

Executive Summary

This survey is part of output 4 of the Bedfordshire Wet Woodland Project. The Wet Woodland Project is supported by the Bedfordshire Farming and Wildlife Advisory Group, Ivel and Ouse Countryside Project, Forestry Commission, Environment Agency, English Nature, Greensand Trust, Bedfordshire County Council, Mid Bedfordshire District Council, Bedfordshire Natural History Society and the Bedfordshire and River Ivel Internal Drainage Board.

A review of previous otter survey work in Bedfordshire is included in the introduction.

The 2003/4 otter survey is a repeat of the 1996/7 survey. Three sites were removed from the survey under the recommendations of the previous surveyor. A further 14 sites were added to extend the coverage resulting in a total of 77 sites. Landowner permission was obtained to survey the sites. The Environment Agency health and safety regulations were adhered to.

The survey was conducted according to the national recommendations in which a pre-selected survey site is searched for signs of otter, spraint (faeces) and or footprints, for 300m on either side of the survey point. Surveying ceased as soon as an otter spraint was located. A standard survey form was completed at each site.

Of the 77 sites surveyed 25 were positive during the survey. High water levels and adverse weather conditions can result in the loss of spraints and 'false' negatives. Where a site was negative during the survey but was known to have been positive within three months of the survey it was considered as positive. Thirty (39%) of the 77 survey sites in 2003/4 were positive, 18 (27%) of the 66 survey sites in the 1996/7 survey sites were positive. Comparing the 63 survey sites common to both surveys there was an increase in positive sites from 18 (28.7%) in 1996/7 to 26 (41.3%) in 2003/4. The Bedfordshire survey also shows a wide distribution of otters in the county and a higher percentage of positive sites than the National Survey 2000-2002, for the Anglian Region.

Mink were recorded at 16 (21%) of the sites. There is a decrease in the number of positive mink sites in this survey 14 (22%) of sites positive, as opposed to 22 (34.9%) in the 1996/7 survey when comparing the results for the 63 sites common to both surveys.

Recommendations for the survey points for a future survey are made.

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1.0 Introduction

The history of the otter (*Lutra lutra*) in Bedfordshire has been well documented by J. Green (1983, 1997). A shy and elusive creature sightings are rare, but fortunately its presence can be detected by its spraints (faeces), which are often left under bridges and in prominent locations, as territorial markers.

The Fourth National Otter Survey of England was undertaken in 2000-2002. Otter signs were found at 34% of the 3,327 sites visited. The sites are located in alternate 50km squares. Unfortunately this results in much of east and south Bedfordshire being unrecorded. In the Anglian region 188 of 728 survey sites (25.8%) were positive. During the third national survey in 1991-94 in the Anglian Region 58 of 725 survey sites (8.0%) were positive. The fourth survey shows 222% increase in positive otter sites in the Anglian Region.

The first Bedfordshire otter survey was carried out in 1982/83 by members of the Bedfordshire and Huntingdonshire Naturalist Trust and Bedfordshire Natural History Society. Thirty-one sites were selected and a total of 132 checks were made in the survey period. Ideally each site was visited four times in the year, once in each season, in order to give the best coverage throughout the year. No otter signs were found. Mink (*Mustela vison*) were recorded at nine of the sites and water vole (*Arvicola terrestris*) were present at nine sites. Only two sites were recorded with both mink and water vole present.

During the 1980's there were various reports of sightings of otters, at Bromham (1980), Felmersham, Willington, Langford and Holme Mill, (1981), Wyboston and Henlow (1982) and Felmersham (1983). Despite active field work none of these reports could be substantiated.

The first proven evidence of otter in Bedfordshire occurred in 1986 when spraint was found on the River Ivel under New Road Bridge. From September 1986 until September 1990 otter presence was recorded on the Ivel on a fairly regular basis (J. Green, unpublished.)

In spring 1991 a full survey of the Ivel and its tributaries looking at the riparian habitat in relation to otters was made on behalf of the Beds and Cambs Wildlife Trust. Checks were made at suitable sites but no evidence of otter was found (J. Green, unpublished).

