

A REVIEW OF  
OTTER RECORDS  
FROM  
THE BRUE VALLEY  
1970-2000

*The Brue Valley is prime otter habitat, yet studies over 30 years reveal that the otter population remains at a precariously low level, in contrast to other areas. An unnatural cause of mortality is indicated.*

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The valley of the river Brue forms the northern half of the Somerset Levels, an area rich in wildlife and long considered a stronghold of otters. Yet examination of recent statistical evidence seems to show that their numbers are still at a precarious level, in contrast to the notable increases in neighbouring areas.

The main feature of the Brue catchment is a vast area of flat land, part of the Somerset Levels. The Levels are usually defined as land below the 50ft contour (15metres); in the Brue valley the 15metre contour is 30 kms from the sea. The resulting area of wetland, with slow-flowing rivers interconnected by artificial drains (rhynes) contains 33 County Wildlife Sites and 51 Sites of Special Scientific Interest, of which 5 are Special Protection Areas/RAMSAR sites. There are several designated reserves with fulltime wardens. It should be an area where otters can flourish, although it is regularly subject to widespread and prolonged flooding; in winter 1999 there were 48 square miles of standing water on the Levels, of which the Brue valley is the larger part.

The otters there have been much monitored over the last 30 years. Miss E.J. Lenton started a series of checks along the North Drain in 1972, and found evidence of regular usage by otters. As she undertook regular spraint counts her results can be analysed by using the Intensity Index devised by Macdonald and Mason. For the six years 1972 to 1977 the index was 12.08, 11.83, 12.88, 12.26, 11.78, and 13.11. The average for this period is 12.3.

The 1977/78 survey commissioned by the Somerset Trust for Nature Conservation did methodical examinations in several ways of the whole of the Levels, and found intriguing amounts of otter evidence. For instance they made four visits in the winter to the 26 bridges in the Brue valley which had been checked by E.J. Lenton, and recorded 71, 31, 46, and 100 spraints, at 16, 13, 9, and 12 of the sites respectively. In the same period they checked the tributary rivers which flow into the Levels, both north and south, and found only 3 places with otter evidence out of 74 sites, while also recording 45 places with signs of mink. The initial conclusion from this was that the Levels were a stronghold of otters at a time when they had vanished from most of the rest of the area.

However the distribution of the spraints in the Brue Valley was not at all even. A breakdown of the figures by the traditional 10km squares shows this; Square 54 had 38 spraints across 10 sites, an average of 3.8 per site, or 0.95 spraints per site visit. Square 44 had 180 spraints over 10 sites, an average of 18 per site, or 4.5 per visit. Further downstream in square 34 there were 8 spraints on 2 sites, averages of 4 per site or 1 per site visit. This imbalance points not to a stronghold of otters, but to a small population, based on a central area, and foraging out into neighbouring areas. Yet of the 26 bridges, as many as 61.5%, 50%, 34% and 46% were found to be used on each visit, and only 4 had no work at all on any of the four survey days. The initial appearances may have been misleadingly optimistic.

From 1982 to 1986 Hilary Scott was employed to continue the work of the 1977/78 STNC survey, of which she had been a member. Her detailed results for almost the same set of sites as Lenton produce this set of Index scores for the five years 1982 to 1986: 8.01, 6.67, 7.57, 9.96, 11.0: (see table 1).

The map of the surveys of 1977/78 shows that 34 bridges north of the Poldens were positive during a period of twelve months. That for 1983 shows only 17. In 1981 a coordinated survey over three days was organised: on day 1, 26 out of 99 sites were positive, on day 2, 2/86, and on day 3, 2/68. As percentages that is 26%, 2.3% and 2.9%. The distances between the two positives sites were only 6.5km and 5.25km.

A further coordinated survey was arranged in 1984. On Day 1 they found 29 positives out of 80(36%). Day 2 produced 8 out of 68(11.7%), over a total distance measured along watercourses of 10.2km. The map suggests perhaps two otters. The following year, 1985, the survey was repeated; 41/79 on day 1 (51%), and 10/79 on day 2 (13%), about 27 km apart. The map suggests a maximum of four areas of activity, but it could have been the work of fewer otters.

