South West Bicester Environmental Statement
Countryside Properties (Bicester) Ltd

Technical Appendix 6 Amended natural heritage

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Badger survey – has been supplied to Cherwell district council and may be provided on request if required

Species lists for breeding birds, butterflies, dragonflies and damselflies, from field surveys in 2005.

Breeding birds		
English name[1]	Scientific name	Conservation status
Red-legged Partridge	*Alectoris rufa*	
Common Pheasant	*Phasainus*	
Eurasian Sparrowhawk	*Accipiter nissus*	
Stock Pigeon	*Columba oenas*	
Common Wood Pigeon	*Columba palumbus*	
Eurasian Collared Dove	*Streptopelia decaocta*	
Little Owl	*Athene noctua*	
Tawny Owl	*Strix aluco*	
Green Woodpecker	*Picus viridis*	
Great Spotted Woodpecker	*Dendrocopus major*	2, 3
Sky Lark	*Alauda arvensis*	
Barn Swallow	*Hirundo rustica*	
Pied Wagtail	*Motacilla alba*	
Winter Wren	*Troglodytes troglodytes*	
Hedge Accentor	*Prunella modularis*	
European Robin	*Erithacus rubecula*	
Common blackbird	*Turdus merula*	
Song Thrush	*Turdus philomelos*	2, 3
Blackcap	*Sylvia atricapella*	
Common Whitethroat	*Sylvia communis*	
Common Chiffchaff	*Phylloscopus collybita*	
Willow Warbler	*Phylloscopus trochilus*	
Long-tailed Tit	*Aegithalos caudatus*	
Blue Tit	*Cyanistes caeruleus*	
Great Tit	*Parus major*	
Eurasian Jay	*Garrulus glandarius*	
Black-billed Magpie	*Pica pica*	
Eurasian Jackdaw	*Corvus monedula*	
Carrion Crow	*Corvus corone*	
Common Starling	*Sturnus vulgaris*	2
House Sparrow	*Passer domesticus*	2
Chaffinch	*Fringilla coelebs*	
European Greenfinch	*Carduelis chloris*	
European Goldfinch	*Carduelis carduelis*	
Common Linnet	*Carduelis cannabina*	2, 3
Common Bullfinch	*Pyrrhula pyrrhula*	2, 3
Yellowhammer	*Emberiza citrinella*	2
Reed Bunting	*Emberiza schoeniclus*	2, 3

Butterflies		
Small Skipper	*Thymelicus sylvestris*	
Large white	*Pieris brassicae*	
Green-veined White	*Pieris napi*	
Common Blue	*Polyommatus icarus*	
Red Admiral	*Vanessa atalanta*	
Small Tortoiseshell	*Aglais urticae*	
Peacock	*Inachis io*	
Marbled White	*Melanargia galathea*	
Gatekeeper	*Pyronia tithonus*	
Meadow Brown	*Maniola jurtina*	
Ringlet	*Aphantopus hyperantus*	
Dragonflies and damselflies		
Banded Demoiselle	*Calopteryx splendens*	

[1]Nomenclature follows - Knox, A.G., Collinson, M., Helbig, A.J., Parkin, D.P. and Sangster, G. 2002. Taxonomic recommendations for British birds. *Ibis* **144** : 707-710. English names are as in BOU *Checklist of Birds of Britain and Ireland* (6th Edition, 1992)

2 Red list species of conservation concern (BTO 2002)

3 UKBAP priority species (www.ukbap.org.uk/speceis.aspx)

TARGET NOTE NUMER	TARGET NOTE
1	Hedge, largely stockproof, dominated by hawthorn. Species recorded include hawthorn, white bryony, elder, dog rose, crab apple and blackthorn. Field layer includes false oat-grass, sterile brome and common nettle.
2	Improved pasture, grazed by sheep. Species recorded include Yorkshire fog, soft brome, black grass, cock's-foot, smooth meadow-grass, perennial rye-grass, hogweed, field bindweed, common nettle and salad burnet.
3	Stockproof hedge, mainly mix of elder and hawthorn. Species recorded include crab apple, hawthorn, elder, bramble, blackthorn and black bryony. Field layer species include sterile brome, cleavers, black grass, common poppy, white campion, prickly sow-thistle, cock's-foot, broad-leaved dock, hogweed, false oat-grass, ivy, white bryony.
4	Stone wall with scattered hawthorn and elder. Field layer species include false oat-grass, common couch, cleavers, ivy, bittersweet, common nettle, broad-leaved dock, hogweed and white bryony.
5	Hedge with a dry ditch. Hedgerow species recorded include bramble, hawthorn, elder, privet, horse chestnut, dog rose, ivy, blackthorn, bittersweet and white bryony. Field layer species include false oat-grass, common couch, common nettle, cow parsley, sterile brome, cleavers, hogweed, great willowherb, fool's parsley, hedge woundwort, white campion, nipplewort and rough chervil.
6	Gappy hedge with hawthorn, pedunculate oak, elder, elm. Field layer species recorded include false oat-grass, wild oat, common nettle, black grass, cleavers, spear thistle, cock's-foot, common poppy, hogweed.
7	Hedgerow dominated by elm. Elder and bramble also recorded. Field layer species include false oat-grass, common nettle, prickly sow-thistle, sterile brome, white dead-nettle and hogweed
8	Hedgerow species recorded include elm, hawthorn, elder, bramble, privet, crab apple, blackthorn, dog rose and black bryony. Field layer species include spear thistle, false oat-grass, common nettle, hogweed, sterile brome, cleavers
9	Foxey Leys Copse species recorded include elm, ash, hawthorn, mature oaks, occasional holly & beech and field maple. Canopy comprises mostly elm and ash. Field layer species recorded include dog's mercury, cow parsley, common nettle, ivy, wild privet, wood avens, lords and ladies, wood false-brome, wood sedge, wood brome, cleavers and ground ivy.
10	Hedgerow species recorded include elder, hawthorn, ash, Turkey

	oak, buckthorn, blackthorn, field maple, ivy, spindle and wayfaring tree. Field layer species include cleavers, nipplewort, sterile brome, scarlet pimpernel, false oat-grass, cow parsley, black grass, white bryony, hogweed, wild oat and prickly sow-thistle
11	Boundary fence, native species planted alongside A41 including field maple, hawthorn, occasional blackthorn and black bryony. Field layer species include black grass, soft brome, false oat-grass, common poppy, Yorkshire fog, prickly sow-thistle, cow parsley, wild oat, scentless mayweed, redshank, spear thistle, treacle mustard, small toadflax, dwarf spurge, fool's parsley, field bindweed, common fumitory, shepherd's purse and swine cress.
12	Hedge dominated by hawthorn and ash with occasional blackthorn. Field layer species include false oat-grass, wild oat, scentless mayweed, redshank, black grass, hogweed, field bindweed, creeping thistle
13	Improved pasture grazed by sheep. Species recorded include smooth meadow-grass, perennial rye grass, Yorkshire fog, meadow barley, timothy, cocks foot, field bindweed, white clover, red clover, hogweed, ladies bedstraw, soft brome.
14	Species recorded from hedgerow include crab apple, bramble, elm, ash, blackthorn, field maple, dog rose and field maple. Field layer species recorded include wild oat, common nettle, false oat-grass, hogweed, black grass, great willowherb, soft brome, cow parsley, bristly ox-tongue, Yorkshire fog, smooth meadow-grass, hedge woundwort, hedge bindweed, compass plant and field penny-cress
15	Hedgerow bordering ditch. Species recorded include hawthorn, elder, bramble, bittersweet, crab apple, dog rose, field rose, black bryony, blackthorn and dog wood.
16	Species recorded from hedgerow include elm, hawthorn, elder, bramble, dog rose, black bryony and ash.
17	Hedgerow bordering ditch. Species recorded include blackthorn, elm, bramble, field rose and privet.
18	Species recorded from ditch include false oat-grass, hogweed, herb robert, sterile brome, meadowsweet, water figwort, hedge bindweed, hedge woundwort, ivy, burdock, cock's-foot, bittersweet, reed canary-grass, fool's water-cress, common couch and great willowherb.
19	Hedgerow bordering ditch. Species recorded include elder, elm, blackthorn, dog rose, white bryony, bramble, hawthorn, black bryony, field rose, crab apple and field maple.
20	Species recorded from hedgerow include hawthorn, elm, bramble, ash, dog rose, oak, black bryony.
21	Hedgerow bordering dry ditch. Species recorded from hedgerow