A second countywide survey by on behalf of the Bedfordshire Wildlife Trust was carried out in 1992/93 (J. Green, 1993). Sixty-six sites were checked either by a full survey or a spot check. Poor weather conditions combined with high water levels may have combined to wash away some signs but there was only one positive site found on the county boundary with Hertfordshire. It was later decided that this animal was probably a visitor from Cambridgeshire via the river Rhee (J. Green and S. Hearle, unpublished). Mink were recorded at 19 of the sites. No water vole signs were recorded.

In spring 1995 four otters (two males and two females) were released onto the River Great Ouse up stream of Bedford as part of the Otter Trust re-introduction programme licensed by English Nature.

A third survey of Bedfordshire was undertaken in 1996/7 (J. Green, 1997). The sixty-six sites were again checked for signs of otters. Eighteen of the sites showed positive evidence of otter (27%). Twenty-two sites showed evidence of mink (33%) and no signs of water vole were recorded.

A second release took place in 1998 when six otters (two males and four females) were released on the river Ivel near Blunham, also part of the Otter Trust re-introduction programme.

In 2001/02 a full survey of the Ivel and its tributaries was undertaken as part of the Ivel Otters and Rivers Project. The survey involved searching the entire length of the Ivel and its tributaries four times a year, once in each season. Surveyors found regular evidence of otter down stream of Biggleswade on the Ivel, on the Ivel Navigation and one record on the river Hiz. No evidence of otter south of Biggleswade (upstream) on the Ivel was found during the survey period (A. Proud, unpublished).

A total of ten otters have been released in Bedfordshire, four in 1995 and six in 1998. Otters cannot be aged in the wild although the young are obviously smaller in their first year of life. Corpses can be aged from growth lines in the teeth supplemented by cranial development in animals under two years of age. Gorman *et al.* (1998) analysed the data from 391 otters from three areas in the UK. The median age for otters in England and Wales was calculated at 3 years although some individuals were much older. Simpson (1998) also determined the ages of 28 otters from southwest England between 1990 and 1993 and none was more than four years old.

With a re-introduction on the Ouse in 1995, the 15 positive sites on the Ouse in the 1996/97 survey could have been recording the first re-introduced otters. Any positive record sites in 2003/4, five years after the last re-introduction, will be either old re-introduced otters, otters which have bred in the wild or moved into the area.

2.0 Method

The aim was to follow the method used during the 1996/7 survey as closely as possible. The survey method is based on the national survey method of recording the presence of otter signs. Otters mark their territories with their spraint, which they deposit in prominent positions such as under bridges or on features along the watercourse.

The river systems surveyed are shown on map 1. The survey sites are shown on map 2. In each case either a spot check or full survey was undertaken. A spot check involved checking for spraint under the bridge if present or on any features close by the survey site. A full survey involved walking the bank for 300 m each side of the bridge to record any signs of otters. As soon as any otter signs were found the survey was stopped. A survey form (appendix 1) was completed for every site, which recorded habitat details, water conditions and the presence or absence of otter, mink and water vole. No detailed attempt was made to find water voles at the sites as this is not the best time of year to survey for water voles. Each site has a number, map reference and a sketch map to allow the survey route to be repeated on future surveys.

Sixty-six sites were surveyed in 1996/7. The number of survey sites since the last survey was increased to 77 sites to take into account the record of spraint in the Marston Vale and river Flit areas, access to the Luton Hoo Estate and hence the river Lea and to increase the coverage on the Ouzel catchment. Three original sites were

eliminated from the survey as advised by the 1996 surveyor, J Green. This resulted in there being 63 sites common to both surveys.

Landowners of all the survey sites were contacted where ever possible in order to obtain their permission to survey.

The Environment Agency health and safety recommendations were adhered to.

The survey was undertaken from mid November 2003 until mid January 2004, the same period as the 1996/7 survey. The presence of high water levels and adverse weather conditions at this time of the year resulted in the loss of otter spraints and 'false negatives'. Where a survey site was negative during the survey but was known to have been positive within three months of the survey a note was made and the result included with the positive results.

