

water for wildlife

Essex Otter Survey 2007

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ESSEX

Wildlife Trust



Background

In the early 1950s otters *Lutra lutra* were widespread and common in Essex. Over the subsequent thirty years they experienced a massive decline with surveys in the mid 1980s suggesting they were extinct in the county. This population collapse was attributed to a decline in habitat quality and an increase in environmental contaminants accumulating in the food chain leading to poor reproductive success and survival rates.

Long term post-mortem studies of otters, usually the victims of road traffic accidents, have revealed that accumulations of a number of toxins are higher in older males and juveniles than in breeding females. This is thought to be the result of mothers unloading toxins through their milk directly to their cubs. Males cannot pass toxins in this way so these accumulate over the course of their lifetime. While some chemicals have declined over the course of these studies (e.g., dieldrin, TDE and pp'DDE), organochlorines and PCBs have remained constant. Substantial deformities and reproductive failure are often the result of high levels of such toxins (Simpson, 2007).

Another concern was the number of otters with bite wounds, up from 16% in 1996, to 52% in 2003. While bites from dogs were a significant contribution to deaths in cubs, most of the adult wounds were from other otters (Simpson 2007). The otters examined for the study were collected from the South West, where otter numbers are now close to carrying capacity (100% occupied territory), so this intra-species aggression is thought to stem from fierce territorial disputes.

In Essex, otter numbers have not yet reached such levels so this is less likely to be an issue. Surveys during the early 1990s indicated that Otters were only present in low numbers in a few locations and were believed to be captive bred and released animals and natural migration from Suffolk. In 1996 with funds from WWF-UK, Sheila Macdonald and Christopher Mason of the University of Essex began a series of systematic annual surveys covering all the Essex rivers and some suitable coastal areas (Macdonald & Mason, 2003). The Essex Biodiversity Project continued this work between 2003 and 2006 when it was taken over by Water for Wildlife as one part of the RIVERSEARCH volunteer survey programme.

The otter is the subject of a Biodiversity Action Plan within Essex (Thompson, 1999). The plan identifies the need for the continuation of the above annual survey work and to provide opportunities for the public to participate and report sightings. Raising awareness about otters in the county is an important element of the survey as most members of the public remain unaware that otters are present in Essex.

The information gathered from the annual survey work is being used to understand otter distribution, habitat requirements and their success at colonising new areas in Essex so that improvements can be targeted effectively. Data gathered from this county survey compliments and fill the gaps in national survey work (Crawford, 2003). Information will be made available to inform planning work for this legally protected species.

Surveying for otters

Even when otters are using a river they are rarely seen. Their main prey, eels and other fish, are more sluggish and easier to catch at night so river otters have adapted to a nocturnal lifestyle. They can also occupy very large territories with males holding up to 40km overlapping several female territories. It has therefore been important to develop a method of surveying that does not rely on actual sightings.

Otters communicate to each other by marking or 'sprainting' with small droppings along a watercourse at features like fallen trees, boulders, prominent grass tussocks and bridge supports etc. Bizarrely, the largest spraints are usually deposited by females, and the smallest

Right: Otter tracks photographed by Riversearch surveyor Peter Margetts. Note the fox print (circled). Training involves distinguishing between different tracks commonly found on the riverbank.



Below: Left is a fresh spraint with a black, tarry appearance. Right is an older spraint which is whiter and crumbly with obvious fish bones and scales visible.



by males (Woodroffe, 2007). This may be the result of the greater distances travelled by males, and the need to spraint more regularly. With practice these spraints can be located and are quite distinctive, dark when fresh, containing fish bones and with an unexpected pleasant sweet smell like fresh hay, cut grass or 'jasmine tea'. The presence of spraints provides definite proof that otters are using a stretch of river.

Riversearch

RIVERSEARCH was launched in 2007 to provide volunteer surveyors throughout Essex with training sessions concentrating on field signs and species ecology. To increase the number of otter surveyors, training sessions are run at Dedham on the River Stour each spring. Potential surveyors are trained to identify spraints and footprints and to differentiate between otter, mink, fox and other field signs.