	include wych elm, black bryony, hawthorn, ash, bramble, white bryony, blackthorn, dogwood, elm and sycamore. Field layer species include hogweed, black grass, false oat-grass, common nettle, bittersweet, garlic mustard, sterile brome and hedge woundwort.
22	Species recorded from hedgerow include bramble, elder, blackthorn, ash, sycamore and field maple. Field layer species include false out grass, common nettle, common crouch, hogweed, black grass, sterile brome, garlic mustard and redshank,
23	Woodland along the boundary of the site. Species recorded include field maple, sycamore, hawthorn, elder, crab apple, ash, holly and horse chestnut.
24	Thick tree lined 'hedge'. Species recorded include elm, mature sycamore, elder, hazel, ash, crack willow (mature), hawthorn, crab apple, hop and dogwood. Field layer species include common conch, common nettle, dog weed, cleaves, nipplewort, burdock, redshank, black grass, garlic mustard, annual meadow-grass, Japanese knotweed, , wood areas and hedge woundwort.
25	Hedgerow species recorded include hawthorn, bramble, white bryony, crab apple, ash, elm, blackthorn, dog rose, bittersweet and black bryony. Field layer species include sterile brome, false oat-grass, hogweed, black grass, common couch, hogweed, wild oat
26	Hedgerow bordering ditch. Species recorded include elm, bramble, elder, blackthorn, bittersweet, dog rose, hawthorn, field rose and crab apple.
27	Improved pasture grazed by sheep. Species recorded include cat's tail, Yorkshire fog, tufted hair-grass, perennial rye grass, meadow barley, cock's-foot, meadow buttercup, field bindweed, hogweed, white clover and common mouse-ear
28	Hedgerow bordering ditch. Species recorded include hawthorn, ash, dog rose, bittersweet, elder, sycamore, bramble, horse chestnut and elm. Field layer species include floating sweet-grass, fool's water cress, hedge woundwort and great willowherb.
29	Hedgerow species recorded include hawthorn, bramble, field rose, dog rose, elder, black bryony, black grass and field bindweed.
30	Very patchy hedgerow. Species recorded include elm, sycamore, bramble, ash, elder, crab apple, hawthorn and blackthorn. Field layer species include cleavers, sterile brome, common nettle, false oat-grass, hogweed and hemlock.
31	Hedgerow species recorded include elder, elm, bramble, blackthorn, wild hop and sycamore.

32	Hedgerow bordering ditch. Species recorded include blackthorn, bittersweet, elm, hawthorn, ash, way-faring tree, black bryony, elder, dogwood, field rose, field maple and crab apple.
33	Hedgerow species recorded include sycamore, buckthorn, white bryony, elder, ash, ivy, field maple, way-faring tree, laurel, spindle, hawthorn, privet, field rose, bittersweet and crab apple. Field layer species include cleavers, common nettle, false oat-grass, black bryony, rough chervil, lords and ladies, black grass, garlic mustard, hedge woundwort, hogweed, hemlock and common couch.
34	Hedgerow bordering ditch Species recorded include sycamore (abundant), ash, field maple, way-faring tree, wild privet, black bryony, buckthorn, dog rose and wych elm. Field layer species include perforate St John's-wort, ivy, hedge woundwort, ground ivy, sterile brome, lords and ladies, common poppy, fool's parsley, cocks-foot, false oat-grass and common couch.
35	Hedgerow species recorded include elm, sycamore, hawthorn (occasional), bramble, privet (occasional) and blackthorn. Field layer species recorded include hogweed, false oat-grass, common poppy, common nettle, cleavers, sterile brome and lords and ladies
36	Hedgerow species recorded include elm, ash, sycamore, ivy, bramble and elder. Field layer species include common comfrey, false oat-grass, ground ivy, lords and ladies, cleavers, barren brome, common poppy, common nettle and hogweed.
37	Hedgerow bordering Middeleton Stoney Road. Species recorded include ash, elder, elm, hawthorn, bramble, white bryony, blackthorn, dog rose, privet, field rose, buckthorn, black bryony and sycamore. Field layer species recorded include sterile brome, common nettle, cleavers, false oat-grass, prickly sow-thistle, compass plant, common poppy, hemlock, wild oat and toadflax.
38	Small area of woodland. Species recorded include horse chestnut wild privet, hawthorn, elm, sycamore and ash. Field layer species recorded include ivy, cow parsley, herb robert, common nettle and lords and ladies.
39	Hedgerow species recorded include elm, elder, bramble, hawthorn, field maple and wild privet.
40	Hedgerow species recorded include hawthorn, bramble, elm elder and white bryony. Field layer species recorded include ivy, common nettle and lords and ladies.
41	Small copse with abundant horse chestnut and sycamore. Hawthorn recorded around edges of copse along with occasional ash saplings.

	Field layer species recorded include ivy, cow parsley, herb robert and lords and ladies. Ivy and herb robert are dominant.
42	Hedgerow species recorded include elm, elder, blackthorn, field maple, white bryony, way-faring tree, ash and bramble. Field layer species recorded include rough chervil, cleavers, white dead nettle, common poppy, compass plant, soft brome, nipplewort, lords and ladies, wild oat, greater knapweed, black grass, false out grass and hogweed.
43	Hedgerow species recorded include blackthorn, elm, hawthorn, dog rose, oak, and bramble.
44	Hedgerow bordering ditch. Species recorded include elder, hawthorn, bramble, field maple, field rose, white bryony, blackthorn, wild privet, black bryony, clematis, dogwood and elm. Field layer species recorded include cleavers, hogweed, false oat-grass, common poppy, sterile brome, scentless mayweed, lords and ladies, white dead nettle, compass plant and soft brome. Species recorded along ditch include great willowherb, fool's watercress, water forget-me-not and lesser water parsnip.
45	Area of scrubby woodland along stream. Species recorded include ash, hawthorn, elm, ash and elder. Field layer species include ivy, bittersweet, bramble, herb robert, garlic mustard, lords or ladies with black horehound and field penny-cress on edge of wood. There is an open area in the middle of the woodland dominated by bramble and common nettle with cleavers, ground ivy, ivy, great willow herb, meadowsweet and hedge woundwort.
46	Hedgerow species recorded include hawthorn, blackthorn, elder, bramble, white bryony and elm. Field layer species recorded include common poppy, false oat-grass, hogweed, rough chervil, cut leaved crane's-bill, common nettle, mugwort, creeping thistle, cock's-foot, hedge garlic, common mallow and white campion.
47	Hedgerow species recorded include hawthorn, elder, dog rose, bittersweet, ash, hedge bindweed and honeysuckle.
48	Wet pasture (improved) grazed by cattle and rush pasture. Species recorded include locally dominant hard rush, Yorkshire fog, tufted hair grass, cock's-foot, creeping thistle, creeping buttercup, meadow barley, common couch, great willowherb, silverweed, floating sweet-grass, meadow vetchling, creeping cinquefoil spear thistle, white clover and red clover.
49	Hedgerow species recorded hawthorn, elm, ash, dog rose, bramble, blackthorn, bittersweet elder, field maple, crab apple and wild privet.
50	Branched bur-reed, brooklime, floating sweet-grass, hard rush, tufted hair grass, great willowherb, lesser water parsnip, water figwort, water forget-me-not, bittersweet, fool's water-cress and

	meadow vetchling.
51	Hedgerow species recorded include bramble hawthorn, bittersweet, elder, field maple and elm.
52	Uneven field of semi-improved grassland, some calcareous with limestone exposures. Species recorded include ladies bedstraw, mouse ear hawkweed, salad burnet, smooth meadow-grass, yarrow, ribwort plantain, greater plantain, creeping cinquefoil, silverweed, Yorkshire fog, meadow buttercup, creeping buttercup, white clover, smaller cat's-tail, perennial rye grass, spear thistle, black medick and tufted hair grass.
53	The banks of the stream are heavily poached by cattle. Species recorded include lesser water-parsnip, brooklime, water forget-me-not, water figwort and hard rush.
54	Species recorded along the stream include hard rush, tufted hair-grass, brooklime, lesser water-parsnip, branched bur-red, water forget-me-not, water mint, perforate St John's-wort, floating sweet-grass
55	Roadside hedge. Species recorded include hawthorn, ash, elm, bramble, privet, dog rose, elder, blackthorn, crab apple, buckthorn and horse chestnut.
56	Hedgerow species recorded include sycamore, hawthorn, elm, alder, and bramble.
57	Vegetation recorded along the ditch includes false – oat grass, common nettle, hogweed, hedge woundwort, common couch, black bryony, white bryony, cock's-foot, white dead nettle, white campion, greater knapweed, and field scabious.
58	Hedgerow species recorded include hawthorn, elder, bramble, blackthorn, crab apple and white bryony.
59	Hedgerow species recorded include hawthorn, spindle, hazel, blackthorn, bramble, dog rose, ash, elder, dogwood, sycamore, black bryony, crab apple, wild hop, buckthorn and pedunculate oak.
60	Badger feeding signs and old latrine
61	Young hawthorn/field maple hedge alongside fence with occasional blackthorn
62	Hedgerow with trees. Species recorded include dogwood, elm, hazel, field maple, ash, blackthorn, willow, spindle, hawthorn and crab apple.
63	Semi-improved rough grassland. Species recorded include false oat-grass, wild carrot, wild angelica, meadowsweet, bush vetch, meadow vetchling, ladies bedstraw, field scabious, black knapweed, tufted hair-grass, agrimony, red fescue, black grass, sweet vernal grass, hard rush, Yorkshire fog, oxeye daisy, common fleabane, upright hedge parsley, cowslip, marsh thistle, meadow buttercup, compressed rush, common bent, self heal glacous sedge, creeping cinquefoil, pepper saxifrage and ribwort plantain.

