arable field margins
- Ensure current and new field margins are not managed too intensively, tussocky margins developing a good thatch of vegetation are fantastic habitats for key species such as barn owls
- Where possible ensure there are a large number of field margins which are free from public access. Whilst access on field margins is good for local wellbeing too much access drives away the wildlife we are trying to restore.

10.1.4 Hedgerows

10.1.4.1 Many hedges in Crayke Parish are diverse, ancient and highly valuable for wildlife and community wellbeing. They not only provide a wonderful network of green corridors throughout the landscape they also create a link with the past. They are features of high value to both our cultural and natural community heritage. Recommendations:

- Commission a parish hedge audit to establish the current location and condition of all historic and species rich hedges within the parish boundary.
- Use the results of the audit to identify the most important hedges in the parish.
- Prioritise hedge management and restoration projects which link restored hedges to the most valuable hedges in the parish.

- The Woodland Trust estimate ash die back will kill 95% of all ash trees in the UK. To ensure Crayke have a sustainable alternative to lost hedgerow trees the parish should consider a ‘Hedgerow Tree Campaign’ establishing alternative trees such as oak and sycamore along roadsides and hedge lines.

10.1.5 Lowland Mixed Deciduous Woodland

10.1.5.1 Woodlands serve a similar value to hedges but on a bigger scale. Crayke Parish are blessed with a diverse range of woodland habitats both ancient and semi-natural. However, their current value may not be appreciated fully. In the same way as the hedgerows they not only provide a wonderful patchwork of colour and form in the landscape they also create a link with the past. They are features of high value to both our cultural and natural community heritage. Recommendations:

- Commission a parish woodland audit to establish the current location and condition of all historic woodlands.
- Use the results of the audit to identify the most important woodlands in the parish.
- Prioritise new woodland management, restoration and creation projects which link woodlands to the most valuable historic woodlands in the parish.

10.1.6 Lowland Meadows

10.1.6.1 The current distribution of rich lowland meadows within the parish is restricted to one area of land. Lowland meadows are wonderfully colourful habitats for wildlife and enrich our wellbeing with a natural pallet of colour. Recommendations:

- Form a farm/parish wildlife forum with a mixture of local farmers and community specialists with a view to promoting agri-environment grant opportunities and/or good wildlife provision on local farms.
- Prioritise habitat restoration and creation highlighted in this report which includes lowland meadows
- Use the best practise example of the meadows near Stocking Hall to inform new meadow creation projects

10.1.7 Lowland Fen

10.1.7.1 The fen habitat near Stocking Hall is a rare habitat within the HH AONB. The area is currently undergoing a transition from wet fen to a mosaic of relict fen, scrub, tall ruderal vegetation on its way eventually to what may become wet woodland. Recommendations:

- Liaise closely with the HH AONB on the appropriateness of a restoration project.
- Commission a technical botanical survey and habitat assessment with a view to restoration
- Liaise with Bill Thomson during this work to ensure continuity of data collection and experience.

11.0 RECOMMENDATIONS – FUTURE SPECIES PROJECTS.

11.1 The following recommendations are based on one key species and a suite of species identified as of high value in this report. The aim being to conserving and/or increase the value of a key feature for its individual integrity and the wellbeing of the residents and visitors of Crayke Parish.

11.1.1 Barn Owls

11.1.1.2 The barn owl is associated with ruined farm buildings, church towers, and parks, mature trees in hedges, cliffs, and quarries. They nest in roof spaces, hollow trees (particularly elms and oaks), rock crevices, caves and buildings. Barn owls feed predominantly on small mammals especially the short-tailed field vole *Microtus agrestis* as well as insects and birds. Hunting takes place in a variety of grassland habitats such as linear verges and rough grassland where the leaf litter sward is suitable for their prey. Barn owls are largely crepuscular, hunting at dawn and dusk, as well as at night. They are protected under Schedule 1 and 9 of the Wildlife and Countryside Act 1981 as amended due to their susceptibility to disturbance causing a nest to be abandoned. Threats include;

- Climate; snow cover and low temperatures creating difficult feeding environments
- Deaths; poisoning, road deaths and destruction/disturbance of nesting sites
- Habitat Loss; Changes in land management reducing habitat for small mammals, fragmentation and direct loss of suitable grassland.
- Loss of nest sites; Loss of mature trees, changes in or loss of buildings without appropriate mitigation
- Human disturbance; nestlings taken for illegal purposes

11.1.1.3 Barn Owl Nest Box Project

- Liaise with local landowners/farmers to install a range of barn owl boxes both on mature trees and within farm buildings with a view to creating a sustainable resource of nest sites within the parish.
- Use national guidance on nest box design (see Appendix 2 page 33) and location etc. from the [Barn Owl Trust](#).

11.1.2 Pollinators

11.1.2.1 Pollinating insects have declined across the whole of Europe in the past 50 years. [Buglife](#) has a wonderful range of new projects to increase the range of pollinators in our gardens and beyond.

- A village pollinator project could be a great way of involving residents of all ages in nature friendly gardening and activities.
- [B-friendly](#) in your garden is a great resource produced by Buglife.