These figures are tabulated in table 1, A summary of results 1977-1986. The average percentage of bridges positive on the four coordinated visits in 1977/78 was 48%; in the 1980s the average for the first days of the coordinated surveys was 38%; as this was over a wider area, approximately three times as many bridges, the two figures can be considered similar.

These figures for the 1980s show much the same as those for the 1970s, 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.

## A summary of otter survey results on the River Brue 1977 – 1986

### 1977/78: SURVEYS OF 26 BRIDGES

22 Positive, 4 Negative

Visit	Positive	Percent positive	Number of spraints
1	16	61.5%	71
2	13	50%	31
3	9	34%	46
4	12	46%	100
Total	50	48%	248

Mean total spraints per visit 62

Mean spraints per positive bridge 4.96

Distribution by Grid Squares

Square	Number of sites	Number of spraints	Mean spraints per site	Mean spraints per visit
ST54	10	38	3.8	0.95
ST44	10	180	18	4.5
ST34	2	8	4	1

### COORDINATED SURVEYS

Year	Day	Number of sites checked	Number positive	Percentage positive
1981	1	99	26	26%
	2	86	2	2.3%
	3	68	2	2.9%
1984	1	80	29	36%
	2	68	8	11.7%
1985	1	79	41	51%
	2	79	10	13%

### DISTRIBUTION MAPS

1977/78: 34 Positive bridges

1983: 17 Positive bridges

### INTENSITY INDICES

1972: 12.08    1973: 11.83    1974: 12.88    1975: 12.26    1976: 11.78    1977: 13.11

1982: 8.01    1983: 6.67    1984: 7.57    1985: 9.96    1986: 11.0

In the second half of the 1990s the same area again came under detailed scrutiny, and some of the results can be used as a comparison. The expectation ought to be for a considerable increase in otter activity: the figures from the National Otter Surveys show that otters were increasing in numbers, especially in the South-west of England. The national totals had risen from 5.8% in 1978, to 9.6% in 1984, and 22.3% in 1993. The method used for these three surveys, of surveying only the "black" squares on a chequer-board map of England meant that most of the lower Brue Valley was omitted, but for the areas which are included (roughly speaking to the east of Wells and Glastonbury), the scores from the three national surveys were 1.3%, 0.6%, and 18.8%. This includes some of the headwaters of the river Parrett as well.

In the "white" square to the west, where annual records have been kept since 1970, 1984 was the year with the lowest score, the nadir of the decline in the otter population. Otters in this area were by then virtually confined to the river Exe and its tributaries. By 1988 the otters had spread back to most parts, and they subsequently consolidated this increase, as is shown by the records for the year 1992. If the otters of the Brue valley were part of this definite trend, there ought to have been a measurable improvement in the recent survey results over those recorded by Lenton and Scott in the 1970s and 1980s.

## SURVEYS IN THE NINETIES

The most detailed set of surveys in this area in the late 1990s were those undertaken by volunteers from the Somerset Otter Group in connection with the Environment Agency's feasibility study into the use of DNA in spraints to survey otter populations. For the purposes of this study, a series of sites on the Brue were checked monthly, all on the same day, and all early in the morning, so that spraints collected for the DNA study would be fresh.

57 sites were looked at for this purpose; 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.

During June to October 1997, no fresh spraints were found at all.

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.



The Brue evidence can be examined in another way, too. If one assumes that the experienced surveyors were able to tell with accuracy which spraints were fresh, a sensible assumption because to collect fresh samples was the whole purpose of their early morning visit, then the series of coordinated visits can have the same validity as a two-day check. Fresh spraint was collected on 20 monthly occasions, and a chart can be made of the locations from which they came (Table 2). The maximum number of otters found on a single day was 4, and the average number of otters present was 2.55; the developed DNA confirmed the regular presence of 3 resident otters, in an area where 9 otters were recorded only once. What became of them? There seems to have been plenty of spare space. In theory, some of these 9 otters would have taken up territory nearby, and increased the total population, yet the figures show that this did not happen.