ECOSA
Ecological Survey & Assessment

WHITELANDS FARM, BICESTER
WHITE-CLAWED CRAYFISH SURVEY

Final Document

July 2006

INVERTEBRATE, BIRD, MAMMAL, REPTILE, AMPHIBIAN, AND BOTANICAL SURVEYS •
MANAGEMENT PLANS • HABITAT APPRAISAL • MARINE• NVC • EcIA •

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WHITELANDS FARM, BICESTER, OXFORDSHIRE
WHITE-CLAWED CRAYFISH SURVEY

1.0 INTRODUCTION

1.1 Background

Ecological Survey & Assessment (ECOSA) was contracted by Terence O'Rourke to carry out a crayfish survey of land at Whitelands Farm to the south of Bicester, Oxfordshire. The land is currently mainly used for arable crop growth although there are some permanent grassland fields at the centre of the site and to the north is an area of grassland with wet ditches and rush pasture. A single, shallow stoney bottomed stream flows through the northeast corner of the site. The crayfish survey was required in order to assess the presence or absence of the species from the site in order to inform a mitigation strategy.

1.2 Methods

Survey methods were based on visual and physical searching methods and no trapping was employed. The water course was fairly shallow and only limited vegetation was present and it was considered that the visual searching methods allowed a comprehensive assessment of the water course to be made. Survey consisted of the close investigation during daylight hours of the water course, this included turning stones, boulders etc in the stream bed, parting vegetation and investigating any holes within the banks. In addition 3 nightime torch surveys were carried out on 18th September 2005, 12th May 2006 and 1st june 2006. These consisted of a slow and methodical search of the stream bed using a 1 million candle power torch. Crayfish are active at night and this can be an effective means of recording their presence.

2.0 RESULTS AND DISCUSSION

2.1 Introduction

This section provides an account of the findings of the survey.

2.2 White-clawed Survey

No white-clawed crayfish were recorded during the course of the survey. The only species found to be present was the introduced signal crayfish. A peak of 6 signal crayfish were recorded during torch surveys carried out on 1st June 2006. Generally, white-clawed crayfish will only persist for a short period of time after signal crayfish colonise a water coarse since the signal crayfish may pass on 'crayfish plague' and the larger and faster growing out compete the native white-claws for food and shelter.

2.3 Recommendations

There are records of the native white-clawed crayfish to the east of the A41 in the are of Langford Park Farm. It is recommended that the current survey is repeated in 2006/07 and is extended to include this area. Should white-clawed crayfish be found to be present then a signal crayfish control programme should be instigated so that white-clawed crayfish are able to persist.

ECOSA
Ecological Survey & Assessment

WHITELANDS FARM, BICESTER, OXFORDSHIRE
GREAT CRESTED NEWT TERRESTRIAL SURVEY

Final Report

June 2006

INVERTEBRATE, BIRD, MAMMAL, REPTILE, AMPHIBIAN, AND BOTANICAL SURVEYS •
MANAGEMENT PLANS • HABITAT APPRAISAL • MARINE• NVC • EIA •

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WHITELANDS FARM, BICESTER, OXFORDSHIRE
GREAT CRESTED NEWT TERRESTRIAL SURVEY

1.0 INTRODUCTION

1.1 Background

Ecological Survey & Assessment (ECOSA) was contracted by Terence O'Rourke to carry out a great crested newt (GCN) survey of land at Whitelands Farm to the south of Bicester, Oxfordshire. The land is currently mainly used for arable crop growth although there are some permanent grassland fields at the centre of the site and to the north is an area of grassland with wet ditches and rush pasture.

The site is proposed for residential housing and as a result of the significant populations of GCN in the Bicester area it was considered necessary to carry out a survey to determine their status on site. However, the single pond located in the south west of the site did not contain water during the spring 2006 survey season and access could not be obtained to the ponds surrounding the site. As a result of this the survey was based on an assessment of the suitability of the terrestrial habitat for the species.

2.0 METHODS

2.1 Habitat Assessment

The site was walked on 11th July 2005 by Simon Colenutt of ECOSA. During this walkover survey habitat was evaluated and scored for its potential to support GCN. The criteria used were as follows;

Low Cereal fields, regularly mown improved grassland, gappy hedges with no associated ditches or other features.

Medium Cereal fields with cracks in ground suitable as GCN retreats, grazed grassland with some tussocky sward structure, hedges with a good structure but perhaps gappy at the base or with a crop planted up to the base.

High Grassland with tussocky structure or other unmown or lightly grazed swards, thick hedges with well developed basal vegetation, otherwise medium value hedges with a feature such as an associated wet ditch.

2.2 Drift Fence and Pitfall Trap Survey

A total of 645 metres of standard Animex great crested newt drift fencing was erected across key areas of the site. This fencing was dug into the ground by approximately 15cm and stood approximately 75cm above ground. Upright supporting posts were installed at approximately 1.5m intervals. A total of 215 pitfall traps were located at intervals of 2-3 metres along both sides of the fencing. These pitfall traps were white circular plastic buckets with a diameter of approximately 20cm. These pitfall traps intercept the movement of amphibians as they walk along the line of the fencing having encountered it. Map 1 shows the distribution of the drift fencing erected on site. This drift fencing was erected in areas of the site evaluated as having high to medium potential for terrestrial GCN and was erected across potential dispersal corridors such as ditches, hedgerows and strips of grassland along field margins. It was not possible to erect long expanses of fencing across fields since the site is a working farm however woodland areas had longer lengths of fencing installed.

In total traps were opened on 78 nights between 1st October 2005 and 9th November 2005 and 15th March 2006 and 29th May 2006. On all nights that traps were opened the weather was mild with temperatures above 7° centigrade and where possible damp nights were favoured. These traps were opened in the evening and inspected early the following morning. Any animals found were removed from the immediate vicinity of the fencing so as to ensure that they were not retrapped.

3.0 RESULTS

3.1 Habitat Assessment

Figure 1 shows the results of the survey and all target notes (TN) are discussed below.

A large proportion of the site is under cereal or rape and with few features of any suitability for GCN, as a result these were graded as being of low value (uncoloured on figure 1). However, fields at TN13 had extensive cracks on the soil surface and these provide suitable retreats for GCN. Four improved grassland swards were present towards the centre of the site (TN9), these have a slightly tussocky in nature with cracks in the soil surface providing suitable retreats for GCN, these swards had been recently cut and were being sheep grazed.

There are five key areas on the site that would provide good GCN terrestrial habitats. These consist of four false oat-grass dominated grasslands at TN14, 15 and 17 and tussocky grazed grassland and rush pasture at TN7 and TN11. The grassland at TN17 is of particular note because of its tall tussocky structure and the associated tall hedges. In addition, to the east of this field is a well vegetated pond that may provide suitable breeding habitat although this was not investigated closely and may be stocked with fish. At TN15 a new balancing pond has been excavated, probably within the last few months, this is currently devoid of vegetation and provides limited breeding opportunities; however a single immature GCN was found beneath a stone at the western end of the area on 11th July 2005. This would indicate that this balancing pond may be used as a breeding site in the future and that there are animals already present within the area so that any suitable pond (TN16) may be used for breeding. However, subsequent investigation of the area of the pond failed to produce any further records of GCN although smooth newt was present.

At TN 5 and 6 are small stands of woodland, at TN6 this is sycamore dominated secondary woodland whereas at TN5 this is oak, ash and hazel dominated and of more historic origin. All woodland areas on site have much deadwood, a dense understorey structure and cracks in the ground providing excellent foraging and hibernating opportunities for GCN.

The hedgerows on site are largely of medium value although generally species poor. These provide a network of potential dispersal corridors across the site. To the southwest of the site is an area of semi-improved to improved grassland with woodland and scrub, this provides ideal terrestrial habitat for GCN.

3.2 Drift Fencing

Figure 1 indicates the location of the drift fencing installed on site.

No GCN were recorded during the survey. A total of 16 common toad were captured in Area 2, these were all taken from the drift fence adjacent to the pond in the garden centre at TN16 indicating that the species probably breeds here. A total of 21 smooth newt were trapped, these were present in Area 2 adjacent to the pond in the garden centre at TN16 and in Area 3 in the eastern most pitfall trap near to the pond at Wendlebury Farm, this would suggest that the species breeds at both of these ponds. Finally a single common lizard was capture in Area 3.

Additional notable captures within the pitfall trap included a total of 15 harvest mouse captured in pitfall traps in the eastern areas of Area 1 and within Area 3.