Survey points are allocated which start at bridges or other prominent features and points of access. The surveyor searches a total of 600m of bank either side of the river and in either direction from the starting point searching for otter spraints. When a sprainting site is found the spraints are counted (but not removed) and the search is terminated. The surveyor then moves on to the next survey point. Footprints are noted but a survey point is identified as positive only on the presence of spraints.

The easiest time for surveying is from February to the end of May before waterside vegetation becomes too dense, however at this time of year water levels can fluctuate and wash away sprainting sites. Where access is possible sites can be searched through the summer and some sites are revisited several times.

Survey limitations

While a survey of field signs can reveal the presence of a species, it cannot confirm absence and tells us little or nothing about the individual otter or the number of different animals in an area. Only detailed analysis of spraints in a lab can reveal which animal left it and at present even DNA analysis only works on an average of 20% of samples. Spraints have to be collected within an hour of deposition so they are fresh enough to be analysed which is very time consuming and difficult to achieve on the ground.

Work on analysing the chemical scent markers in spraint is at an early stage but the main advantage is that much older spraints can be used. As the scent is a territory marker it has to persist for a long time or it would not be an effective warning to other otters. In trials with captive otters for Cardiff University, 100% of spraints were able to be analysed so it is hoped that funding for a project based at Cardiff University will enable further investigation of this technique.

2007 survey results

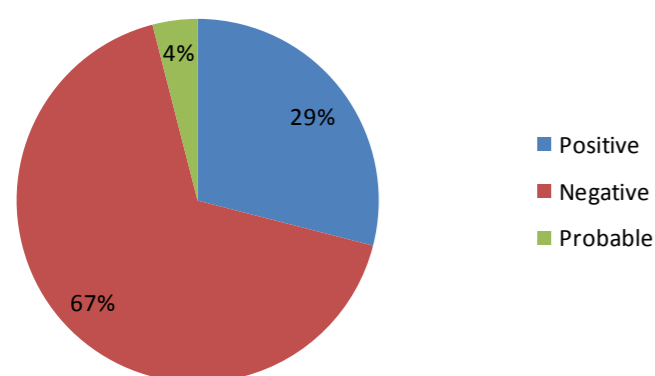
Survey points

RIVERSEARCH aims to survey 252 points along 26 rivers/catchments covering Essex and adjacent parts of neighbouring counties Suffolk, London, Hertfordshire, and Cambridgeshire. These points cover 26 districts and boroughs - 13 in Essex, 8 in London, 2 in Suffolk, 2 in Hertfordshire and 1 in Cambridgeshire.

The list includes the 234 Mason & Macdonald survey points (Macdonald & Mason, 2003) as well as some extras. In 2007, 198 (78%) of the 252 survey points were surveyed by 32 surveyors. Of these, 29% (n=57) were positive and 67% (n=132) negative with the remaining 4% (n=7) showing other signs of otter such as footprints, but no spraints. This shows an increase on 2006 in both the survey points showing as positive, and the number of sites surveyed.