- Andrews, H., *et al*, (2013). *Bat Tree Habitat Key*. AEcol, Bridgewater.
- Arntzen, J.W. & Teunis, S.F.M (1993). *A six year study on the population dynamics of the crested newt (Triturus cristatus) following the colonisation of a newly created pond*. Herpetological Journal 3: 99-110.
- Baker, J., Beebee, T., Buckley, J., Gent, T. and Orchard, D. (2011). *Amphibian Habitat Management Handbook*. Amphibian and Reptile Conservation, Bournemouth.
- Beebee, T., & Griffiths, R., (2000), *Amphibians and Reptiles*, Harper Collins.
- Chinery, M., (2007), *Insects of Britain and Western Europe*, A & C Black.
- Chinery, M., (2011), *Britain's Plant Galls*, Wild Guides.
- Cramp, S. and Simmons, K.E.L., (1980), *The Handbook of the Birds of Europe the Middle East and North Africa, The Birds of the Western Palearctic*. (eds.), 1, 2, 3, 4, 5, 6, 7, 8, 9, Oxford University Press.
- Dietz, C., Helversen, O.V., & Nill, D., (2009), *Bats of Britain, Europe & Northwest Africa*. A & C Black.
- Entwhistle, A.C., Harris, S., Hutson, A.M., Racey, P.A., Walsh, A., (2001). *Habitat Management for Bats - A guide for land managers, land owners and their advisors*. JNCC.
- Ferguson-Lees, J., Castell, R., & Leech, D., (2011) *A Field Guide to Monitoring Nests*, BTO.
- Gent, T., & Gibson, S., (2003), *Herpetofauna Workers' Manual*. Pelagic publishing.
- Gilbert G., Gibbons D.W. & Evans J. (1998) *Bird Monitoring Methods: A manual of techniques for key species*, RSPB, Sandy.
- Gregory R., D., Wilkinson N.,I., Noble D.,G., Robinson J.,A., Brown A.,F., Hughes J., Procter D., A., Gibbons D., W. and Galbraith C., A., (2002), *The population status of birds in the United Kingdom, Channel Islands and Isle of Man: an analysis of conservation concern 2002–2007*. British Birds 95: 410–450.
- Greenhalgh, M., & Ovensden, D., (2007), *Freshwater Life; Britain and Northern Europe*. Harper Collins.
- Habitats Directive*. (1994) European Commission.
- Harris, S., & Yalden, D.W., (2008), *Mammals of the British Isles, Handbook, 4th Edition*. The Mammal Society.
- Jehle, R., Thiesmeier, B., & Foster, J., (2011), *The Crested Newt a dwindling pond-dweller*, Laurenti-Verlag (Germany).
- JNCC, (2010), *Handbook for Phase 1 habitat survey - a technique for environmental audit*.

- Johnson, O., & More, D., (2004), *Collins Tree Guide*, Harper Collins.
- Langton, T, Beckett, C, & Foster, J, (2001), *Great Crested Newt Conservation Handbook*. Froglife.
- Lever, C., (2009), *The Naturalized Animals of Britain and Ireland*, New Holland Publishers (UK) Ltd.
- Macdonald, D., & Barrett, P., (1993), *Mammals; Britain and Europe*, Harper Collins.
- Mitchell-Jones A.J. (2004). *Bat Mitigation Guidelines*, English Nature, Peterborough.
- Mather, J., (1986). *The Birds of Yorkshire*. Christopher Helm Publishers Ltd.
- Natural Area Profile*. English Nature, 1997.
- Protection of Badgers Act*. 1992.
- Roper, T.J., *Badger*, New Naturalist, Harper Collins.
- Streeter, D., Hart-Davies, C., Hardcastle, A., Cole, F., & Harper, L., (2009), *Collins Flower Guide*, Harper Collins.
- Svensson, L., (2009) *Collins Bird Guide: The most complete guide to the birds of Britain and Europe*, 2nd Ed., Harper Collins.
- The Wildlife and Countryside Act*, HMSO. Anon, 1981.
- Tranche 2 Action Plans: Terrestrial and Freshwater Habitats*. UK Biodiversity Group, 1998. Crown Copyright.
- Wembridge, D., (2012), *Urban Mammals a concise guide*, Whittet Books Ltd.
- Williams, J., (2010), *The Otter*, Merlin Unwin Books.
- http://www.english-nature.org.uk/citation/citation_photo/1003238.pdf. 1984
- <http://www.ukbap.org.uk/UKPlans.aspx?ID=7>
- <http://www.natureonthemap.org.uk/identify.aspx>