4.0 DISCUSSION

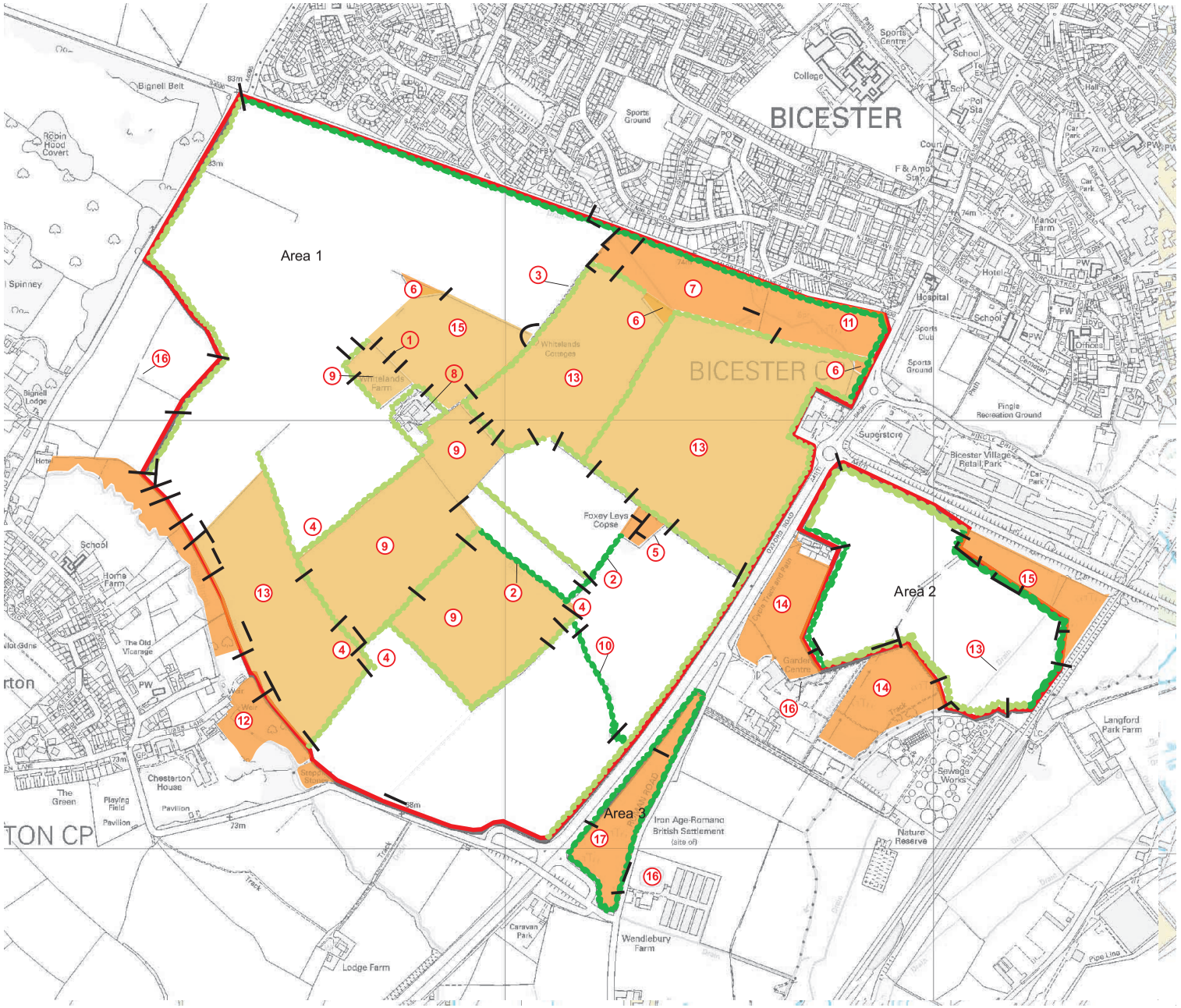
In conclusion large parts of the site provides unsuitable habitat for GCN, however, there are a number of key areas on and adjacent to the site that are suitable for the species. The hedgerows on site generally provide good corridor habitat potentially allowing animals to disperse across the site and the woodland and areas of tussocky grassland would provide suitable foraging habitat. However, the absence of records of GCN from the site during the survey would indicate that the site is not being utilised by the species. This is probably because of the intensively farmed nature of much of the site areas of suitable habitat being distant from potential breeding ponds surrounding the site. GCN from breeding ponds in the vicinity are likely to be utilising more accessible areas of tussocky grassland, scrub and woodland away from the Whitelands Farm site, for example, the area of grassland and scrub along the south-west boundary of the site

Other Species

In addition the following notable breeding birds were recorded during the course of the GCN surveys during the spring 2006:

Grey Partridge	One pair on March 31st 2006 on west of main access track to Whitelands Farm.
Lapwing	At least two pairs were seen displaying and mobbing potential predators over a field of oilseed rape to the southeast of Whitelands Farm. After a wood pigeon shoot on April 14th just one bird was seen on the 18th and two on the 20th.
Sky Lark	At least 15 singing males, 13 on Area 1 and 2 on Area 2.
Yellow Wagtail	One pair in the rape field to the southeast of Whitelands Farm.
Tree Sparrow	One pair in the rape field to the southeast of Whitelands Farm.
Yellowhammer	At least 7 singing males all within Area 1.

No reptile survey work has been carried out by ECOSA on the site, however, the presence of common lizard was confirmed from Area 2 and it is considered that other species may be present.



WHITELANDS FARM, BICESTER
Figure 1 Great Crested Newt Terrestrial Survey

KEY

- High potential
- Medium potential
- High potential hedge
- Medium potential hedge
- (1) Target notes
- Location of drift fencing

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WHITELANDS FARM BICESTER

Wall whorl snail *Vertigo pusilla* Muller, 1774

survey

August 2005

Dr.Jonty Denton

INTRODUCTION

Survey brief was to search for Vertigo pusilla on a selection of walls. This diminutive snail was recorded on walls around the adjacent Bignell Park by Arthur Spriggs (John Campbell pers comm.)

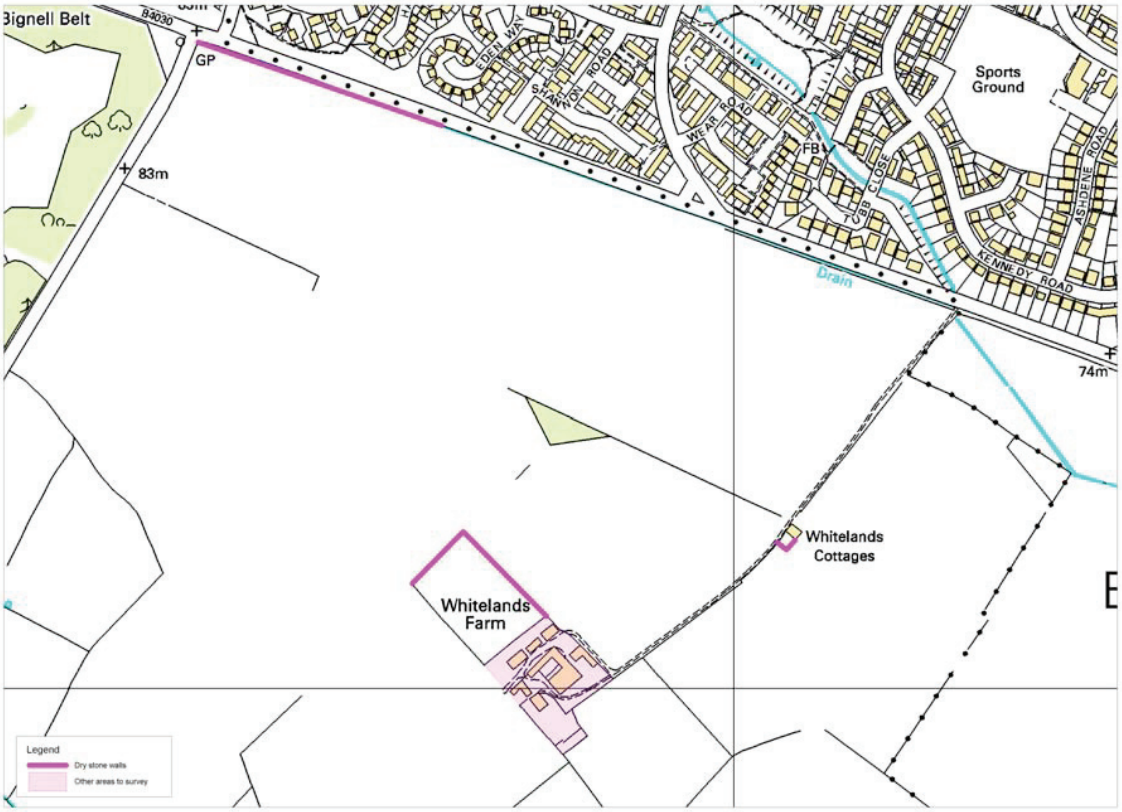
Site visit and methods

Site was visited on 15th August by myself and John Campbell (co-author of the Atlas of Oxfordshire Terrestrial Mollusca (Gregory & Campbell, 2000)

A petrol powered suction sampler was employed to collect invertebrates from the walls and their bases. Moss and debris was sieved and searched ona sheet, and stones were lifted and searched for attached molluscs.

RESULTS

Positions of sample areas are shown on map A



Site A
Roadside wall adjacent to A4095.

The eastern half of the section marked on the map hada dilapidated wall whch was largely shaded and which had a goofd covering opf ivy. The north side of this wall (Photo 1) looked the most suitable looking habitat for the wall whorl snail of any of the sites surveyed. The wall was adjacnt to a ditch which ran parallel to the road, the roadward side of the ditch also had lots of dumped stone and debris which was also extensively searched.

SITE B

Whitelands Farm field boundary heading NW from farm buildings.

This wall was made up of flat Cotswold limestone which was in parts consolidated with lime mortar. Three sections had abundant ivy growth and two had partial to full shade from small hawthorn / elder trees.

SITE C
Wall around Whitelands Cottage
This low wall was open and had very little vegetation growing on it.