3.0 Results

The positive sites are shown on map 3, full details of the survey results are given in appendix 2 and a summary of 2003/4 and the 1996/7 results are given in table 1.

Of the 77 sites 25 were positive during the survey and a further five were known to be positive during the previous three months (J. Green, pers comm) i.e. 39 % of the survey sites showed evidence of otter. Eighteen sites of the 96/97 survey sites were positive (27%).

Comparing the sites which were covered in both surveys (63), 18 or 28.7% were positive in 1996/7 and 26 or 41.3% were positive in the 2003/4 survey.

Mink were recorded at 16 sites (21%).

No water voles were recorded.

Table 1 A summary of the otter survey results of 2003/4 and 1996/7

River	No. of sites surveyed 2003/4	No of positive sites 2003/4	No of sites surveyed 1996/7	No of positive sites 1996/7
Nene	1	0	1	0
Great Ouse and smaller tributaries	24	15	26	15
Elstow Brook catchment	8	4	2	2
Rhee	4	3	4	nil
Kym	3	nil	3	nil

River	No. of sites surveyed 2003/4	No of positive sites 2003/4	No of sites surveyed 1996/7	No of positive sites 1996/7
Till (tributary of Kym)	2	nil	2	nil
Ivel and tributaries (Hiz Hit, Ivel Navigation/Flit)	19	8	18	1
Ouzel and tributaries	10	nil	6	nil
River	No. of sites surveyed 2003/4	No of positive sites 2003/4	No of sites surveyed 1996/7	No of positive sites 1996/7
Lea	4	nil	1	nil
Others	2	nil	3	nil

3.1 The River Nene

The one survey point on a minor tributary of the Nene had no signs of otters.

3.2 The River Great Ouse Catchment

The River Great Ouse rises at Brackley in Northamptonshire, flows through Milton Keynes and meanders across the north of Bedfordshire finally entering the sea at Kings Lynn. Twenty-four sites were surveyed on the Great Ouse and its smaller tributaries: South Brook, Begwary Brook and Duloe Brook. No evidence of otters was found on the smaller Brooks but 15 survey sites on the Great Ouse were positive.

The Elstow Brook joins the Ouse at Willington and is fed by several smaller tributaries originating and flowing through the flooded clay pits of the Marston Vale. The lower reaches of the Brook were surveyed in 96/97. The finding of spraint in the Marston Vale area in 2003 and a road kill of an otter on the A421 also in 2003 resulted in the addition of a further six sites to the 2003/4 survey in the Elstow Brook catchment. Of these six new sites three were positive resulting in a total of four positive sites for the Elstow catchment.

The river Rhee or Cam rises near Ashwell and forms part of the border between Bedfordshire and Cambridgeshire. It flows through Cambridge and joins the Ouse near Stretham south of Ely. Four sites were surveyed. The three survey sites on the river itself were positive. Throughout its length the Rhee has been monitored monthly for nearly ten years and found to have frequent signs of otter (J. Green, per comm.).

Except for a small stretch where it forms part of the border with Cambridgeshire the river Kym lies outside Bedfordshire. It joins the Ouse at St Neots. Small streams

drain into the Kym from north Beds. All three survey sites on these smaller streams were negative.

The river Till drains from north Beds into the Kym at Kimbolton. Both survey sites on the Till were negative.

The river Ivel joins the Ouse at Tempsford. The Ivel catchment drains much of east Beds; with the Flit from the west becoming the Ivel Navigation and joining the Ivel near Langford, the river Hiz draining from north Herts and joining the Ivel near Henlow and the river Hit joining the Ivel near Shefford. A total of 19 sites were surveyed in this catchment of which eight were positive. The Hit was the only tributary to not show evidence of otter at the time of the survey.

The Grand Union Canal and the river Ouzel, with its tributary the Clipstone Brook, drain the south west of Bedfordshire. The Ouzel joins the Ouse at Milton Keynes. The number of survey sites in this catchment was increased from six to ten in this survey but no evidence of otter was found in either the 1996/7 or the 2003/4 survey.