Chart 1 – Percentage breakdown of surveyed sites 2006/2007

2007 Essex otter survey



2006 Essex otter survey

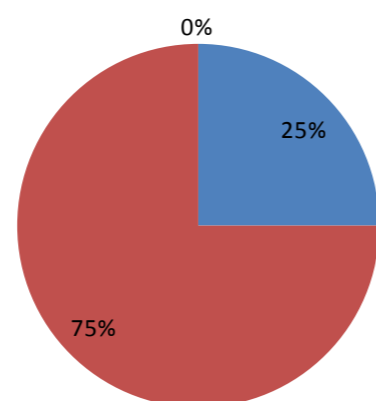
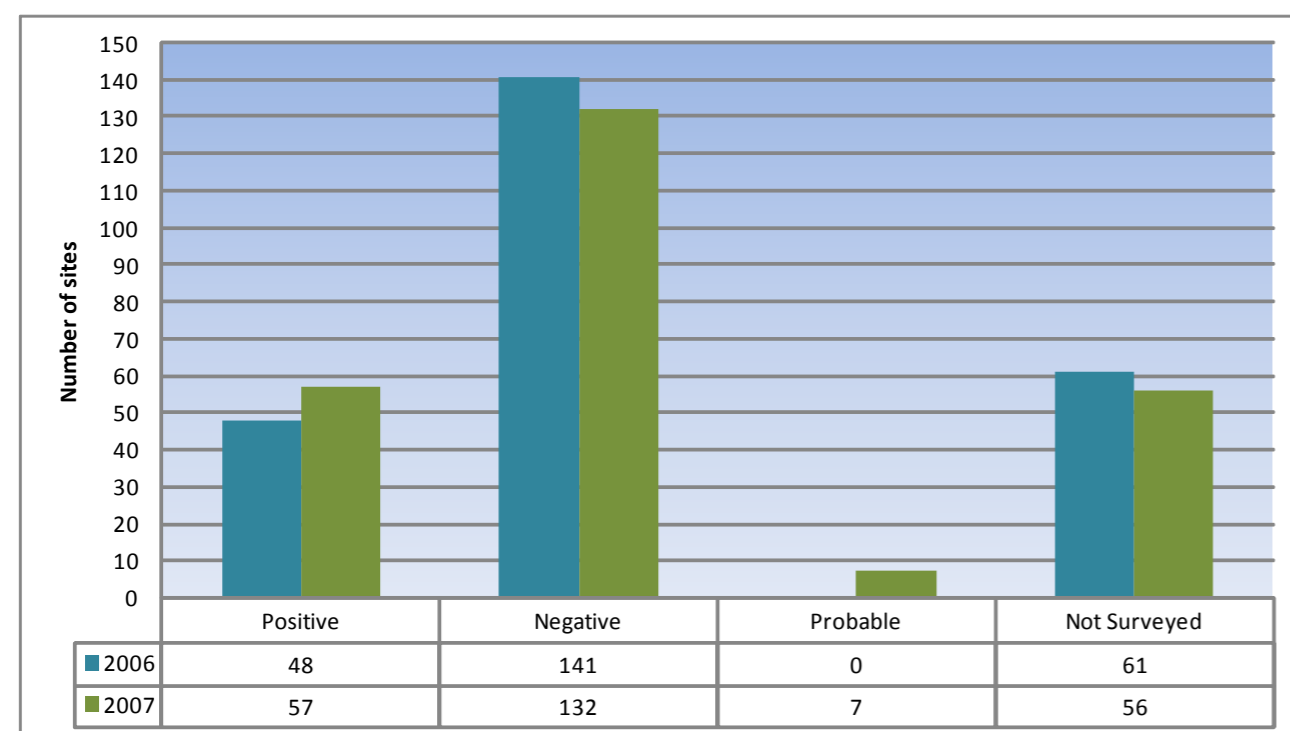


Chart 2 – Comparison of Essex Otter Survey for 2006 and 2007 including un-surveyed sites



Rivers and Catchments

15 catchments were surveyed in their entirety and a further 10 partially. The only catchment left totally unsurveyed was the Stebbing Brook, but with only one survey point this was not a significant issue. Many of the other smaller brooks and rivers had very good coverage.

Large catchments

Blackwater/Pant, Stour and Colne

These are the three largest catchments in the survey with 29, 27 and 26 survey points respectively. The Blackwater/Pant catchment, which drains almost a third of the county, had 3 positive spraint sites and 2 other probable sites in 2007, similar to the 5 positive sites found in 2006. Although this is a low percentage for the catchment, an independent survey of water voles undertaken for Water for Wildlife by ecologist Martin Ketcher also revealed a number of other sites with otter signs and confirmed presence on some sites found negative earlier in the year. The river would therefore seem to have more otter activity than was revealed by the initial volunteer survey.