13.0 APPENDICES

Appendix 1 – Species List. All species recorded on the field surveys

GENUS	SPECIES	COMMON NAME
Acer	campestre	Field maple
Acer	pseudoplatanus	Sycamore
Agrostis	stolonifera	Creeping Bent
Alopecurus	pratensis	Meadow Foxtail
Anisantha	sterilis	Barren Brome
Anthoxanthum	odoratum	Sweet Vernal Grass
Anthriscus	sylvestris	Cow Parsley
Arctium	minus s.l	Lesser Burdock
Arrhenatherum	elatius	False Oat-grass
Arum	maculatum	Lords-and-Ladies
Bellis	perennis	Daisy
Bromus	hordeaceus subsp. hordeaceus	Soft-brome
Capsella	bursa-pastoris	Shepherd's-purse
Cardamine	pratensis	Cuckooflower
Cerastium	fontanum	Common Mouse-ear
Cirsium	arvense	Creeping Thistle
Cirsium	palustre	Marsh Thistle
Cirsium	vulgare	Spear Thistle
Conopodium	majus	Pignut
Crataegus	monogyna	Hawthorn
Dactylis	glomerata	Cock's-foot
Dactylorhiza	fuchsii	Common Spotted Orchid
Deschampsia	cespitosa	Tufted Hair-grass
Eleocharis	palustris	Common Spike-rush
Elytrigia	repens	Common Couch
Epilobium	hirsutum	Greater Willowherb
Equisetum	palustre	Marsh Horsetail
Festuca	rubra subsp. rubra	Red Fescue
Ficaria	verna	Lesser Celandine
Fraxinus	excelsior	Ash
Galium	aparine	Cleavers
Geranium	dissectum	Cut-leaved Crane's-bill
Geranium	robertianum	Herb-Robert
Glechoma	hederacea	Ground-ivy
Glyceria	fluitans	Floating Sweet-grass
Hedera	helix	Common Ivy
Heracleum	sphondylium	Hogweed
Holcus	lanatus	Yorkshire-fog
Juncus	effusus	Soft-rush
Juncus	inflexus	Hard Rush
Lamium	album	White Dead-nettle
Lamium	purpureum	Red Dead-nettle
Lemna	minor	Common Duckweed
Lotus	pedunculatus	Greater Bird's-foot-trefoil
Myosotis	arvensis	Field Forget-me-not
Persicaria	amphibia	Amphibious Bistort
Poa	pratensis	Smooth Meadow-grass
Poa	trivialis	Rough Meadow-grass
Prunus	spinosa	Blackthorn
Ranunculus	acris	Meadow Buttercup
Ranunculus	repens	Creeping Buttercup

Rubus	Sect Corylifolii	Bramble
Rumex	acetosa	Common Sorrel
Rumex	crispus	Curled Dock
Rumex	obtusifolius	Broad-leaved Dock
Rumex	sanguineus	Wood Dock
Salix	cinerea	Grey Willow
Sambucus	nigra	Elder
Scrophularia	auriculata	Water Figwort
Senecio	vulgaris	Groundsel
Silene	dioica	Red Campion
Sisymbrium	officinale	Hedge Mustard
Solanum	dulcamara	Bittersweet
Sonchus	oleraceus	Smooth Sow-thistle
Stachys	sylvatica	Hedge Woundwort
Stachys	officinalis	Betony
Stellaria	media	Common Chickweed
Taraxacum	officinale	Common Dandelion
Trifolium	pratense	Red Clover
Trifolium	repens	White Clover
Ulmus	procera	English Elm
Urtica	dioica	Common Nettle
Veronica	chamaedrys	Germander Speedwell
Veronica	persica	Common Field-speedwell

GENUS	SPECIES	COMMON NAME
<i>Ardea</i>	<i>cinerea</i>	Grey Heron
<i>Anas</i>	<i>platyrhynchos</i>	Mallard
<i>Milvus</i>	<i>milvus</i>	Red Kite
<i>Accipiter</i>	<i>nisus</i>	Eurasian Sparrowhawk
<i>Buteo</i>	<i>buteo</i>	Common Buzzard
<i>Falco</i>	<i>tinnunculus</i>	Common Kestrel
<i>Vanellus</i>	<i>vanellus</i>	Northern Lapwing
<i>Numenius</i>	<i>arquata</i>	Eurasian Curlew
<i>Gallinago</i>	<i>gallinago</i>	Common Snipe
<i>Scolopax</i>	<i>rusticola</i>	Eurasian Woodcock
<i>Larus</i>	<i>ridibundus</i>	Black-headed Gull
<i>Columba</i>	<i>oenas</i>	Stock Pigeon
<i>Columba</i>	<i>palumbus</i>	Common Wood Pigeon
<i>Streptopelia</i>	<i>decaocto</i>	Eurasian Collared Dove
<i>Strix</i>	<i>aluco</i>	Tawny Owl
<i>Apus</i>	<i>apus</i>	Common Swift
<i>Dendrocopos</i>	<i>major</i>	Great Spotted Woodpecker
<i>Alauda</i>	<i>arvensis</i>	Sky Lark
<i>Muscicapa</i>	<i>striata</i>	Spotted Flycatcher
<i>Cuculus</i>	<i>canorus</i>	Common Cuckoo
<i>Hirundo</i>	<i>rustica</i>	Barn Swallow
<i>Delichon</i>	<i>urbicum</i>	House Martin
<i>Anthus</i>	<i>pratensis</i>	Meadow Pipit
<i>Motacilla</i>	<i>alba</i>	Pied Wagtail
<i>Motacilla</i>	<i>flava</i>	Yellow Wagtail
<i>Motacilla</i>	<i>cinerea</i>	Grey Wagtail
<i>Troglodytes</i>	<i>troglodytes</i>	Winter Wren
<i>Prunella</i>	<i>modularis</i>	Hedge Accentor
<i>Erithacus</i>	<i>rubecula</i>	European Robin
<i>Turdus</i>	<i>merula</i>	Common Blackbird

Appendix 2 – Barn Owl Nest/roost box design



Pawl Willett
48 Farmanby Close
Thornton-Le-Dale
North Yorkshire
YO 18 7 TE
Tel.: 01751 476 871

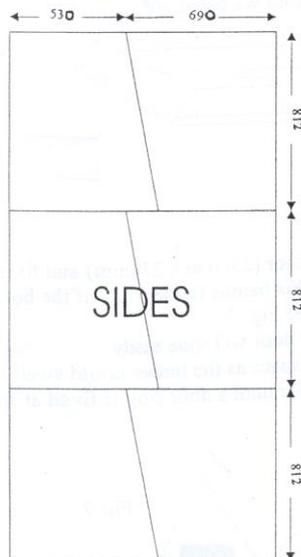
THE “PICKERING” BARN OWL NESTING BOX

Cutting plywood to make a single barn owl nesting box is extravagant. The “Pickering” Box was designed to use sheets of plywood in the most economical way.