3.3 The River Lea Catchment

The river Lea rises in Luton and flows south-east to join the Thames in London. Only the upper reaches of this river are in Bedfordshire. New access to the Luton Hoo estate allowed the addition of three more survey sites, but no evidence of otters were located. Otters do occur further downstream on the Lea in the Lea Valley Park (T. Hill pers comm.).

3.4 Other Sites

Two other sites were surveyed which were not directly part of any major river system; one near Barton-le-Clay and the other near Old Warden, both were negative.

3.4 Mink

The sixteen sites where mink signs were found are shown on map 4. Sites where both mink and otter sign were located are also shown on map 4.

4.0 Discussion

4.1 Otter

With the introduction of four otters onto the Ouse in 1995 and a subsequent survey in 1996/7 it is not possible to know if the survey was recording wild bred otters or only those that had been re-introduced or a mixture of both. With a further introduction in 1998 on the Ivel, the positive records obtained during the Ivel otter survey, has the same problem. If the median life of an otter in England is three years (Gorman *et al* ,1998; Simpson, 1998) then by 2003/4 records of otter signs are more likely to be of otters breeding in the wild or otters moving into the area.

A sick otter was found on the Ivel in 2004. It subsequently died and was found to be chipped. The otter was born in November 1996 and had been released in the Ivel in July 1998. It was therefore seven years and three months old when it died. The post mortem analysis was not yet available at the time of writing.

The 1996/7 survey recorded otter signs on the Ouse, Elstow Brook and the north of the Ivel. This survey has recorded otter signs on the Ouse, Elstow Brook, Marston Vale flooded clay pits, Ivel, Hiz, Flit, Ivel Navigation and the Rhee (map 3) showing that the otter has now spread across Bedfordshire to occupy much of the Ouse catchment.

The lack of evidence of otter on the Ouzel is surprising in relation to its spread across Bedfordshire. In much of the area the habitat looks satisfactory with plenty of cover along some of the river banks.

It is important to remember that a survey of this type does not record anything other than the distribution of otters along a river system. It is not possible to calculate how many otters there are in Bedfordshire from the data collected. Otter territory lengths are relatively meaningless as otters also use smaller streams and water bodies within their territory. Durbin (1966) calculated that a male otter had a home range of 50 km of river compared to a female with an overlapping home range of 24 km. When the actual area of water in each territory was calculated the female had the larger range of 34 ha compared to the male's 29 ha. Various other studies have identified different territory lengths of river. Harris et al (1995) calculated that a 75 km² in East Anglia contained three otters and further calculated one adult otter per 27km of water in England and Wales. Kruuk et al (1993) calculated otter density as ranging from 2-50 ha of water per otter, which was equivalent to one individual every 3-50 km of stream (median value of one otter per 15 km of stream).

High water levels, recent rainfall and the breeding state of any female will all alter the degree of accuracy of recording spraint. It was for this reason that all positive records for the three months prior to the survey were included in the results as the aim of the survey was to record the presence of otter along Bedfordshire's river systems not to undertake a statistical scientific inquiry.

The 2000-2002 National Survey has shown that over the whole of the Anglian region there has been an increase from 8% in the positive sites for otter in 1991-94 to 26% in 2000-2002 survey. The Bedfordshire survey shows an increase in positive sites from 18 (28.7%) in 1996/7 to 26 (41.3%) in 2003/4, when comparing the sites which were covered in both surveys (63 sites). The Bedfordshire survey also shows a wide distribution of otters in the county and a higher percentage of positive sites than the National Survey for the Anglian Region.

4.2 Mink

The 1996/7 survey located mink at 21 sites (32%)(see appendix 2). The sites were on the Ouse, Ivel, Flit, Rhee and Ouzel showing that mink were already widely distributed throughout Bedfordshire. Russell (2000) outlines the spread of mink through Bedfordshire and 98 tetrads had recorded evidence of this species by 2000. At present it is not possible to know if this species has reached its maximum density and distribution in Bedfordshire. There is a decrease in the number of positive mink sites in this survey, 22% of sites positive, as opposed to 34.9% in the 1996/7 survey when comparing the results for the 63 sites common to both surveys.

