**OTTERS ON THE SOMERSET LEVELS AND MOORS.**

**The Eurasian Otter (lutra lutra)**

The Eurasian Otter (Lutra Lutra) belongs to the family Mustelidae, which in Britain includes the badger, pine marten, polecat, weasel, stoat and mink. It is a semi aquatic carnivore and spends much of its active time in water. Virtually all of its food is found in or beside water.

Camera traps and sightings add to our knowledge of the otter but due to its elusive and mostly nocturnal habits, surveys are conducted using otter signs. Footprints, known as padding, and otter droppings, called spraint; often found under bridges in a prominent position acting as a scent signal to other otters. On close examination of spraint you should see small fish bones and scales, occasionally feathers or frogs legs. If in doubt the smell is distinctive, sweet and pleasant, like a fresh fish. The smell of a mink scat for example is repellent.

**Otter Decline.**

Marie Stephens carried out a national study of the otter in 1952 to 1954, her report (Stephens, 1957) gave no cause for concern. In the late 1950's otter hunts were recording a decline in otters 'found'. Concern was first recorded by hunts in the early 1960's with signs of a possible decline of otter numbers. In 1964 a policy of not killing the otter when hunting was adopted and in 1976 the otter hunts closed down voluntarily. Chanin and Jefferies (1978) analysed hunt records in detail, they show the onset of the decline in hunting success was sudden and occurred simultaneously over the whole of Southern Britain starting in 1957 and 1958. They concluded there were no signs of recovery in the population but indications of a continuing decline up to 1976. The otter became legally protected in January 1978.

A National survey of otters in England took place between 1977 and 1979 conducted by Elizabeth Lenton. The summary and conclusion was; '*The otter is apparently sparse or absent over most of the centre of England but is still present in the coastal part of East Anglia, the north, the south and south-west. Of these areas , the south-west (Devon and Cornwall) stands out as having the highest density of otter signs and probably the highest populations per unit area.'*

It is now generally accepted that the otters decline was due to organochlorines in the environment.

**Surveys on the Somerset Levels and Moors.**

Otters on the Somerset Levels and Moors have been monitored for 47 years. Between 1972 and 1977 Elizabeth Lenton and Jean Webb conducted surveys on the Northern part of Sedgemoor. '*A strip of land some 17 miles (27km) long, lying between Wells and Huntspill and drained by the River Brue and the River Huntspill. 26 sites at Bridges were selected. Early in 1973 signs of padding identified as those of a cub, judged to be three months old, alongside those of an adult were found on a tributary. In April 1973 two sets of tracks on the Hartlake River were identified as those of a sub adult and either a small dog otter or a bitch. In October 1974 there were clear tracks of a large dog otter and a smaller individual on North Drain. Their conclusion; We are unable to estimate the otters' numbers or to comment on any individual's range, but there is, obviously, a resident, breeding population.'*

The National survey of England conducted by Elizabeth Lenton surveyed the upper reaches of the Brue catchment in 1977, positive otter signs were again found on the Hartlake and its tributary the Whitelake. Only 2% of sites checked were recorded as positive for otter evidence.

1977 to 1978, the Somerset Trust for Nature Conservation (STNC) with a team of four surveyors, overseen by Rob Jarman conducted methodical surveys of the whole of the Somerset levels. During their initial investigation of all the waterways they found the majority of otter evidence under bridges and therefore concentrated on specific bridges, including the 26 surveyed by Elizabeth Lenton. They trialled differing survey methods using consecutive two day surveys, alternate day surveys and weekly surveys throughout their study. They found a concentration of spraints along the North Drain but not beyond. At the time this was taken to indicate a strong presence of otters in a small area.

In 1980 James Williams (unpublished) conducted a survey of the Somerset Levels. 76 site visits to 32 sites. Only two sites, upon a first visit, had old stale spraints. All other sites were negative.