From two sheets of 12/18 mm exterior grade plywood, the sides, fronts, backs and bases for three nesting boxes can be cut.

CUTTING DETAILS:

Fig. 1



All measurements are in millimetres.

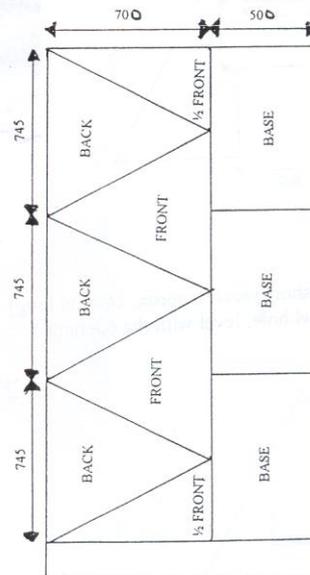
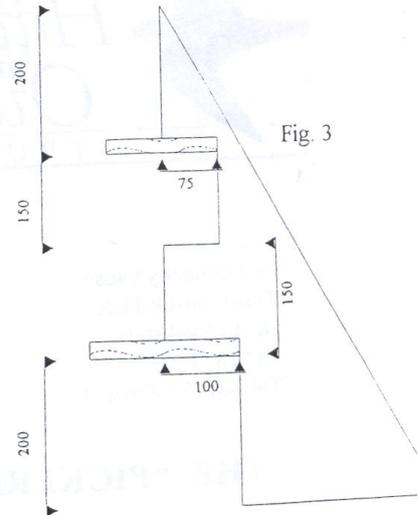


Fig. 2

INSTRUCTIONS FOR CUTTING AND ASSEMBLING BOX:

- 1 From one of the sheets cut 6 sides ... See Fig. 1
- 2 From the other sheet, cut 7 triangular pieces (i.e. 2 fronts, 2 ½ fronts and 3 backs, and 3 bases ...see Fig. 2
Cut the bases short (from 745 to 725)
- 3 See Fig. 3
Work with the two half fronts.
First cut out ½ of the owl hole and ½ of the inspection opening from each piece. Now baton the two half fronts together, above the inspection opening and above the owl hole, to make a complete front.



- 4 Cut the owl hole and the inspection hole from the other two fronts ...see Fig. 4.

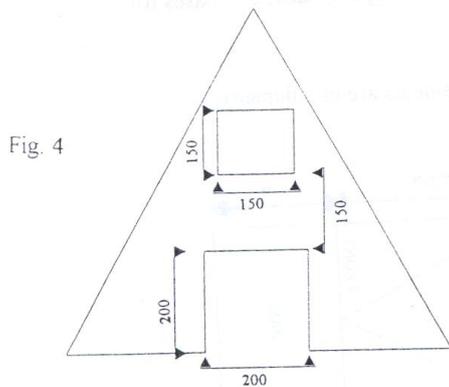


Fig. 4

To the FRONT fix a short perch (approx. 160mm long) to the inside of the owl hole, level with the opening. See Fig. 6.

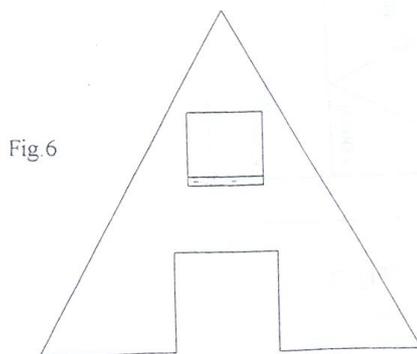


Fig. 6

NOW USE NAILS TO ASSEMBLE THE BOX

- 5 To the BASE - fix 60° angled batons to the ends. Fix baton to the back.
Fix two short batons to the front, leaving the inspection opening clear. Drill several drainage holes. See Fig. 5. The batons are approx. 30 x 50 rough timber. The angled batons we cut at 60°.

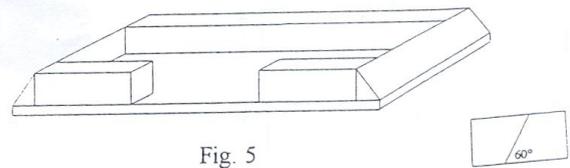


Fig. 5

- 7 Cut a sliding door (230mm x 230mm) and fix a handle to it. Fix batons to the front of the box the door. See Fig. 7.
Check that the door will slide easily. (Allow sliding space as the timber could swell.)
Remove the door until a door stop is fixed at st