RESULTS
No *Vertigo pusilla* were found, the commonest molluscs at Site 2 was *Lauria cylindracea* and *Vallonia costata.*

Site A

Molluscs

Cochlicopidae
Slippery Moss Snail *Cochlicopa lubrica* (Muller)

Pyramidulidae
Rock Snail - Pyramidula rupestris (Draparnaud)

Pupillidae
Common Chrysalis Snail *Lauria cylindracea* (da Costa)

Valloniidae
Ribbed Grass Snail *Vallonia costata* (Muller)

Rounded Snail - *Discus rotundatus* (Muller)

Zonitidae
Cellar Snail - *Oxychilus cellarius* (Muller**)**

Clausilidae
Common Door Snail - *Clausilia bidentata* (Strom)

Helicidae
Kentish Snail- *Monacha cantiana* (Montagu)

Other Invertebrates
SPIDERS
Amaurobius fenestralis
Tetrix denticulata (Local)
Oonops pulcher

HEMIPTERA (BUGS)
Pentatomidae
Legnotus limbosus (Local)
Lygaeidae
Taphropletus contractus (local)
Heterogaster urticae (Common)
Stygnocoris fuligineus

COLEOPTERA
Carabidae
Dromius linearis

Staphylinidae
Stenus impressus

Scolytidae
Kissophagus hederae (Natioanlly Scarce B) A small bark beetle which lives on Ivy.

Site B

Molluscs

Pupillidae
Common Chrysalis Snail - *Lauria cylindracea* (da Costa)

Pyramidulidae
Rock Snail - Pyramidula rupestris (Draparnaud)

Valloniidae
Ribbed Grass Snail *Vallonia costata* (Muller)

Rounded Snail - *Discus rotundatus* (Muller)

Helicidae
Wrinkled Snail - *Candidula intersecta* (Poiret)

Kentish Snail- *Monacha cantiana* (Montagu)

Brown Lipped Snail – *Cepaea nemoralis* (L.)

Garden Snail- *Helix aspera* Muller

Other Invertebrates

SPIDERS
Amaurobius fenestralis
Segestria senoculata
Harpactea hombergi

HEMIPTERA (BUGS)
Pentatomidae
Pied shield bug - *Sehirus bicolor* (Local)

Lygaeidae
Taphropletus contractus (local)
Heterogaster urticae (Common)

Tingidae
Ivy Lacebug – Derephysia foliacea (Fallen) a very local species in Oxon.

COLEOPTERA
Carabidae
Harpalus affinis
Harpalus rufipes
Pterostichus madidus
Bembidion lampros
Asaphidion curtum
Trechus quadristriatus
Dromius linearis

Staphylinidae
Stenus impressus
Stenus ossium
Sepedophilus marshami

Byrrhidae
Pill beetle – Byrrhus pilula - local

Endomychidae
Mycetaea hirta - local

Lathridiidae
Aridius bifasciatus

Chrysomelidae
Psylloides chrysocephala
Epitrix pubescens

Curculionidae
Ceuthorhynchus erysimi

DISCUSSION

All the walls examined are isolated from each other and surronding walls by at least 60m. The habitats present at Site 1 look the most likely to support the wall whorl snail, but none were found despite extensive searching.

Vertigo pusilla is a very small and difficult speices to find which often lives in very small colonies. It is impossible to be sure tha this species is absent from the survey area, but it is unlikely to be widespread given the search effort.

ACKNOWLEDGEMENTS

Thanks to John Campbell for assisting me with the search, and providing background records etc.

REFERENCES

Gregory, S.J. & Campbell, J.M. 2000. *An Atlas of Oxfordshire Terrestrial Mollusca.* Oxford County Council Occasional paper No.20.

ECOSA
Ecological Survey & Assessment

WHITELANDS FARM, BICESTER

OXFORDSHIRE

PHASE I and II BAT SURVEYS

Final Document

September 2006

INVERTEBRATE, BIRD, MAMMAL, REPTILE, AMPHIBIAN, AND BOTANICAL SURVEYS •
MANAGEMENT PLANS • HABITAT APPRAISAL • MARINE• NVC • EIA •

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WHITELANDS FARM COTTAGES, BICESTER

PHASE I AND II BAT SURVEYS

1.0 INTRODUCTION

1.1 Background

Ecological Survey & Assessment (ECOSA) was commissioned by Terence O'Rourke on behalf of Countryside Properties to carry out Phase I and II bat surveys fof two cottages along the northern access road to Whitelands Farm, Bicester, Oxfordshire.

1.2 Phase I and II Surveys

The Phase I bat survey was carried out on 25th November 2005. The results from the Phase I survey identified potential bat access points around the building and, due to the timing of the Phase I survey (being outside of the bat survey season) it was necessary to carry out a Phase II bat survey. The Phase II survey was carried out on 11th September 2006.

An outline of the legislation surrounding bats is provided within Appendix 1.

1.3 Site Setting

The cottages are set approximately halfway along the access road to Whitelands Farm and are isolated from the rest of the farm buildings. Apart from the two large conifers in the lawned garden and narrow vegetable plot belonging to the cottages, the habitat in the vicinity of the cottages consists of arable fields. There are two small hedgerows that run from the cottages in a westerly and northerly direction. These hedgerows could potentially provide commuting routes for bats travelling to and from the cottages should they be present.

This report presents the findings of the Phase I and II surveys.

2.0 METHODS

2.1 Introduction

This section outlines the methodology used during the Phase I and II surveys carried out in November 2005 and September 2006, respectively.

2.2 Phase I Survey

An assessment of the outside of the buildings was carried out to determine whether there were any features that may allow bat access into roosting locations within the buildings, such features may include gaps in fascia and soffit boards, loose lead flashing, holes in brickwork etc. An internal investigation was then carried out in the roof space above the living area. This investigation consisted of a search of the floor looking for any droppings, a search of the internal roof apex looking for any roosting animals or for any signs of wear caused by bats entering or leaving a roost hole. A four cell Maglite torch was used throughout the course of the internal survey. The external examination was carried out using a pair of Zeiss West 10 x 32 FL binoculars.

2.3 Phase II Survey

Phase II bat surveys were carried out on 11th September at 19:30. The weather conditions were mild and overcast with a force 3 south-west wind. The survey consisted of an emergence check of the cottages. Two surveyors (Simon Colenutt and Trevor Codlin of ECOSA) were on site 45 minutes before sunset to search for any bats exiting the buildings. The surveyors were positioned at opposite corners of the cottages to allow good surveillance coverage of the buildings.

The surveyors largely focused on the potential bat access points identified in the Phase I survey, these being the roof tiles, the areas of soffit and fascia board, the lead flashing around the chimney breast and the tiles at the gable ends of the buildings which have lifted.

Pettersson D240x time expansion bat detectors were used during the survey to record and identify bats. To confirm species identification the Pettersson bat detectors were connected to Sony mini-disks to enable echolocations to be recorded and later analysed on the current version of BatSound (Version 3.31).

2.4 Phase I Survey Limitations

When the internal roof survey was carried out, it should be noted that access to the eastern half of the roof space was not possible. It was only possible to look through a small hole in

the dividing wall from the western roof space to assess the condition of the eastern side and a detailed examination was not possible.

A detailed examination of certain potential bat access holes in the external walls was not possible due to the height and location of these features.

The timing of the survey was past the peak time for bat activity and most animals will be in hibernation, especially given that there was a spell of cold weather prior to the survey. However, despite this limitation bat droppings left in internal spaces would still be evident.

2.5 Phase II Survey Limitations

The emergence survey was carried out past the peak in the bat survey season and at a time when summer roost sites are starting to disperse for pre-hibernation sites.

In addition, a large number of long-winged coneheads *Conocephalus discolour* were calling in the grassland which created noise interference on the bat detector.

3.0 RESULTS

3.1 Introduction

This section discusses the findings of the Phase I and II bat surveys.

3.2 Phase I Bat Survey

The building consists of a stone construction with gable end design that has been partitioned in the middle creating two semi-detached cottages. The apex roof has an equal pitch on either side, is stone tiled and has a shared chimney breast built into the centre of the building. There are four single storey extensions added to the building, two on the northern elevation, one on the eastern elevation and one on the western elevation (see Figures 1 and 2).

Figure 1 Southern and eastern elevation

Figure 2 Northern and western elevation

The two extensions on the northern elevation have slate roofs and are currently being used as out-houses, one has no door, the other a loose fitting wooden door. Access was gained to the western most extension on the north side, no evidence of bat activity was found. The extensions on the eastern and western elevations are used as additional house space. Both extensions are comprised of stone walls with a corrugated asbestos roof. All of the windows have been replaced by UPVC doubled-glazing and there are no obvious gaps around any of the windows. This leaves no potential access to bats. The eaves are open ended with the roof timbers exposed and as a result there are no soffit boxes beneath the eaves. The protruding roof timbers are enclosed by stone work, however gaps have formed where the timber and stone meet. These gaps could not be inspected due to their height, however they could potentially offer bat access into the wall cavity.

The gable end on the western elevation of the building has holes beneath the tiles and a hole within the main wall that could offer access for roosting or hibernating bats. Again it was not

possible to examine these holes due to the height of the building and the presence of the extension on this elevation (Figure 3).