An interesting comparison can be made by entering these results on a grid of 10km squares. (table 3) A similar analysis of the results from Hilary Scott's surveys in 1982-86, was entered on a tetrad grid of 5km squares (table 4). Both charts clearly show a heavily used centre of otter activity with only sporadic usage of the outlying areas.

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table2

BRUE SITES: fresh spraints collected																					
SITE	SQ	5/97	11/97	12/97	2/98	3/98	4/98	5/98	5/98	6/98	7/98	aug	sept	oct	dec	jan	feb	mar	apl	may	jun
laburnam hse	34									x											
huntspill rty	34						x					xx									
catcott	44	6m/24	4m/5f	x	x	08m		30m			x			xx							xx
ashcott	44			08m										x							x
shapwick	44													x							
avalon fm	43			x										xx							
cripps fm	34				x																
riverhse	34				x							x									
tealham	44		x	06m	06m	06m	x	31m									xx	xxx		x	
sand drove	44			x		x															
b3151	44							40m													
parsons	44									x		xx				x					
dags	44				06m	33f	x	x	x	x	x		xx	xx	x						
oak	44									x	x	x	x	x							
clewer	44															x				x	
crannel	44						x									x					
panborough	44											x									
hartlake	54						x										x				
baltnsbr fm br	53				x					16m											
w. lydford	53				x				x		x										
lower fm	63			x	16m						16m			x							
alford br	63												x	x							
arthurs br	63													x			xx				
white house	35										x			xx		x					
bleadon	35														x						x
clewer	45										17m										
n=26																					
otters present		2	3	3	3	3	4	3	2	3	4	3(4)	2	3	2	2	3	1	1	3	1
total +tive sites		1	2	6	8	4	6	4	2	5	7	5	3	10	3	3	3	1	1	3	1
total checked		6	24	31	32	30	31	25	32	21	32	20	22	17	14	15	15	14	12	3	13

TABLE 2

The Somerset Otter Group undertakes an annual coordinated check of this area as part of its wider survey. In 1998, of 15 sites checked, 12 were positive, in 1999, of 19 checked 5 were positive, and in 2000 18 were checked and 6 were positive. On the second days, fresh work was located at 3, 2 and 1 sites.

The Somerset Otter Group also does a monthly spraint count, water levels permitting. In the year 1998/99 they made 242 site visits to 28 sites, of which 6 were invariably negative. They recorded 101 positive results, and counted 307 spraints; this means that 41.7% of the sites visited were positive, with an average of 3 spraints per visit.

The following year they made 267 site visits to 29 sites, 8 of which yielded no work. 95 site visits were positive, which is 35.5%, with an average of 2.4 spraints per visit. These results are summarised as table 5.





## BRUE STATISTICS from THE SOMERSET OTTER GROUP

## DNA SURVEYS -from 5/97 to 6/99:

sites checked 57: positive 26 always negative 31 =45.6% pos

20 events: 414 site visits: 79 with fresh spraint =18.5%

Max number of otters found in one day 4

Average number of otters on any day 2.55

Average sites freshly used/day 4.8 -out of 26 frequented.

## DNA Analysis

(5/97 to 7/98 only): 12 otters identified; 3 resident; 9 only once.

## SOG 2DAY EVENTS:

1998	15 sites	12 pos	3 neg	3 overnight
1999	19	5	14	2
2000	18	6	12	1

## SOG MONTHLY SPRAINT COUNTS:

## 1998/99:

28 sites 6 always neg. 21 frequented 307 spraints

242 site visits 101 positive: 41.7% pos av no spts 3

## 1999/2000

29 sites 8 always neg 21 frequented 231 spraints

267 site visits 95 positives: 35.5% pos av no spts 2.4

Comparison of all these studies seems to show that the otter population of the Brue Valley has not increased significantly over the last thirty years, although this was a period of considerable expansion both nationally and on nearby rivers in Somerset.

The area has an abundance of coarse fish, is well provided with lying-up cover, is relatively free from disturbance because of the chain of nature reserves (there are possibly more wardens than otters), and is comparatively free from industrial pollutants and arable contamination. The nature of the terrain keeps the roads away from the rivers, on the whole, and traffic on them is mainly local and light, so few otters are run over.

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 their numbers, the indications are of an unnatural cause of mortality with a considerable effect.