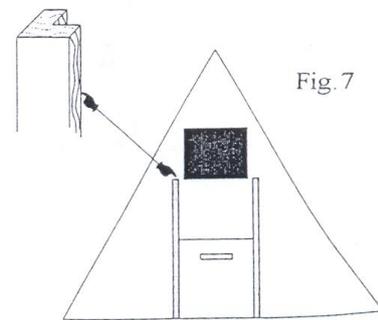


Fig. 7

8 Fit the BACK to the BASE, then turn the Back/Base assembly over and fix the front to the base. See Fig 8.

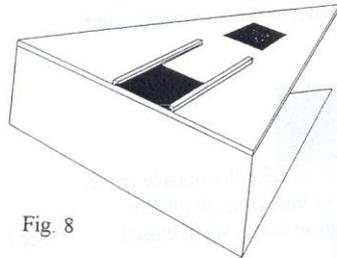


Fig. 8

9 Nail in the angled RIDGE. See Fig. 9

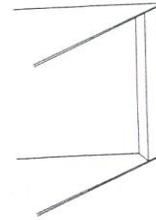


Fig. 9

10 Fix the two SIDES starting from the RIDGE as there will be a slight overlap at the base. See Fig. 10

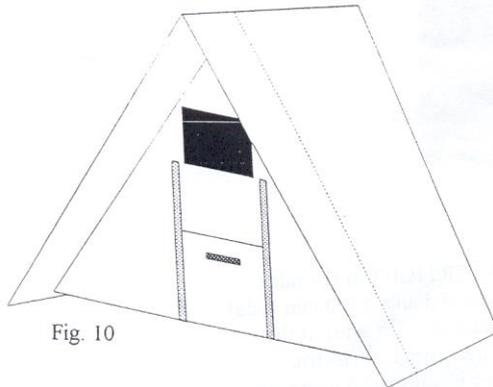


Fig. 10

11 Cut, shape and fix the EXTENSION of the RIDGE. This is approx. 210 mm long, less the thickness of the plywood so as to allow for the overhang triangle to fit within the box sides. See Fig. 11

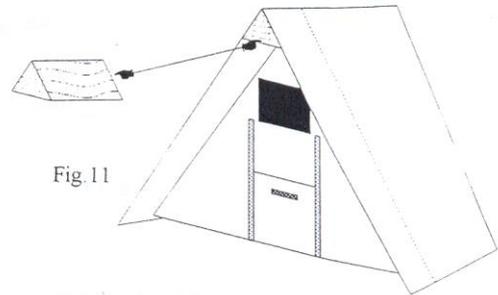


Fig. 11

12 Cut the top overhang triangle; fix to extension ridge and within the sides (You may have to trim one side to get a good fit.) See Fig. 12

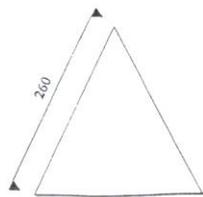


Fig. 12

13 Turn the box on its apex or side. Put in the sliding door and fix a door stop (measuring approx. 70 mm x 280 mm) to the underside of the box. See Fig. 13

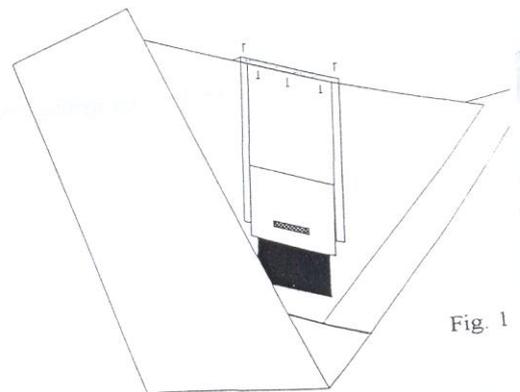


Fig. 13

14 Turn the box onto its base. When the sliding door is lifted to the fully open position, drill a hole through the door and the front of the box, to take a nail so that the door can be kept open whenever the box is inspected.

15 Cut out shapes on the two sides to take the outside perch. The perch, which is approx. 650 mm long, should be level with the top of the inspection door when closed. See Fig. 14

Make the perch from any baton approx. 30 x 30.

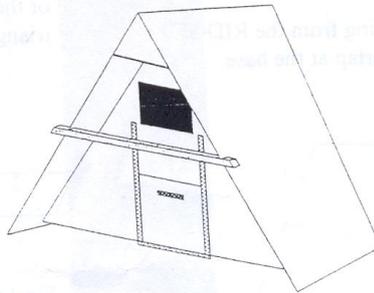


Fig. 14

16 TO MAKE THE BOX WATERTIGHT at the ridge, use a length of "Feb Aquaseal Hyband" (100 mm wide). After pressing in place by hand on both sides of the ridge, a light application of heat using an electric paint stripper or blow torch will soften and make the adhesive more effective.

17 When the nesting box is complete, reinforce with screws.

Appendix 3 – Protected Species and Planning Legislation

The following provides background to the current legislation in England - for full details reference should be made to the relevant legislation. A number of wild animals are classified as Protected Species as they are protected by various pieces of legislation. The most commonly encountered Protected Species of animal are listed in the table below. This table summarises which sections of legislation each species is protected by and the legislative text is provided on the following pages.