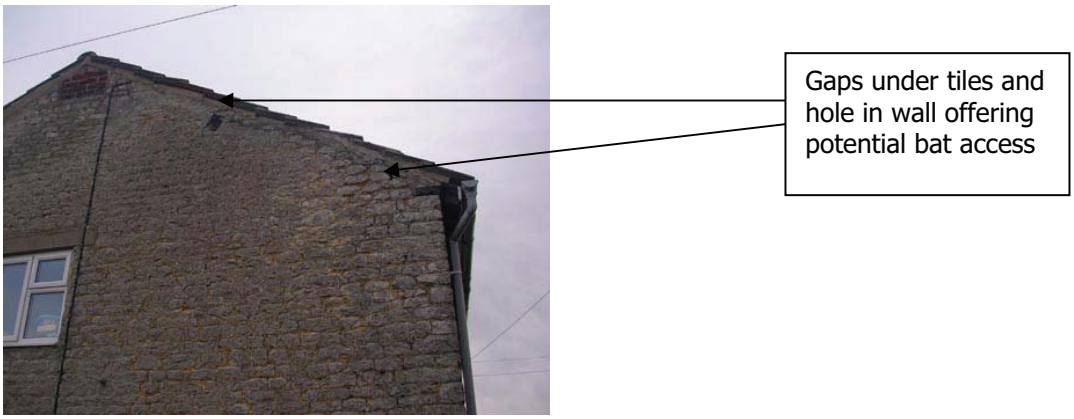

Figure 3 Western elevation showing potential access

The southern elevation of the building is generally in a good state of repair offering limited bat access. However, there are two gaps beneath the eaves where the roof timbers meet the main wall. Around the chimney breast there are some raised ridge tiles and small gaps under lead flashing (Figure 4). These openings offer excellent opportunities for bats to gain access to the void between the tiles and under felt.

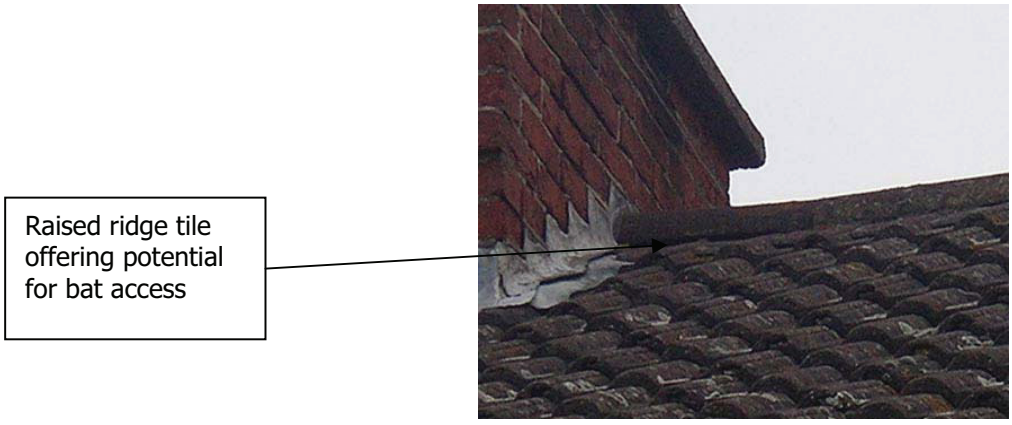

Figure 4 Roof and chimney breast

The eastern elevation of the building contains four UPVC windows. These offer no potential bat access points, however, there are some holes (Figure 5) on the wall near to the apex that are sufficiently large to allow bat access.

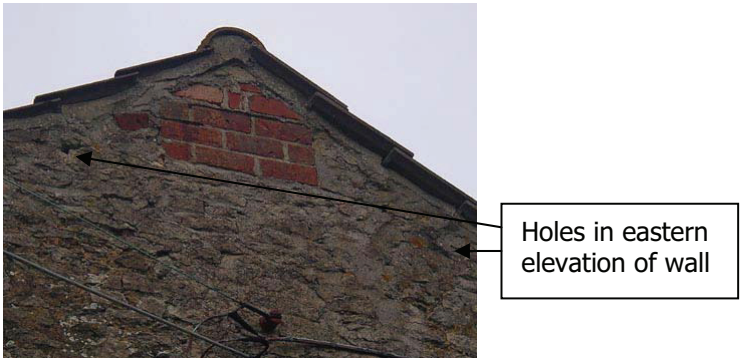

Figure 5 Holes in eastern elevation

Figure 6 Roof space

The roof space (Figure 6) is separated by a brick partition wall in the centre. As previously mentioned access was only possible to the western side of the roof space. However, it was possible to gain a restricted view of the east side. Both sides of the roof space are heavily festooned with cobwebs belonging to *Pholcus* spiders. The presence of these webs indicates little or no bat activity. Two wings of a small tortoiseshell butterfly were found beneath the chimney breast on its western side. This is often an indication of a long-eared bat feeding hang-up although sometimes rodents may eat hibernating butterflies. Despite intensive searching no bat droppings were recorded. A large number of boxes have been left in the loft space, these cover much of the floor. Boxes often collect bat droppings, however the survey recorded none.

3.3 Requirement for Phase II Bat Survey

Due to the presence of potential bat access points around the building, further survey work was required to be carried out at a time when bat activity is at a higher level (May to September). This will allow the determination of presence or absence of bats beyond reasonable doubt to be made.

3.4 Phase II Bat Survey

During the Phase II survey carried out on 11th September 2006 a noctule *Nyctalus noctula* was detected briefly and distantly at 19:55. As the bat was only heard briefly the direction of flight could not be confirmed, and a recording could not be made as the bat was too distant. Noctule bats are largely tree roosting bats and there are a number of potential bat roosting trees in and around the Whitelands Farm site. The small copses located on site and the Horse Chestnut *Aesculus hippocastanum* trees located adjacent to the Farmhouse could potentially provide Noctule roosting habitat. Noctule's often emerge early from their roost

sites with a median emergence time of 5 minutes after sunset (Jones & Rydell, 1994[1]). On the night of the survey the sunset time was at 19:28 and the timing of this record (19:55) suggests that this bat roosted some distance from the site.

A brief registration of a common pipistrelle *Pipistrellus pipistrellus* was recorded at 20:20, however the bat was distant and was not seen, and as a result the direction of flight could not be recorded. At 20:25 a common pipistrelle was recorded foraging around the cottages. There was no indication that these bats emerged from the building.

The bat detector survey was completed at 20:30, following this, the surveyors walked to Whitelands Farm to record levels of foraging activity. One common pipistrelle was recorded foraging around the Horse Chestnut trees located adjacent to Whitelands Farm.

[1] Jones, G. & Rydell, J. 1994. *Foraging strategy and predation risk as factors influencing emergence time in echolocating bats*. Philosophical Transactions of the Royal Society: Series B. 346, 445-455.

4.0 DISCUSSION

4.1 Introduction

This section discusses the implications of the Phase I and II survey results and outlines further work required.

4.2 Phase I Bat Survey

Although no bat droppings were located in the roof space the presence of some fresh butterfly wings suggests that a bat may possibly have been feeding in the roof space. The gaps in the ridge tiles above the butterfly wings may suggest that they had blown in from that area, however, this is only a speculative suggestion.

4.3 Phase II Bat Survey

A noctule was briefly seen over the recorded. The site holds a number of trees with the potential to support noctule bat roosts, however the late timing of this record suggests that this bat was roosting off site. Common pipistrelle's were recorded foraging on site but there was no indication that bats roosted within the farm cottages. The overall level of bat activity during the Phase II survey was assessed as being low.

4.4 Suggested Further Work

ECOSA were not commissioned to carry out transects or to assess the bat roosting potential of any trees on site. If any trees, and potential bat foraging habitat (for example hedgerows) are to be lost as a result of the development, then it is recommended that tree surveys and transect surveys are carried out during the summer months.

4.5 Additional Species of Note

Prior to the bat survey the northern water course was inspected for crayfish, a single immature signal crayfish was recorded.

A Little Owl *Athene noctua* was recorded twice calling from the Whitelands Farm buildings and to the north-east of the cottages during the Phase II survey.

APPENDIX 1 - Protected Species and the Law

Introduction

The following section provides the legislative background to the species considered during the field survey.

Bats

The Wildlife and Countryside Act 1981 (WCA) protects bats and their roosts in England, Scotland and Wales. Some parts have been amended by the Countryside and Rights of Way Act 2000 (CRoW) which applies only in England and Wales.

The Conservation (Natural Habitats, &c.) Regulations 1994 (better known as the Habitats Regulations) implements the Council Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora (better known as the Habitats Directive). All bats are listed as 'European protected species of animals'.

Bats may also be protected by site safeguard measures, for example by virtue of their roost site or feeding grounds being notified as a Special Area of Conservation (SAC) or a Site of Special Scientific Interest (SSSI).

Bat Protection

It is an offence for any person to:

- Intentionally kill, injure or take a bat. Under the Habitats Regulations it is an offence to deliberately capture or kill a bat.
- Possess or control a live or dead bat, any part of a bat, or anything derived from a bat. This is an offence of strict liability, in other words the onus of proof is on the person in possession of the bat to show, on a balance of probabilities, that they have it lawfully. An offence is not committed if the bat was not killed, taken, or sold to them or anyone else illegally.
- Intentionally or recklessly damage, destroy or obstruct access to any place that a bat uses for shelter or protection. This is taken to mean all bat roosts whether bats are present or not. There is a defence that this is not illegal in a dwelling house, but the defence can only be relied on (other than in the living area of a dwelling house) if the Statutory Nature Conservation Organisation (SNCO), i.e. English Nature, the Countryside Council for Wales, or Scottish Natural Heritage was notified about the proposed action and allowed reasonable time to advise as to whether it should be carried out, and if so, how. Under the Habitats Regulations it is an offence to damage

or destroy a breeding site or resting place of any bat. This is an absolute offence - in other words, intent or recklessness do not have to be proved.