Table 1: Breakdown of the number of sites in each river/catchment that were surveyed or not surveyed and positive or negative for otters in the 2007 survey. (Shading represents catchments with positive otter signs.)

| River/Catchment | Total No. of survey points | No. of positive | No. of probable | No. of negative | No. of points not surveyed |
|-----------------|----------------------------|-----------------|-----------------|-----------------|----------------------------|
| Blackwater/Pant | 29 | 3 | 2 | 18 | 6 |
| Box | 5 | 2 | 0 | 3 | 0 |
| Brain | 5 | 1 | 0 | 4 | 0 |
| Brett | 12 | 6 | 0 | 6 | 0 |
| Cam | 6 | 3 | 1 | 2 | 0 |
| Can | 2 | 1 | 0 | 1 | 0 |
| Chad Brook | 5 | 3 | 0 | 2 | 0 |
| Chelmer | 18 | 3 | 2 | 12 | 1 |
| Colne | 26 | 9 | 1 | 12 | 4 |
| Crispey Brook | 2 | 0 | 0 | 2 | 0 |
| Crouch/Dengie | 12 | 0 | 0 | 11 | 1 |
| Glem | 10 | 4 | 0 | 6 | 0 |
| Hamford Water | 5 | 0 | 0 | 1 | 4 |
| Holland Brook | 5 | 0 | 0 | 5 | 0 |
| Lee or Lea | 10 | 4 | 0 | 6 | 0 |
| Pincey Brook | 2 | 0 | 0 | 2 | 0 |
| Roding | 17 | 0 | 0 | 2 | 15 |
| Roman River | 7 | 1 | 0 | 6 | 0 |
| Sandon | 2 | 2 | 0 | 0 | 0 |
| Southeast Essex | 15 | 0 | 0 | 8 | 7 |
| Stebbing Brook | 1 | 0 | 0 | 0 | 1 |
| Stort | 9 | 1 | 0 | 8 | 0 |
| Stour | 27 | 12 | 0 | 1 | 14 |
| Tenpenny Brook | 4 | 0 | 0 | 4 | 0 |
| Ter | 8 | 0 | 0 | 6 | 2 |
| Wid | 8 | 2 | 1 | 4 | 1 |
| Total | 252 | 57 | 7 | 132 | 56 |

The Stour, which forms a border between Essex and Suffolk, is the river with the most signs of otter activity. Although only half the river was surveyed there were 12 positive sites and only 1 negative. The smaller tributaries such as the Brett (6 positive), Glem (4 positive) and Chad Brook (3 positive) also showed significant signs of otter occupation. Each had 50% or more of its sites used for sprainting. In 2006 only 5 sites were checked on the Stour itself, 3 of which were positive, but in 2005 the whole catchment was surveyed and provided 18 positive records. It is likely that if the river was surveyed in its entirety, a similar picture would emerge. A female and two cubs have been seen between Wormingford and Cornard, with heavy sprainting regularly found in the area. While engaged in a water vole survey of the area around Bures, the Water for Wildlife team discovered otter spraint on the Cambridge Brook, and footprints on a tiny farm ditch, almost 1km from the main river.

The Colne is also well occupied by otters, being the nearest catchment in Essex to the Stour. Of the sites surveyed, 9 were positive, 1 probable and 12 negative. In 2006, 10 sites were found to be positive so overall the situation on the Colne appears to be stable. Natural England report regular otter tracks at the Hythe downstream of Colchester at a site not recorded as positive during the current survey. Combined with the record on the Roman River this suggests that otters are regular visitors to this tidal stretch.

**Medium sized catchments
Chelmer, Roding, Crouch/Dengie,
Lea and South East Area**

The Chelmer has 18 survey points and had spraints in 3 locations with probable otter tracks in two others. This is similar to the distribution from last year's survey although slightly down on the 6 positive sites recorded then.

Unfortunately the River Roding had only 2 of its 17 survey points covered. As otter signs were found at four sites between Loughton and Fyfield in 2005 it would have been useful to track any expansion or contraction of their range. It is hoped that a surveyor can be trained to undertake this work next year.