There has been anecdotal evidence (Crawford, 2002) of a decrease in the mink population where the otter has re-colonised or been introduced. However, mink and otter have been seen to occupy the same area of river (pers obs) Otter and mink signs were found at 13 of the 21 mink records on the 1996/7 survey and as is shown on map 4 otter and mink signs were found at five of the survey sites in 2003/4.

5. 0 Recommendations for future survey work

The number of survey sites in Bedfordshire was increased from 66 to 77 in order to increase the coverage. This number of sites takes a considerable amount of time to cover. Generally a maximum of six sites can be covered in a day's surveying.

It is recommended that the number of sites be decreased to 50 to 60. A recommended list of sites for future survey work is shown in appendix 2 and map 5. This list will need to be further pared down in light of any monitoring work undertaken between now and the next survey. The rationale for the choice of these survey sites is:

- The need to show that otters are still using a river system and
- The need to document the spread of otters along river systems
- sites with bridges with ledges which may just need spot checks to record the presence of spraint are the most economical and productive for otter surveying

The negative sites are therefore those of most interest for the next otter survey rather than many records of otters along the same river system. For this reason the number of sites on the rivers Ouse, Ivel and Rhee have been decreased while all those on tributaries have been included, unless considered unsuitable habitat or there are difficulties with access. In order to continue to record the spread into the Marston Vale all sites have been included for the Elstow Brook system.

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References

- Crawford, A. (2003). *Fourth Otter Survey of England 2002-2002*. Environment Agency. Bristol.
- Coxon, K., Chanin, P Dallas J. & Sykes T., (1999). *The use of DNA Fingerprinting to Study the Population Dynamics of Otters (Lutra lutra) in Southern Britain: A Feasibility Study*. Environment Agency R&D Technical Report W202. Bristol.
- Green, M.J. (1983). The Otter in Bedfordshire. *The Bedfordshire Naturalist* **No. 38** 12-13.
- Green, M.J. (1993). *The Bedfordshire Otter Survey*. Bedfordshire Wildlife Trust. The Wildlife Trust for Bedfordshire.
- Green, M.J. (1997) *Otters in Bedfordshire and on the River Tove*. Report prepared for the Environment Otters in Bedfordshire and the River Tove.
- Jeffries, D. J, Wayre, P. & Shuter, R. (2000). A Brief History of the Otter Trusts Successful Programme of Repopulating Lowland England with Otters Bred in Captivity with Special Emphasis on East Anglia. *Otters The Journal of the Otter Trust* Vol.111 **No. 4** pp105-117.
- Russell, M. (2000). The Mink and its Status in Bedfordshire. *The Bedfordshire Naturalist* **55** (Part 1) 20-27.
- Chanin, P. (2003). *Ecology of the European Otter*. Conserving Natura 2000 Rivers Ecology Series **No 10**. English Nature, Peterborough.
- Durbin, L. S. (1996). Individual differences in spatial utilization of a river-system by Otters *Lutra lutra*. *Acta Theriologica* **41** 2, 137-147.
- Gorman, M. L. , Kruuk, H, Jones, C, McClaren, G. & Conroy J.W.H.(1998). The demography of European otters *Lutra lutra*. *Symp. Zool. Soc. Lond.* **71**, 107-118.
- Green, J. Green R. & Jefferies, D.J. (1984). A radio-tracking survey of otters *Lutra lutra* on a Perthshire river system. *Lutra* **27**, 85-145.
- Harris, S., Morris, P., Wray, S. Yeldon, P (1995) *A review of British mammals*. Joint Nature Conservation Committee, Peterborough.
- Kruuk, H., Carsss, D. N., Conroy, J.W.H. & Durbin, I (1993). Otter (*Lutra lutra*) numbers and fish productivity in rivers in north-east Scotland. *Symp. Zool. Soc. Lond.* **65**, 171-191.
- Simpson, V.R., (1998) *A post mortem study of otters (Lutra lutra) found dead in south-west England*. R&D Technical report W148. Environment Agency, Swindon.