- Intentionally or recklessly disturb a bat while it is occupying a structure or place that it uses for shelter or protection. There is a defence that this is not illegal in a dwelling house, but the defence can only be relied on (other than in the living area of a dwelling house) if the Statutory Nature Conservation Organisation (SNCO), i.e. English Nature, the Countryside Council for Wales, or Scottish Natural Heritage was notified about the proposed action and allowed reasonable time to advise as to whether it should be carried out, and if so, how. Under the Habitats Regulations it is an offence to deliberately disturb a bat (this applies anywhere, not just at its roost).
- Sell, offer or expose for sale, or possess or transport for the purpose of sale, any live or dead bat, any part of a bat, or anything derived from a bat. It is also an offence to publish, or cause to be published, any advertisement likely to be understood as conveying that they buy or sell, or intend to buy or sell, any live or dead bat, part of a bat or anything derived from a bat. Sale includes hire, barter and exchange.
- Set and use articles capable of catching, injuring or killing a bat (for example a trap or poison), or knowingly cause or permit such an action. This includes sticky traps intended for animals other than bats.
- Make a false statement in order to obtain a licence for bat work.
- Possess articles capable of being used to commit an offence, or to attempt to commit an offence. These are punishable in a like manner as for the actual offence.

It is not illegal:

- To take a disabled bat for the sole purpose of tending it and releasing it when no longer disabled, as long as that person can show that it was not disabled unlawfully by them.
- To kill a bat, as long as that person can show that the bat was so seriously disabled, other than by their own unlawful act, that there was no reasonable chance of it recovering.
- If the otherwise illegal act was the incidental result of a lawful operation and could not reasonably have been avoided. However this defence can only be relied on (other than in the living area of a dwelling house) if the Statutory Nature Conservation Organisation (SNCO), i.e. English Nature, the Countryside Council for Wales, or Scottish Natural Heritage was notified about the proposed action and allowed reasonable time to advise as to whether it should be carried out, and if so, how.

Police and Court Powers

A police officer who suspects with reasonable cause that a person is committing or has committed an offence can stop and search them, search or examine any relevant thing in their possession, and seize it. They can also enter land other than a dwelling house without a warrant, or enter and search a dwelling house (with or without other persons) with a warrant. In England and Wales, the CRoW Act makes bat offences arrestable.

Defra Licencing

Due to a recent ruling in the European courts a licence is now required for all 'non-domestic' developments which contain known bat roosts. This is obtainable from the Department of Environment Food and Regional Affairs (DEFRA) on the submission of a method statement detailing the works required and a mitigation package designed to 'maintain a favourable conservation status'. There are three conditions that have to be met before a licence can be granted to allow development to proceed:

1. There is no satisfactory alternative;
2. The development will not be detrimental to the maintenance of the populations concerned at a favourable conservation status in their natural range; and
3. The development must be for 'imperative reasons of overriding public interest including those of a social or economic nature.

If it is thought the work will have a direct effect on the bat roost and is unavoidable then advice must be sought from the Species Office for English Nature or DEFRA prior to the work proceeding. If bats are found whilst undertaking work as part of the development (at any stage, and even if planning permission has been granted), for example, if bats were found whilst felling trees or demolishing a building work must be stopped and English Nature contacted for further advice. A licence may be required from DEFRA before work may continue.

National vegetation classification survey

1 Introduction

1.1 The survey area forms a small section of a wider farmland landscape that is the subject of a proposed planning application for mixed use development. The survey area comprises two fields bounded by the A41 and A4095 which contain a mix of improved grassland, semi-improved calcareous grassland and rush pasture. A stream flows across the site.

1.2 A phase 1 habitat survey of the site was undertaken in 2005 by Terence O'Rourke (TOR) which supplemented earlier survey work undertaken by Bioscan and Fauber Maunsell in 2004. However the county ecologist requested that a phase 2 survey be undertaken for the north-eastern fields and TOR were commissioned to do this in August 2006. This survey forms the basis of this report.

1.3 The aim of the survey is to provide detailed information on vegetation community types using the National Vegetation Classification and to assess the ecological value of each of these areas within a national, regional and local context.

2 Methodology

2.1 The field survey was carried out using the National Vegetation Classification (NVC) system (Rodwell, 1990, 1991, 1992,1995 and 2000). The site was walked around in such a way that a reasonable sample of all habitats and vegetation communities present were seen and the boundaries of each of these communities were drawn onto a map at 1:2500. The stream was not surveyed, as the phase 1 survey provides sufficient detail for this habitat.

2.2 Five or more samples of each community were taken at locations spread throughout the survey area, with each sample recorded on a standard NVC recording sheet (Rodwell 1990 etc.). All vascular plants were identified and the abundance of each was estimated using the DOMIN scale. Figure 1 shows the location of the sample points.

2.3 The data collected was then compared manually with the published NVC tables as well as the written descriptions provided (Rodwell et al, 1992).

3 Results of field survey

3.1 The major habitats are summarised below and shown in figure 1.

MG6 Lolio-Cynosuretum cristati grassland

3.2 Constant species: *Lolium perenne, trifolium repens, Holcus lanatus, Cerastium fontanum, Festuca rubra, Cynosurus cristatus.*

3.3 Habitat and distribution: *Lolium perenne* dominated pasture with a short, tight, grass dominated sward recorded throughout the British lowlands, wherever there has been intensive improvement for pasturing.

3.4 *Lolio - Cynosuretum cristati* grassland covers the majority of the western field giving way to patches of calcareous semi-improved grassland on low fragmented mounds north of the brook. MG6 dominates the eastern field to the south of the Pingle Brook, a narrow band immediately to the north of the brook and along the hedgeline along the north of the site.

3.5 *Lolium perenne* is frequent to abundant in this community whilst *Holcus lanatus* and *Trifolium repens* are frequent. *Cynosurus cristatus* is occasional, with the samples containing less than 4% cover.

3.6 A number of associates were recorded including *Cirsium arvense* (locally abundant), *Pimpinella saxifraga* (occasional) *Taraxacum officinale* (locally frequent) and *Achillea millefolium* (occasional – locally frequent).

3.7 This community is typical of MG6 grassland containing all of the constant species and a number of associates. The grassland is frequently grazed, with significant patches of *Urtica dioica* and *Cirisium arvense* providing evidence of nutrient enrichment.

CG7 Festuca ovina – Hieracium pilosella - Thymus praecox/pulegioides grassland

3.8 Constant species: *Festuca ovina, Leontodon hispidus* and *Hieracium pilosella*.

3.9 Habitat and distribution: calcareous grassland with an open sward dominated by herbs and in particular *Hieracium pilosella*. Recorded in scattered localities over chalk of south-east England, Yorkshire Wolds, areas of Derbyshire, Mendips and the Brecklands.

3.10 This calcareous grassland is recorded on low, fragmented, raised earth banks and mounds, on what is thought to be an old limestone quarry. These mounds are isolated within a large expanse of MG6 grassland.

3.11 *Festuca ovina* is found in all samples and often comprises up to 50% of the sample area. *Leontodon hispidus* and *Hieracium pilosella* are also common, often occurring in large patches. However, the grassland lacks *Thymus praecox*, a constant species of CG7.

3.12 *Galium verum,* a preferential of CG7 was recorded in three of the five samples and varied in abundance from 4-25%. Associates include *Plantago media, Sanguisorba minor* and *Campanula rotundiflora*; however, many of the other species often closely associated with this community are lacking.

3.13 The grassland best fits with CG7 due to the frequency of *Hieracium pilosella* and *Leontodon hispidus* which are not found within CG10. Whilst many of the constant species recorded are also indicative of CG2, the sampled grassland lacks the species richness and diversity of this community.

MG10b Holco – Juncetum effusi pasture (sub-community Juncus inflexus)

3.14 Constants: *Holcus lanatus*

3.15 Habitat and distribution: Characteristic of permanently moist sites in south and east of Britain and on more calcareous ill drained soils. Generally grazed and widely distributed in pastures, *Juncus inflexus* dominates the sub community with varying abundance of wetland plants.

3.16 This rush pasture dominates the eastern field, north of Pingle brook and extends into the western field at its eastern end.

3.17 It contains few of the constant species: only *Holcus lanatus* is represented (in low numbers). *Juncus inflexus* dominates the pasture, a species that is only attributable to the sub-community MG10b.

3.18 *Carex hirta* (a preferential of MG10b) was recorded in low abundance as was a number of other species including; *Filipendula ulmaria, Urtica dioica, Rumex crispus, Potentilla anserina, Equisetum arvense* and *Mentha aquatica*.

3.19 All areas of rush pasture within the two fields are a good fit for the MG10b sub-community, as all areas are dominated with *Juncus inflexus* and contain a range of associates common to this community.

4 Summary of ecological interest

4.1 The site comprises three main NVC communities (excluding the brook). These are:

- MG6 - *Lolio-Cynosuretum cristati* grassland
- CG7 - *Festuca ovina – Hieracium pilosella - Thymus praecox/pulegioides* grassland
- MG10b - *Holco – Juncetum effusi* pasture (sub-community *Juncus inflexus*)

MG6

4.2 The MG6 community represents agriculturally improved grassland of low species diversity. Such grasslands are common throughout Britain wherever land is used as pasture; the landscape character of Bicester includes significant areas of such habitat along with wooded estates and arable land (http://owls.oxfordshire.gov.uk). The MG6 grassland on site is considered to be of negligible ecological value at national, regional and local level.