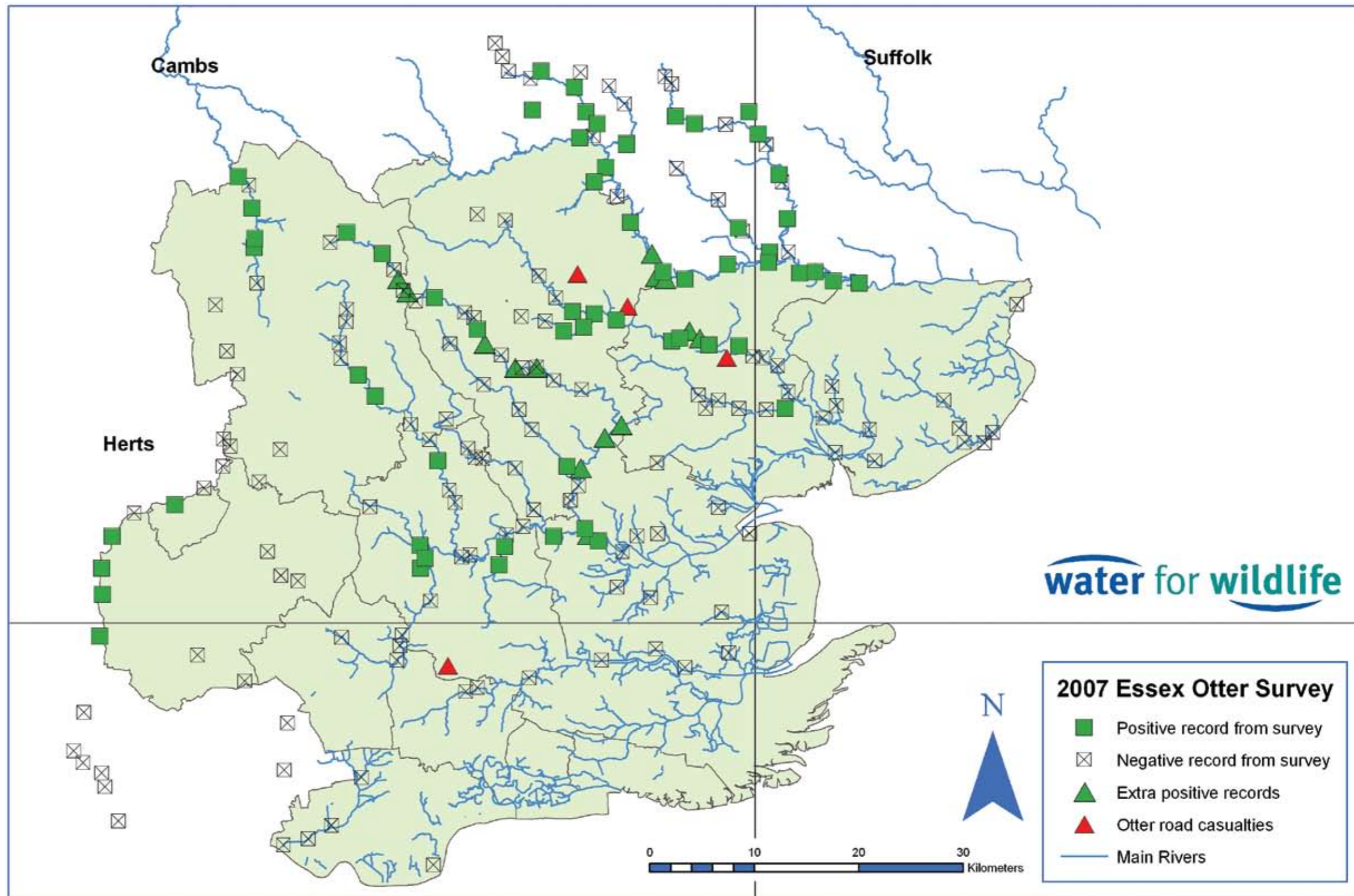
The Crouch and Dengie peninsula is in the coastal eastern part of the county south of the Blackwater. This area was well surveyed and although signs of water vole were common, otters do not yet appear to be present.

The South East area consists of a number of disjointed sites scattered around the London fringe and coastal margin. Much of the habitat is similar to the Crouch and Dengie and as yet otters do not appear to have expanded into this area.

The River Lea complex runs along the border with Hertfordshire and showed good signs of otter activity with 4 points out of 10 positive. Only two positive signs were noted in 2006 but as only 5 points were surveyed this does not necessarily reflect an expansion of range as much as a doubling of survey effort.

