

Results of analysis of spraint samples collected during DWT Otter Surveys 2013 & 14

Introduction

For the past two years Durham Wildlife Trust has organised and run a Spring Otter Survey which takes place over one weekend at the end of April. The survey involves scores of volunteers surveying patches of watercourse across County Durham, and beyond, to check for signs of otters – principally spraint and tracks. Many of these volunteer surveyors have collected samples of the spraint they found and during July and August of 2014 five Durham University students spent several weeks analysing the bone and shell fragments contained in these spraints. The aim of the analysis was to build up a picture of otter diet and to compare the diet of otters on the different catchments in the area.

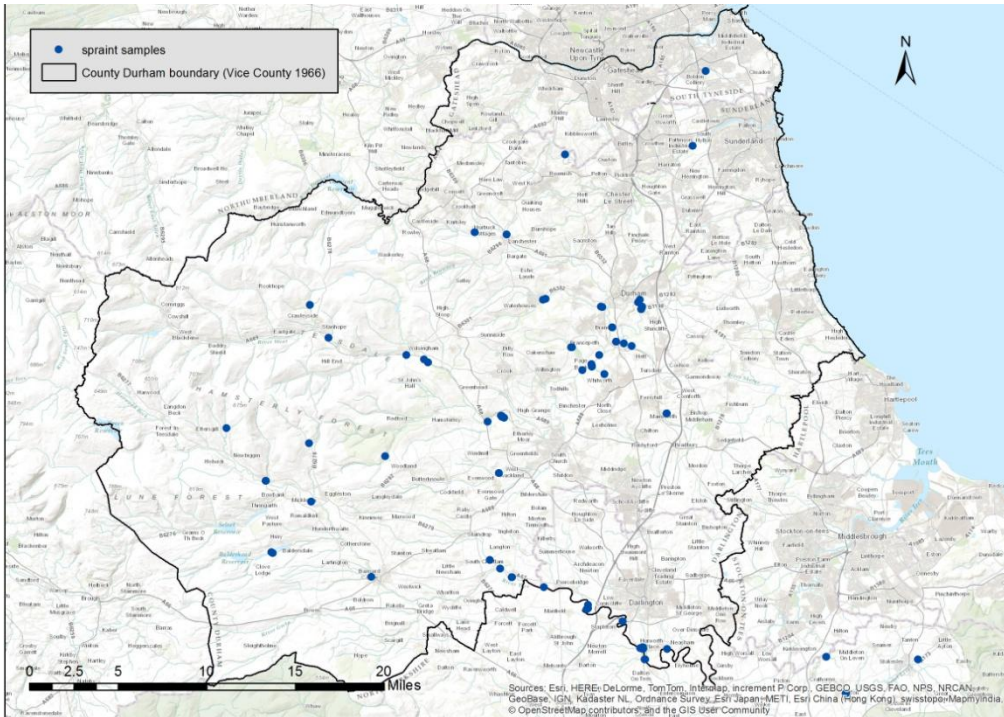
Methods

All spraints were washed, sieved and dried. The remains were then examined under a microscope. Fish were identified to species level where possible using a published key to identifying remains from otter spraint¹. Bird and mammal remains were not identified to species. All results were converted to relative frequency of identified items (% frequency)^{2,3} and the samples from different catchments were compared using a Chi-Square test, with Yates Correction for small sample sizes applied^{3,4}.

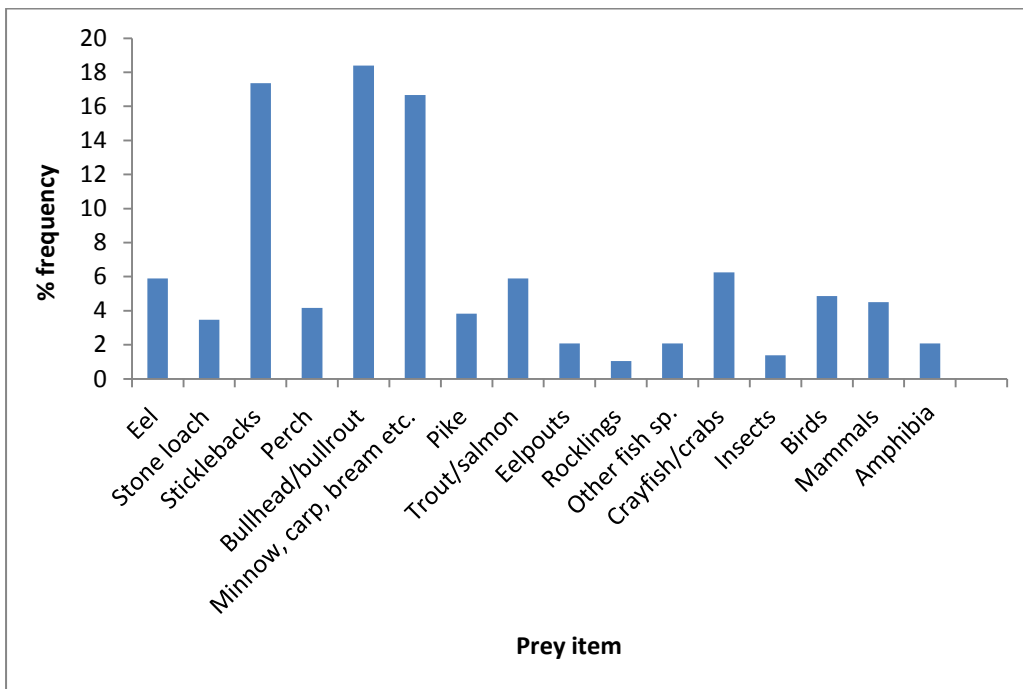
Results

In total 123 samples were collected from across the area of the surveys (see map) and analysed. Of these, 69 samples were from the Tees catchment, 48 from the Wear catchment and one from the Tyne catchment. There were five samples that we were not able to place geographically due to incorrect grid references on the sample collection bag.