Legislation	Schedule 5 Wildlife and Countryside Act 1981 (As amended) Part 1							EPS	PBA
	S1 (1)	S1 (4 & 5)	S9 (1)	S9 (2)	S9 (4)(a)	S9 (4)(b)	S9 (5)		
Adder <i>Vipera berus</i>			✓*				✓		
Common lizard <i>Zootoca vivipara</i>			✓*				✓		
Grass snake <i>Natrix natrix</i>			✓*				✓		
Slow worm <i>Anguis fragilis</i>			✓*				✓		
Smooth snake <i>Coronella austriaca</i>			✓	✓	✓	✓	✓	✓	
Sand lizard <i>Lacerta agilis</i>			✓	✓	✓	✓	✓	✓	
Great Crested Newt <i>Triturus cristatus</i>			✓	✓	✓	✓	✓	✓	
Natterjack Toad <i>Epidalea calamita</i>			✓	✓	✓	✓	✓	✓	
All UK bats Chiroptera			✓	✓	✓	✓	✓	✓	
Water vole <i>Arvicola amphibious</i>			✓	✓	✓	✓	✓		
Otter <i>Lutra lutra</i>			✓	✓	✓	✓	✓	✓	
Dormouse <i>Muscardinus avellanarius</i>			✓	✓	✓	✓	✓	✓	
Badger <i>Meles meles</i>									✓
Red Squirrel <i>Sciurus vulgaris</i>			✓	✓	✓	✓	✓		
Pine Marten <i>Martes martes</i>			✓	✓	✓	✓	✓		
Scottish Wildcat <i>Felis silvestris silvestris</i>			✓	✓	✓	✓	✓	✓	
White-clawed crayfish <i>Austropotamobius pallipes</i>			✓				✓		
All Nesting birds	✓								
Specific Nesting birds i.e. Barn Owl, Black Redstart	✓	✓							

S = Section

() = Paragraph

EPS = European Protected Species i.e. listed under Regulation 40 of the Conservation (Natural Habitats &c.) Regulations 2010

PBA = Protection of Badgers Act 1992

* = Only part of this section

Legislative Text

Wildlife and Countryside Act 1981 (as amended)

The Wildlife and Countryside Act 1981 (as amended), transposes into domestic law the Convention on the Conservation of European Wildlife and Natural Habitats (the Bern Convention). It is an offense under the various sections of Part 1 of the Act to -

- S.1(1)** intentionally kill, injure, or take any wild bird or their eggs or nests.
- S.1(4)** intentionally or recklessly kill, injure, or take any wild bird listed on Schedule 1 of the Act, or their eggs or nests (special penalties apply if convicted) (For a full list of Schedule 1 bird species see the full text of the Wildlife and Countryside Act 1981 [as amended])
- S.1(5) (a)** disturb any wild bird listed on Schedule 1 while it is building a nest or is in, on or near a nest containing eggs or young; or
(b) disturb dependent young of such a bird
- S.9(1)** intentionally or recklessly kill, injure or take any wild animal included in Schedule 5 (certain reptiles are only protected from killing and injuring);
- S.9(2)** be in possession or control of any live or dead wild animal included in Schedule 5 or any part or derivative;
- S.9(4) (a)** intentionally or recklessly damage or destroy, or obstruct access to, any structure or place used by a Schedule 5 animal for shelter or protection;
- S.9(4) (b)** disturb any such animal while it is occupying such a structure or place which it uses for that purpose
- S.9(5) (a)** sell, offer for sale, possess or transport any live or dead wild animal included in Schedule 5 for the purpose of sale or any part or derivative;
- S.9(5) (b)** advertise for buying or selling such things.

European Protected Species (EPS)

EPS and their breeding sites or resting places are protected under Regulation 41 of the Conservation of Habitats & Species Regulations Regulations, 2010. These Regulations transpose Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (EC Habitats Directive) into national law.

A person who—

- (a) deliberately captures, injures or kills any wild animal of a European protected species,
- (b) deliberately disturbs wild animals of any such species,

- (c) Deliberately takes or destroys the eggs of such an animal, or
- (d) Damages or destroys a breeding site or resting place of such an animal, is guilty of an offence.

For the purposes of paragraph (b), disturbance of animals includes in particular any disturbance which is likely—

- (a) To impair their ability—
 - (i) to survive, to breed or reproduce, or to rear or nurture their young, or
 - (ii) in the case of animals of a hibernating or migratory species, to hibernate or migrate; or
- (b) to affect significantly the local distribution or abundance of the species to which they belong.

(However, please note that the existing offences under the Wildlife and Countryside Act, which cover obstruction of places used for shelter or protection (for example, a bat roost), disturbance and sale, still apply to EPS.)

These actions can be made lawful through the granting of licenses by the appropriate authorities, e.g. Natural England. Licenses may be granted for a number of purposes (such as science and education, conservation, preserving public health and safety), but only after the appropriate authority is satisfied that there are no satisfactory alternatives and that such actions will have no detrimental effect on the wild population of the species concerned.

Protection of Badgers Act 1992 (PBA)

The main legislation protecting badgers is the Protection of Badgers Act 1992. This Act consolidates all previous legislation including the Badgers Act 1973 (as amended) and the Badgers (Further Protection) Act 1991. Under the 1992 Act it is an offence to-

- destroy a sett;
- interfere with a badger sett by damaging a sett or any part thereof;
- obstruct access to a sett;
- disturb a badger while occupying a sett;
- wilfully kill, injure, take or attempt to kill, injure or take a badger;
- dig for a badger;
- possess a dead badger or any part of a badger;
- cruelly ill-treat a badger;
- use badger tongs in the course of killing, taking or attempting to kill a badger;
- sell or offer for sale or control any live badger;
- mark, tag or ring a badger;
- cause a dog to enter a sett;

The 1992 Act defines a badger sett as: “any structure or place which displays signs indicating current use by a badger”. Since development operations may take place over a protracted period, Natural England recommends that licences be sought for developments that may affect seasonally-used setts as well as main setts. Natural England considers a good guide to be that if a sett has shown signs of

occupation within the past twelve months it is considered active.