Map 1 - Otter distribution 2007

This map shows all the points that were surveyed by the RIVERSEARCH volunteer survey team in 2007 (shown as squares). In addition, triangles represent positive records of otters gathered from independent sources during 2007. Some of these are from the Essex water vole survey of the Blackwater catchment, others from road traffic accidents (red) sent to Cardiff for post mortem and the remainder gathered during sundry survey work by Water for Wildlife.



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Table 2: Summary table comparing the number of sites in each catchment that were found to be positive for otters in 2003-2007 (n/s = not surveyed)

| River/Catchment | Total No. of survey points | No. positive 2003 | No. positive 2004 | No. positive 2005 | No. positive 2006 | No. positive 2007 |
|-----------------|----------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Blackwater/Pant | 29 | 1 | 4 | 4 | 5 | 3 |
| Box | 5 | 4 | 3 | 3 | 2 | 2 |
| Brain | 5 | n/s | 0 | 0 | 1 | 1 |
| Brett | 12 | 0 | 4 | 5 | 7 | 6 |
| Cam | 6 | 0 | 1 | 4 | 2 | 3 |
| Can | 2 | 1 | 0 | n/s | 1 | 1 |
| Chad Brook | 5 | n/s | n/s | n/s | 2 | 3 |
| Chelmer | 18 | 5 | 7 | 2 | 6 | 3 |
| Colne | 26 | 3 | 5 | 10 | 10 | 9 |
| Crispey Brook | 2 | n/s | n/s | 0 | 0 | 0 |
| Crouch/Dengie | 12 | 0 | 1 | 1 | 0 | 0 |
| Glem | 10 | n/s | n/s | n/s | 2 | 4 |
| Hamford Water | 5 | n/s | 0 | 0 | 0 | 0 |
| Holland Brook | 5 | 0 | 0 | 0 | 0 | 0 |
| Lee or Lea | 10 | 3 | 1 | n/s | 2 | 4 |
| Pincey Brook | 2 | 0 | 0 | 0 | 0 | 0 |
| Roding | 17 | 4 | 2 | 0 | 1 | 0 |
| Roman River | 7 | 0 | 0 | 1 | 0 | 1 |
| Sandon | 2 | n/s | 0 | n/s | 2 | 2 |
| Southeast Essex | 15 | n/s | 0 | 0 | 0 | 0 |
| Stebbing Brook | 1 | n/s | n/s | n/s | n/s | n/s |
| Stort | 9 | 1 | 1 | 1 | 1 | 1 |
| Stour | 27 | 4 | 14 | 18 | 3 | 12 |
| Tenpenny Brook | 4 | 0 | 0 | 0 | 0 | 0 |
| Ter | 8 | n/s | 0 | 0 | 0 | 0 |
| Wid | 8 | 5 | 1 | 0 | 1 | 2 |
| Total | 252 | 31 | 44 | 49 | 48 | 57 |