In 1981 a coordinated survey over three days was organised by Elizabeth Lenton and James Williams, on day one, 26 out of 99 sites were positive (26%). Day 2 produced 2 positives out of 86 sites, (2%). Day 3 produced 2 positives out of 68 sites (3%). A further coordinated survey was carried out in 1984. On day 1, 29 positive sites out of 80 visited (36%). Day 2 produced 8 positives out of 68 visits (11.7%). The map suggested two otters. In 1985 a similar survey on day 1, found 41 positive sites from 79 sites visited (52%). Day 2 had 10 positive sites out of 79 sites visited (13%) The map suggested a maximum of four areas of activity. James Williams, (2001)

From 1982 to 1986 Hilary Scott, who was one of the four surveyors for the STNC in 1977/8, conducted surveys of the same bridges, funded by the Vincent Wildlife Trust. She concluded that the area of the Somerset Levels and Moors occupied by otters was greatly reduced. '*It was unlikely that there were otters resident south of the Polden Hills in 1983/4 and to the north otter activity had decreased on the Huntspill at the downstream end of the Brue basin and on the Hartlake system at the upstream end. Activity was centred on the general area of North Drain, Panborough Drain and South Drain. Limited surveys revealed no otter signs on the periphery of the Levels and Moors or above the 15m contour, suggesting the remaining population may be rather isolated.'*

James Williams (2001) concluded; '*These figures for the 1980's show much the same as those for the 1970's, that the Brue valley population remained small, and based on a core area, although they ranged over a wider area at times. This in itself suggests a lack of otters occupying territories outside the core area.'*

The Environment Agency conducted a feasibility study into the use of DNA in spraints to survey otter populations. Karen Coxon, Paul Chanin, John Dallas and Tim Sykes were assisted by volunteers from the Somerset Otter Group who checked a series of sites on the Brue monthly, all on the same day, fresh spraints were collected for the DNA study. The results of this study was summarised by James Williams (2001). '*57 sites were looked at; 26 of them had otter evidence of some sort at some time during the study period, from May 1997 to June 1999. 31 were never positive during this period. 414 site visits were made, of which 18.5% produced fresh spraint. By contrast at this time the nearby River Tone, which was also part of the DNA study, had 67 sites positive out of 67 visited. The Tone catchment is only half as big as the Brue and much more developed. During the pilot study to July 1998 the Tone produced identifiable DNA from 22 otters, of which 8 were resident. On the Brue the study found 12 otters, of which only 3 were resident, none of them a bitch. Of the 9 otters located only once, no fewer than 4 "vanished" after visiting the same bridge, as did two others only 2 kilometres away.'*

In *A Review of Otter Records from the Brue Valley 1970 to 2000, James Williams (2001)* Discussed why the otter population had not significantly increased within the Brue valley in 30 years, although it was a period of considerable expansion both nationally and on nearby rivers in Somerset. '*Breeding has been recorded throughout the period of these studies, yet the otter population remains sparse and based on a tight core area. Unless the widespread winter flooding is controlling numbers, the indications are of an unnatural cause of mortality with a considerable effect'.*

In 1995 James Williams with the Somerset Otter Group commenced a series of annual 2 day otter surveys of Somerset. From incomplete and tentative beginnings the survey now covers most of the major waterways in the County. Approximately 500 sites are checked over the same spring weekend on both days. Fresh spraint recorded creates a picture of otter presence on a single night across the county. Alongside all the data a best guess is made as to how many areas of activity can be identified.

In 2004 The Somerset Otter Group undertook a 3 day survey of the River Brue, 2 days of which were the groups usual survey dates across the county. A minimum of 7, probably 9, and possibly a maximum of 10 areas were identified where an otter had been working the second night. Of the 78 sites checked 50 were positive, 64%. 18 fresh sprainted sites, 23% of the 78 sites checked.

Over the last 11 years, 2008 to 2018, The River Brue valley survey has consistently averaged 10 areas of activity, 17 patches surveyed, 71 sites checked, 60% of which are found positive for otter evidence. An average of 16 fresh sprainted sites over the two days, 23% of the 71 sites checked.

The average percentages are now comparable with those for the River Tone and the wider county of Somerset. However some poor years, for example 53% of sites positive in 2018 and completely blank patches, where otter absence cannot be easily explained make it important these surveys continue in order to monitor the otter. The number of recorded areas of otter activity on the River Brue match the River Tone catchment which is half the size. Anecdotal evidence of otters being targeted would indicate that the unnatural cause of mortality discussed by James Williams in 2001 is still a cause for concern.