The Protection of Badgers Act 1992 allows for licences to be issued for a number of purposes, including development under the Town and Country Planning Act 1990 and to prevent serious damage to property. Licences to interfere with badger setts or disturb badgers for development are issued by the Government's statutory nature conservation agencies, e.g. Natural England.

Identification of Legal and Planning Policy Issues in England

Scope of Assessment

The first step is to identify any biodiversity features found on the site that are subject to legal or policy controls, as follows:

Designated Sites

The location of the site is compared to the distribution of sites with a statutory or non-statutory nature conservation designation using information derived from the desk study. Consideration is given to designated sites that could be affected directly or indirectly by the proposed development.

Habitats outside Designated Sites

The habitats known to occur on the site are compared to those which receive some protection, in law or policy, outside of designated sites i.e. hedgerows, uncultivated land and semi-natural areas, habitats listed as Priorities in the UKBAP, habitats listed as Habitats of Principal Importance for the Conservation of Biodiversity by the Secretary of State and habitats listed as requiring action in the Local Biodiversity Action Plan.

Ancient Woodland

The ancient woodland inventory is checked to determine whether any known ancient woodland occurs either on the site or nearby.

Protected Species

The species known to occur on the site as a result of the desk study and Phase 1 habitat survey are compared with those listed in nature conservation legislation i.e. the Wildlife and Countryside Act 1981, as amended, the Conservation (Habitats &c) Regulations 1994.

In addition, the species known to occur on the site as a result of the desk study and Phase 1 habitat survey are compared with those listed in animal welfare legislation, i.e. the Badgers Act 1992 and the Wild Mammals (Protection) Act 1996.

Biodiversity Action Plan Priority Species

The species known to occur on the site are compared with those listed as Priorities in the UKBAP, Species of Principal Importance for the Conservation of

Biodiversity by the Secretary of State or requiring action in the Local Biodiversity Action Plan.

Other Species of Conservation Concern

The species known to occur on the site are compared with other nature conservation listings, such as red data books.

Invasive Plant Species

The species of plant present on the site are compared with those listed by government agencies as invasive non-natives, with particular attention given to those listed in the Wildlife and Countryside Act.

Review of Legislation and Policy

If any of the above are found to occur on or near the site and are likely to be affected by the development in any way, the relevant legislation and planning policy (including national, regional, county and borough policies) are examined to determine whether the proposed development is compliant.

Ecological Enhancement

Planning policy generally requires new developments to be enhanced for biodiversity. The existing proposals are considered to determine whether biodiversity enhancements are offered and whether they are adequate to meet the policy requirements. Again, national, regional, county and borough policies are considered.

Identification of Potential Further Ecological Issues

Further ecological issues are those which cannot be resolved during the desk study and extended Phase 1 habitat survey for any reason, including the following:

- The development is near a designated site and consultation with the relevant regulator is required in order to determine whether further assessment is required;
- Suitable habitat is present on or near the site for a protected species/species of conservation concern and specialist survey techniques are required for their detection;
- Suitable habitat is present on or near the site for a protected species/species of conservation concern and the extended Phase 1 habitat survey was not undertaken at a suitable time of year for their detection;
- A protected species/species of conservation concern was found on or near the site but further information on population size or distribution is required in order to resolve any legal and planning policy issues (such as obtaining licences).

Discussion of issues raised by 3rd parties, e.g. reports of protected species from the site by local people, may also be discussed under this heading.

The desk study is used as a guide to the protected species/species of conservation in the local area, however, the list is not taken to be exhaustive and it is borne in mind that some species may no longer occur in the locality.

No attempt is made to evaluate the importance of the site for species not yet confirmed to be on or near the site, nor to discuss the implications for the development if the species were to be found on the site.

NATIONAL POLICY

Planning Policy Statement 9: Biodiversity and Geological Conservation (PPS 9)

Protected Species PPS9 provides guidance to planning authorities when considering biodiversity and geological conservation:

Protected species are referred to in PPS9 and its associated ODPM Circular 06/20057 . This guidance states that:

'The presence of a protected species is a material consideration when a planning authority is considering a development proposal that, if carried out, would be likely to result in harm to the species or its habitat'.

It also states that:

'It is essential that the presence or otherwise of protected species, and the extent that they may be affected by the proposed development, is established before the planning permission is granted, otherwise all relevant material considerations may not have been addressed in making the decision. The need to ensure ecological surveys are carried out should therefore only be left to coverage under planning conditions in exceptional circumstances, with the result that the surveys are carried out after planning permission has been granted'. 'The aim of planning decisions should be to prevent harm to biodiversity and geological conservation interests.'

Species and Habitats of Conservation Concern

PPS9 states that:

'Other species have been identified as requiring conservation action as species of principal importance for the conservation of biodiversity in England. Local authorities should take measures to protect the habitats of these species from further decline through policies in local development documents. Planning authorities should ensure that these species are protected from the adverse effects of development, where appropriate, by using planning conditions or obligations. Planning authorities should refuse permission where harm to the species or their habitats would result unless the need for, and benefits of, the development clearly outweigh that harm.'

Furthermore the ODPM Circular 06/2005 states that:

'The potential effects of a development, on habitats or species listed as priorities in the UK Biodiversity Action Plan (BAP), and by Local Biodiversity Partnerships, together with policies in the England Biodiversity Strategy, are capable of being a material consideration in the preparation of regional spatial strategies and local development documents and the making of planning decisions.'