Presence of mink

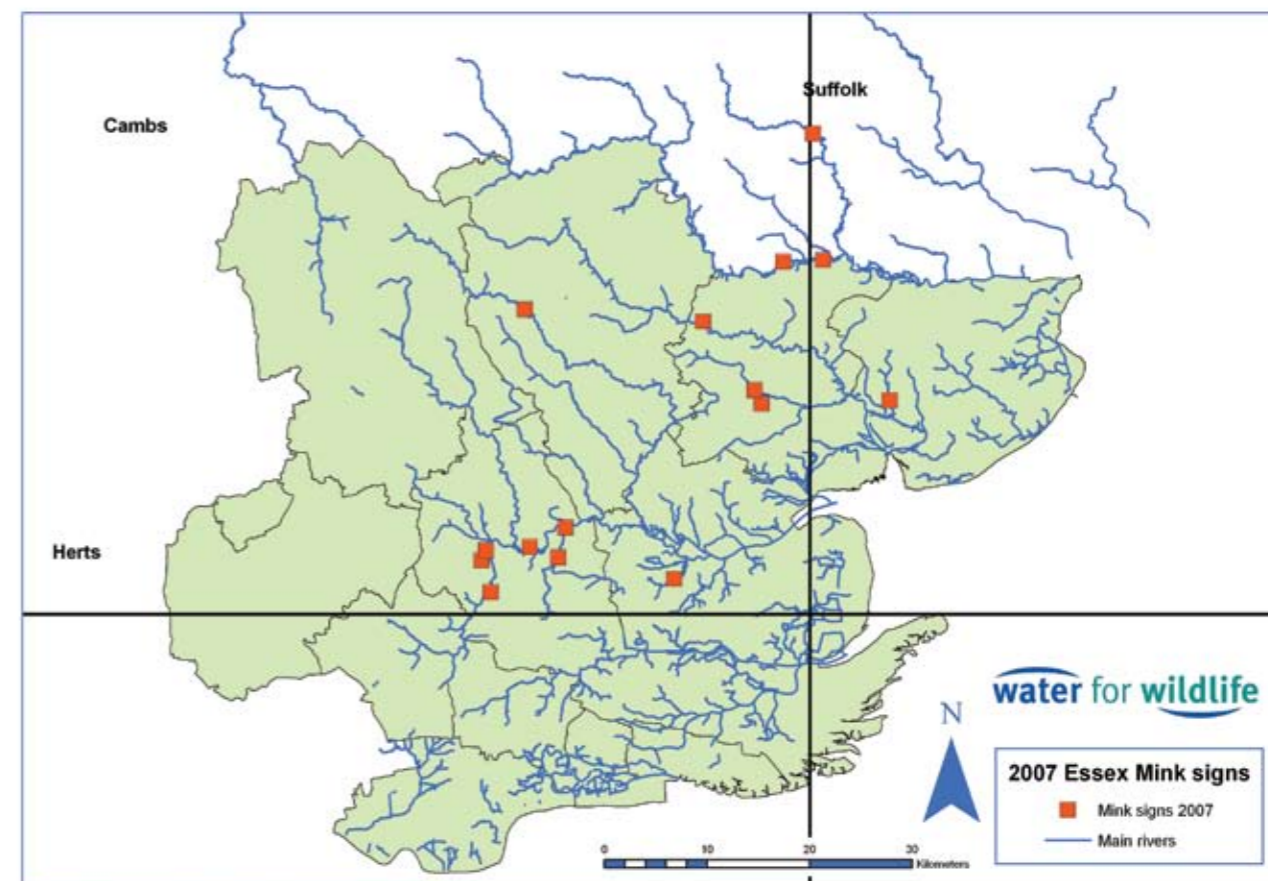
Recording of American Mink *Mustela vison* activity is not fundamental to the Essex Otter Survey but where evidence of this species was noted by surveyors this was recorded. These signs do not provide a full distribution of mink in Essex but do provide an interesting snapshot of a species that is known to have expanded throughout the county.

Evidence of mink presence was recorded at 15 survey points, only 2 more than in 2006, however the distribution of these signs was much wider. In 2006 only 4 catchments, the Chelmer, Stort, Stour and Dengie/Crouch showed signs. In 2007 mink signs were not only found on the Chelmer, Stour and in Dengie, but also on the Wid, Sandon Brook, Blackwater, Colne, Roman River and Tenpenny Brook.

Recent work in the Tendring Peninsula by the Water for Wildlife Project has revealed that mink are present throughout the coastal area where they were previously considered absent or rare. These are areas where otters are currently absent, but water vole strongholds still exist. Mink are a direct threat to water voles so work on mapping their distribution is of vital importance to Essex.

Map 2: Mink signs

More surveyors noted signs of mink in 2007 than in the previous year (9 catchments in 2007, 4 in 2006). While this does not represent the full distribution of mink in Essex it does give an indication of the increasing numbers being spotted across Essex.



Summary

The beginning of 2007 was subject to very high water levels especially evident during the RIVERSEARCH training days on the River Stour at Dedham in March. At this stage otter ledges under the road bridge were under 30cm of water when they would normally have been at least 30cm above it. As a consequence, many surveyors commented on the high water levels they encountered during their surveys and struggled to find signs that may have been obvious in years with lower flows. In spite of this, the number of positive sites was higher than in previous years.