**Otter diet studies on the Somerset Levels**

Jean B Webb (1974) conducted the first diet study of otters on the Somerset Levels. 858 Spaints were collected at monthly intervals between August 1972 and July 1974. They were washed and prey remains identified, scored as present and absent in each spraint. A wide variety of species were identified, the main foods were eels found in 591 spraints and sticklebacks found in 446 spraints. Fish remains constituted 86% including cyprinid in 163 spraint, stone loach in 123, percid in 39, bullhead in 38, pike in 25, salmonoid in 15 and some unidentified in 10 spraint. Amphibians were found in 136 spraints at least a third of these were identified as frog. Feathers were found in 56 spraints, coot and moorhen in 37 spraints and ducks and geese in 5 spraints. 14 were unidentified. 7 spraints contained mammal fur or bone; 1 insectivore hair, one water vole and 3 suspected watervole. Arthropod remains varied from beetle elytra to dragonfly terga to skeletons of Gammarus (e.g. prawn) and Asellus (e.g. waterlouse). Parts of mollusc shells, seeds and leaves were also noted. In 3 cases beetle exoskeletons found were more than a third of the contents of one spraint.

Seasonal variation showed an increase in bird and significant drop in fish during the summer. This was assumed to be related to the water temperature and increased fish mobility in warmer months, or the fact birds, particularly fledglings are more available in summer. Amphibians were eaten both during their active season and during hibernation.

Rafael Miranda (2008) conducted a field study of otter diet collecting spraints from the Somerset Levels between 2004-2005. He found the diet was dominated by eel and threespine stickleback. He noted that Eurasian perch and gudgeon were also highly preferred, whereas roach and sunbleak were taken less than expected despite their high abundance in the area. He found northern pike and rudd occasionally taken in proportion to their availability.

Seasonal analysis showed the threespine stickleback were prominent prey in winter and in summer roach and birds were noted. In summer the roach were taken in greater number, but the roach taken in winter were larger and therefore constituted an important prey in both seasons. Carp and Sunbleak were taken relatively infrequently despite being common species on the levels. He concluded diet on the Somerset Levels did not appear to have changed much since Jean Webb's study 30 years before and noted a disproportionately low use of introduced non native fish.

**Recorded Otter Deaths.**

The Somerset Otter Group together with the Environment Agency have collected and recorded the dead otters within Somerset for decades. Within the last 20 years, of the 623 deaths recorded in Somerset 124 were within the Brue catchment, 81 of these bodies were recovered and sent for autopsy, enabling 65% of bodies to provide a good insight into the health of the otter in the River Brue region. 93.5% of dead otters recorded on the Brue catchment were as a result of road traffic collisions.

In 2006 Vic Simpson Cornish wildlife veterinarian conducting initial otter autopsies wrote a paper. *Cholecystitis in otters (Lutra Lutra) caused by the fluke Pseudamphistomum Truncatum*. Between 1988 and 2004 autopsies were carried out on 445 otters found dead, mostly as a result of road traffic accidents, in southern and south-west England. Thickened shrunken gall bladders were observed in 10 cases, the first in 2000 and the others between February 2002 and August 2004. A digenean fluke, Pseudamphistomum truncatum, was found in the gall bladders in three cases and also in three of the seven American Mink examined. Nine of the ten otters and all of the mink came from the Somerset Levels. P truncatum had not been recorded previously in the UK.

28 of the 81 otters sent for autopsy from the Brue catchment have been positive for this fluke. Two have had their cause of death directly attributed to the fluke. It has not been found in a Somerset otter west of Taunton, believed to be due to the snail vector not living in fast flowing water.

Not all otters are examined closely and can be sexed, of the 124 dead otters recorded on the Brue catchment, 35 were identified as female and 50 as male. 5 females were found to be lactating; 14.3% of the identified females. 27 otters were identified as sub adult; 21.8% of the dead otters recorded.

10 otters have fighting bites recorded, 12.3% of those sent for post mortem. This is a low figure when compared with neighbouring catchments. The River Parrett had 24.8% and the River Tone 31.3% with bites. Perhaps another indication that the Brue catchment is not carrying as many otters as would be expected. Less need to fight over territories.

Any dead otters seen within Somerset should be reported to the Somerset Otter Group or the Environment Agency to enable this valuable study into the health of otters to continue. Bodies are currently forwarded to Cardiff University who hold the licence for handling the dead otters.

Lucy Mead, 2020.

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