While the bulk of the remains were fish, with more than 20 different species identified, there were also many remains of crustaceans (crayfish and crabs), mammals, birds and some insects (chart 1). In total 288 different prey items were identified while only 14 items could not be identified.

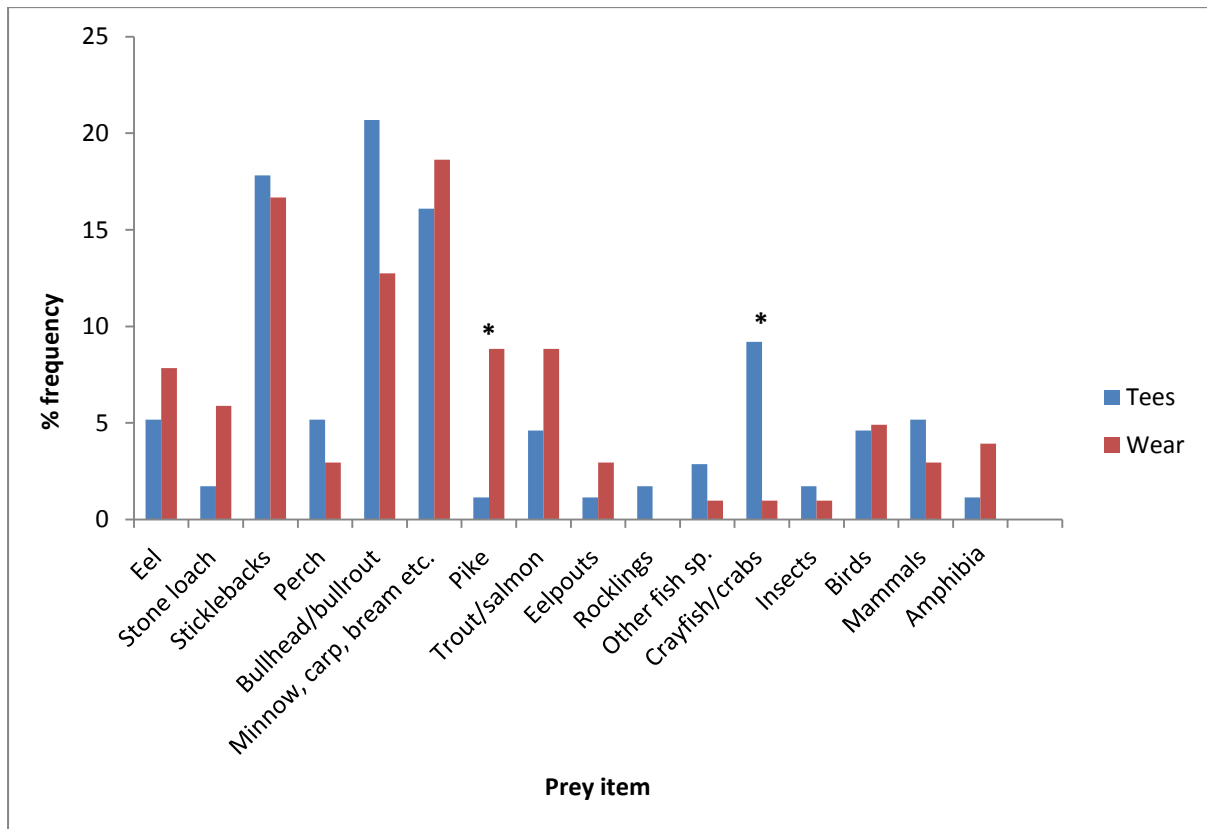


Map showing the locations of otter spraint samples collected in 2013 and 2014.



1. Chart showing the relative frequency of different prey items found in 123 samples of otter spraint collected in 2013 and 2014.

There was only one sample from the Tyne catchment so comparisons were made between the Tees and Wear samples only. The results show that for two prey species/groups there were significant differences between the relative frequency found in spraint samples in the different catchments. Crustaceans (crayfish/crabs) had a statistically greater frequency of occurrence in the Tees than the Wear ($\chi^2 = 5.116$; $df = 1$; $p < 0.05$) while the relative frequency of pike was significantly greater in the Wear than the Tees ($\chi^2 = 4.468$; $df = 1$; $p < 0.05$)(chart 2).



2. Chart showing relative frequency of different prey items found in otter spraints collected in the Tees (n=69) and Wear (n=48) catchments in 2013 and 2014. Asterisks denote statistically significant differences in occurrence.

Discussion

While it is acknowledged that prey items that consist largely of soft body parts may be underrepresented in spraints resulting in limitations to the conclusions that can be drawn from such analyses, it is thought that the method may be used with some confidence to determine the rank order of items in the diet of the otter⁵.

The results of this analysis demonstrate both the large proportion of smaller fish species in the diet and the breadth of prey groups found. That crayfish were found more frequently in spraints collected on the Tees catchment is unsurprising as it is well known that crayfish are rare in the Wear

catchment. It is however interesting that pike occurred significantly more often in spraints collected on the Wear catchment than those on the Tees.

It is hoped that spraint samples will continue to be collected during future DWT Spring Otter Surveys allowing us to build on this dataset.

Acknowledgements

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References

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