The main area that remains devoid of otter activity is the eastern coastal margin stretching from Tendring in the north, to Dengie and the Thames marshes in the south. These are areas that are facing mink encroachment at present so the habitat may also be suitable for otter. Eels are a favoured food of otters in East Anglia and they are present in many of the marsh ditch and stream systems. It may only be a matter of time before otters colonise these areas.

In addition to the official survey, ad hoc reports of otter signs or dead otters have been reported to the Water for Wildlife Officer during the course of the year. A water vole survey of the Blackwater Catchment, by ecologist Martin Ketcher, also revealed a number of otter signs outside the official survey points. All these extra points have been included on the distribution map to build up a more complete picture of otter distribution in the county. While incorporating records such as this does provide a better idea of the otter's range, it is still important to have the comparative data provided by the volunteer survey team.

Future threats

Otters appear to be doing well in Essex but there are some worrying developments that may become an issue in the future. As otter numbers increase, they inevitably require more territory, and this can bring them into conflict with man. A spate of otter drownings has occurred in East Anglia, and outside our region, associated with illegal crayfish nets. These are designed with a one way entrance, and if not fitted with an adequate otter guard, the animal can find itself trapped under water. In one particularly distressing incident in Cambridgeshire, a mother and her two cubs all drowned in the same net.

Otters also fall victim to traffic accidents as they attempt to cross busy roads, especially in the winter. Design of bridges is particularly important and now in most cases is recognised as something to be addressed before construction. However where accident blackspots occur it is important that these are recognised and the appropriate mitigation applied.



Left:
Otter found drowned in an illegal net in Cambridgeshire 2007. A simple otter guard could have prevented this death.

Photo: Andy Sadler

Conclusion

The survey has yet to cover all the 252 points which means that some rivers, such as the Roding, have been under-recorded. If it is possible to visit all these points in future years we will be able to test the Mason and Macdonald Population Index to gain a better understanding of how our otter populations are progressing across Essex since the original survey of 1996-2002. This index was devised to ascertain the level to which otter populations have recovered, giving an indication of whether a water course is near to full carrying capacity. All the occupied Essex rivers still achieve only medium to low scores in this respect.

However, there is no doubt that the Essex Otter Survey continues to provide a very useful snapshot of the county. The picture is of a healthy and stable breeding population occupying between 25-30% of our main rivers at any one time. While it is difficult to assess the exact number of otters present in Essex, it appears that this is a slowly expanding population, although one that is still not occupying its entire former range. The south and east of the county is still not occupied, in spite of deliberate releases during the mid 1990s. But in the north and central areas, anecdotal sightings are now more frequent, a situation confirmed by the survey results.

As the number of otters increases, there are likely to be more challenges for them, especially in areas where fisheries, development and ever higher demands on water abstraction occur. However, with clear guidance and support from Water for Wildlife in Essex, it is hoped these problems can be addressed to ensure the future of this charismatic species. The information gathered here is essential part of this process.

Acknowledgements

Essex Water for Wildlife is extremely grateful to all these surveyors who took the time to conduct their local surveys and submit records –

David Aldridge, Colin Butler, Stephen Clarkson, Amanda Covey, Norman Edney, John Gilbert, Joan Goffin, Adrian Halliday, Graham Hart, Bill Johnson, Hilary Jones, Martin Ketcher, Sonya Lindsell, Graham Littlewood, Tim Love, Carole Mander, William Mann, Peter Margetts, Peter Pearson, Martin Pugh, Bob Reed, Ken Rivett, Adam Rochester, Adrian Wall, Dominique Wallace, Elizabeth Wiley, George Wiley, Stephen Wilkinson, Charlie Williams, Peter Wilson, Sarah Young

...and also to those landowners who allowed access to private land.

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Otter survey data

To obtain a copy of the full survey dataset for 2007, please contact the Water for Wildlife Officer (details below) stating whether you require this in spreadsheet, PDF or printed format.

If you would like to know more about training to become a RIVERSEARCH surveyor then please contact:-

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The 2007 Essex Otter Survey

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