CG7

4.3 The CG7 community falls within the habitat type 'lowland calcareous grassland' which has suffered a national decline of over 20% in extent over the last 50 years. This habitat is included within the *Festuco-Brometalia* grassland identified in Annex 1 of the EC Habitats Directive as of community interest; lowland calcareous grassland is also a UK Biodiversity Action Plan habitat (BAP) and an Oxfordshire priority BAP habitat (www.ukbap.org.uk). The Cherwell BAP states that calcareous grassland is a scarcity within the district, being restricted to quarries and railway cuttings; therefore the grassland on site is typical of the local area.

4.4 The CG7 grassland identified on site is less species rich than 'typical' calcareous grassland and does not contain nationally rare or scarce plants. Furthermore, the grassland lacks the scrub mosaics which are often associated with this habitat, which, where present are important areas for butterflies and birds. Therefore the calcareous grassland on site is considered to be of ecological importance at a local level only.

MG10b

4.5 The MG10b community recorded on site is fairly typical of this type. Whilst it contains a range of herbs, it is not considered particularly species rich, lacking the diversity of other types of rush pasture found in Britain. MG10 is a common habitat of poorly drained pasture land; rush pasture is not an Oxfordshire BAP habitat, indicating that it is fairly common within the county. Therefore this habitat is considered to be of ecological importance at site level only.

5 Conclusions

5.1 The improved grassland (MG6) is of negligible ecological value whilst the rush pasture (MG10b) is of value only at site level. The calcareous grassland (CG7) holds more interest and is of local value and therefore should be retained either in situ or re-created elsewhere within the development site. The Environmental Statement provides details on how this will be achieved.

6 References

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Bicester NVC survey NE fields

Client / Project:
Countryside Properties

August 2006	Drawn By EO
1:2500 Scale	Checked By: JP
Figure 1	Revision No:

Terence O'Rourke
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Appendix A – quadrat summary tables

Mg10b

Quadrat number	5	6	7	8	9	10	11	12	13		
Grid ref	SP57560 22225	SP57867 22194	SP57821 22179	SP57755 22225	SP57713 22248	SP57677 22251	SP57671 22269	SP57798 22225	SP57632 22271		
Height cm (tall veg)	20	80	70	70	70	120	70	100	80		
Height cm (low veg)	3			7	10	5	8	10	15		
% cover tall veg	40	100		40	35	95	35	100	90		
% cover low veg	60		100	60	40	5	65	20	20		
Sample size	1m x 1m	1m x 1m	1m x 1m	1m x 1m	1m x 1m	1m x 1m	1m x1m	1m x 1m	1m x 1m		
Soil											
Species											
Holcus lanatus	4		4	7	4					IV	(4-7)
Juncus inflexus	7	9	9	7	7	9	6	10	9	IX	(7-10)
Carex hirta	5									I	(5)

MG10b continued

Quadrat no.	5	6	7	8	9	10	11	12	13		
Filipendula ulmaria							4			I	(4)
Rumex crispus		1							5	II	(1-5)
Rumex acetosa				4						I	(4)
Rumex obtusifolius		5			2			7	4	IV	(2-7)
Potentilla anserina	5						6			II	(5-6)
Dactylis glomerata				4						I	(4)
Stellaria alsine			3					5		II	(3-5)
Taraxacum officinale agg				1						I	(1)
Cirsium palustre						4				I	(4)
Equisetum palustre					1		2			II	(1-2)
Mentha aquatica			5							I	(5)

CG7

Quadrat number	1	2	3	4	14		
Grid ref	SP57277 22423	SP57296 22403	SP57341 22393	SP57438 22343	SP57519 22324		
Height cm (tall veg)	7	8	10	3	3		
Height cm (low veg)	2	5	2	n/a	1.5		
% cover tall veg	85	50	25	100	10		
% cover low veg	15	50	75		90		
Sample size	1m x 1m	1m x 1m	1m x 1m	1m x 1m	1m x 1m		
Soil							
Species							
Festuca ovina	6	6	7	6	6	V	(6-7)
Hieracium pilosella			5	7	4	III	(4-7)
Leontodon hispidus	2			1	6	III	(1-6)
Galium verum	4	5			3	III	(3-5)

CG7 continued

Quadrat no.	1	2	3	4	14		
Plantago media					4	I	(4)
Trifolium repens			4	4		II	(4)
Achillea millefolium	6					I	(6)
Agrostis stolonifera	6	4				II	(4-6)
Sanguisorba minor			5	2	5	III	(2-5)
Campanula rotundiflora				2		I	(2)
Cirsium vulgare	3					I	(3)

MG6

Quadrat number	15	16	17	18	19		
Grid ref							
Height (tall veg)							
Height (low veg)	6	10	8	8	10		
% cover tall veg							
% cover low veg	100	100	100	100	100		
Sample size	1m x 1m	1m x 1m	1m x 1m	1m x 1m	1m x 1m		
Soil							
Species							
Lolium perenne	7	5	6	6	7	V	(5-7)
Cynosurus cristatus		3			4	II	(3-4)
Trifolium repens	5		5	4	4	IV	(4-5)
Holcus lanatus	4	4	5	5	4	V	(4-5)
Cerastium fontanum		2				I	(2)

MG6 continued

Quadrat number	15	16	17	18	19		
Festuca rubra	4		5	4		III	(4-5)
Ranunculus repens	4	4			4	IV	(4)
Cirsium vulgare		4		4		II	(4)
Descampsia cespitosa			5			1	(5)
Rumex acetosa	4		4			II	(4)
Phleum pratense bertolonii					4	I	(4)
Pimpinella saxifraga	4			4		II	(4)
Dactylis glomerata	2			4	5	III	(2-5)
Cirsium arvense	1		1	1		III	(1)
Taraxacum officinale agg.	1		4	4		III	(1-4)

MG6 continued

Quadrat no.	15	16	17	18	19		
Achillea millefolium	4			4	3	III	(4-5)
Trifolium pratense	4		4	4		III	(1-7)
Potentilla anserina		3				I	(3)

Appendix B – species lists

Rush pasture (MG10b)

Carex hirta	Hairy sedge
Chamerion angustifolium	Rosebay willowherb
Cirsium acaule	Dwarf thistle
Cirsium arvense	Creeping thistle
Cirsium palustre	Marsh thistle
Cirsium vulgare	Spear thistle
Dactylis glomerata	Cock's foot
Deschampsia cespitosa	Tufted-hair grass
Epilobium hirsutum	Great willowherb
Epilobium parviflorum	Hoary willowherb
Equisetum palustre	Marsh horsetail
Filipendula ulmaria	Meadow sweet
Geranium robertianum	Herb Robert
Holcus lanatus	Yorkshire fog
Hypericum sp.	St John's wort sp
Juncus inflexus	Hard rush
Mentha aquatica	Water mint
Polygonum persicaria	Redshank
Potentilla anserina	Silverweed
Potentilla reptans	Creeping cinquefoil
Pulicaria dysenterica	Fleabane
Ranunculus repens	Creeping buttercup
Rumex crispus	Curled dock
Rumex obtusifolius	Broad-leaved dock
Scrophularia nodosa	Common figwort
Solanum dulcamara	Bittersweet
Stellaria sp	Stitchwort sp
Taraxacum officinale	Dandelion
Veronica beccabunga	Brooklime

Calcareous grassland (CG7) species list

Achillea millefolium	Yarrow
Agrostis stolonifera	Creeping bent
Campanula rotundifolia	Bellflower
Cirsium arvense	Creeping thistle
Cirsium vulgare	Spear thistle
Dactylis glomerata	Cock's foot
Festuca ovina	Sheep's fescue
Galium verum	Lady's bedstraw
Hieracium pilosella	Mouse-ear-hawkweed
Leontodon hispidus	Rough hawkbit
Leucanthemum vulgare	Oxeye daisy
Lolium perenne	Perennial rye-grass
Pimpinella saxifraga	Burnet saxifrage

CG7 species list continued

Plantago media	Hoary plantain
Ranunculus repens	Creeping buttercup
Rumex acetosa	Common sorrel
Sanguisorba minor	Salad burnet
Taraxacum officinale	Dandelion
Trifolium pratense	Red clover
Trifolium repens	White clover

Improved grassland (MG6) species list

Achillea millefolium	Yarrow
Agrostis tenuis	Common bent
Bellis perennis	Daisy
Calystegia sepium	Hedge bindweed
Cirsium acaule	Dwarf thistle
Cirsium arvense	Creeping thistle
Cirsium vulgare	Spear thistle
Cynosurus cristatus	Crested dog's tail
Dactylis glomerata	Cock's foot
Holcus lanatus	Yorkshire fog
Lolium perenne	Perennial rye-grass
Phleum bertolonii	Small-leaved timothy
Pimpinella saxifraga	Burnet saxifrage
Potentilla anserina	Silverweed
Ranunculus repens	Creeping buttercup
Taraxacum officinale	Dandelion
Trifolium pratense	Red clover
Trifolium repens	White clover
Urtica dioica	Nettle