General Biodiversity Interest

One of the key principles of PPS9 includes the following statement:

'The aim of planning decisions should be to prevent harm to biodiversity and geological conservation interests. Where granting planning permission would result in significant harm to those interests, local planning authorities will need to be satisfied that the development cannot reasonably be located on any alternative sites that would result in less or no harm. In the absence of any such alternatives, local planning authorities should ensure that, before planning permission is granted, adequate mitigation measures are put in place. Where a planning decision would result in significant harm to biodiversity and geological interests which cannot be prevented or adequately mitigated against, appropriate compensation measures should be sought.'

Note that the statement refers to 'biodiversity interest', not just protected species and habitats and other species and habitats of conservation concern. A species may be of biodiversity interest, but the animal and/or its habitat may not be formally protected under current wildlife legislation.

Without suitable mitigation and/or compensation being proposed to offset potential damage to biodiversity interest, PPS9 directs local authorities to refuse planning permission:

'If that significant harm cannot be prevented, adequately mitigated against, or compensated for, then planning permission should be refused.'

Appendix 4 – Staff Profiles

Profile – Richard Baines, PG Dip, MCIEEM.

Job title: Director/Ecologist.

Expertise

- Ornithological field surveys,
- Extended Phase 1 habitat surveys, baseline habitat assessment & mitigation.
- Project management, and farm environmental/countryside stewardship schemes

Qualifications

- Post graduate diploma Environmental Conservation University of Greenwich)
- ND Land Use and Recreation

Positions Held

- Director of Wold Ecology R.B Ltd
- Director of Yorkshire Coast Nature
- Turtle Dove Project Officer (part time) North York Moors National Park Authority)

Membership/Training

Member of the Chartered Institute of Ecology and Environmental Management.

Cross Country Pipelines Health and Safety Passport, Overhead Lines B.E.S.C Safety Passport

Career Summary

Richard is an experienced ornithologist/ecologist who has been employed in Nature Conservation/Environmental Management for 28 years of which 18 years have been in ecological consultancy.

Richard has been studying birds and ecology for 25 years. From recording UK migrants at Flamborough to monitoring Siberian migrants in China; he has become highly experienced in bird identification and ecology.

Amongst his many survey projects; in 2008 he conducted ornithological surveys at Fedorovo camp approx 50km east of Apatity on the Kola peninsula in Russia for a mineral EIA working for SRK consulting and in 1996 Richard led a team of ornithologists for Ecology UK LTD to carry out low tide wader counts over 2 years and covering 12km² of inter-tidal mudflats on the Humber Estuary.

In the past 15 years he has conducted avian surveys on over 50 sites throughout the UK, working on over 20 wind farm surveys from the north of England to Caithness and on the Western Isles between 1999 and 2012. These surveys have involved vantage points, upland breeding bird surveys and species specific raptor and diver surveys. Richards's has also managed 30 environmental survey baseline projects and held Schedule 1 licenses for a wide range of protected species from Barn Owl, Little Ringed Plover, Black-throated Diver to Golden Eagle and Merlin.

Richard has a great deal of experience in working with farmers, landowners and community councils, this work has enabled Richard to bring his people skills and experience in negotiation/management, and liaison skills to his consultancy work. These people and client skills have been very valuable, between 2010 and 2014 Richard was part of a survey team which conducted a unique project aimed at monitoring seabird bycatch, liaising directly with

the fishermen in Filey Bay. This Environment Agency contract required a high level of sensitive working with complex people skills required and discretionary working relationships.

Selected Project Experience

Phase 1/Ecological Baseline Projects

Richard has completed over 100 extended Phase 1 habitat assessments within the past 10 years. His extensive knowledge of habitat requirements and survey methodologies for a wide range of protected species has been extremely valuable in providing detailed evaluation for many clients. A few examples of the wide variety of projects are listed below:

- 40km cable route for Hornsea offshore Windfarm Extended Phase 1 R.P.S 2011
- Kilnsea Sandy Beaches Extended Phase 1 & SSSI habitat restoration 2014
- Phase 1 surveys on 42 SINC/LWS 2010-2014 for NEYEDC

Ornithological Survey Experience

Richard has worked on a large number of winter and breeding bird surveys from large wind farm projects up to 200 MW to breeding wader surveys for National Parks. Between 1999 and 2013 Richard carried out ornithological surveys on 20 different wind farm sites from England to the far north of Scotland. The following sites required intensive 12-36 months data to a detailed data set to be established for the EIA. Contracts include:

- Farr Windfarm for Scottish and Southern Electricity
- Strathy North & South for Scottish and Southern Electricity
- North York Moors National Park breeding wader surveys 2014 covering 64km²
- Nidderdale AONB breeding wader surveys 2010
- Natural England farmland breeding bird surveys 2009-2013 covering 5 farms on Flamborough Headland
- AMEC Humber pipeline passage & winter bird surveys 2007-2010
- Environment Agency contract 2010-2014 Bycatch monitoring in Filey Bay

Throughout this time many methodologies have been used:

- Brown and Shepherd & O'Brien and Smith Breeding Wader Survey Methods
- Vantage Point Surveys to enable collision risks to be formulated
- Common Bird Census & Breeding Bird Surveys BTO/RSPB Methods
- Species specific methods for Black-throated Diver, Merlin, Hen Harrier, Greenshank, Wood Sandpiper, Barn Owl, Little Ringed Plover, Peregrine
- WeBs counts for autumn and wintering waders following Wildfowl and Wetlands Trust/BTO methods