



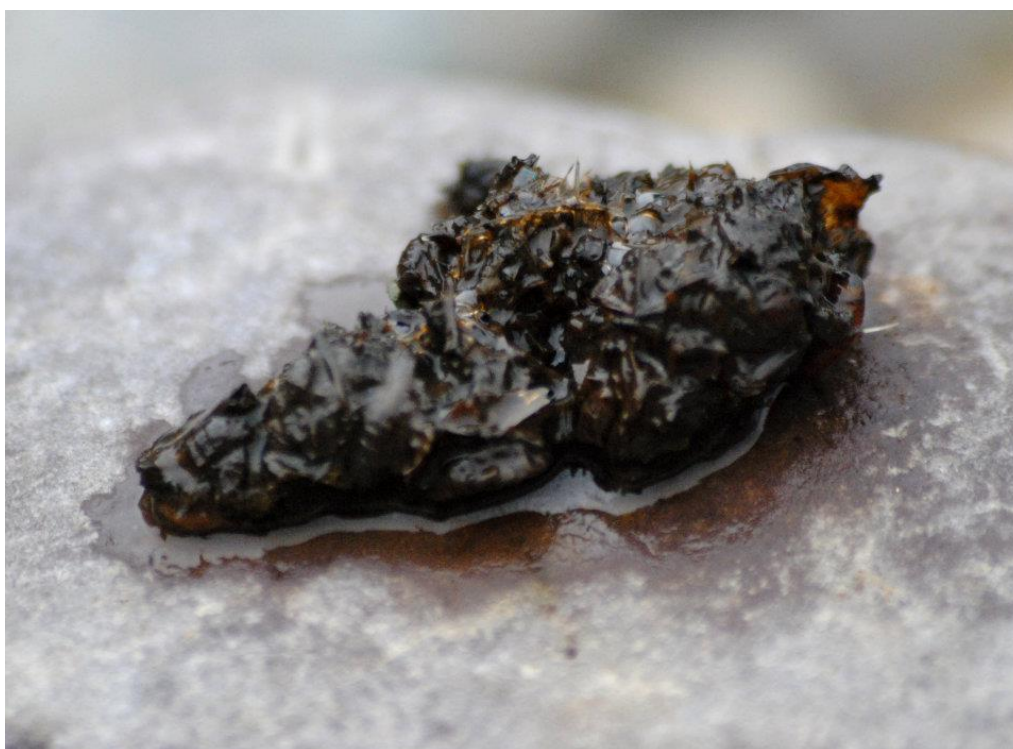
**Mammals in
a Sustainable
Environment**

Title: A preliminary report from the Co. Waterford otter survey held on October 7th to October 9th

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A fresh otter spraint collected on the River Dalligan. Photo taken by Brian Power.

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Background

MISE is a project funded by the European Regional Development Fund under the Ireland-Wales Programme 2007-2013 (INTERREG IVA), and sets out to foster community involvement in Wales and Ireland in mammal conservation. One of the aims of the project is to organize public events such as field surveys, workshops and talks, where training in field skills such as otter surveying will be provided. People interested in getting involved in the conservation and study of wild mammals will be able to get help from expert ecologists working in the field. This will be supported by the Molecular Ecology Research Group at WIT who will provide an identification service using forensic DNA technology to identify mammal scat and hair samples.

Introduction

On Friday October 7th, 33 people gathered at the Gold Coast Holiday Resort, Ballinacourty, near Dungarvan, for three talks about otters. The first talk was given by Peter Turner (WIT), who introduced the MISE project and discussed how DNA technologies developed in WIT were going to be used in conjunction with the weekend's otter survey. The second talk was by Ferdia Marnell, Mammal Specialist with the National Parks and Wildlife. Ferdia discussed the results of previous national otter surveys and described how the otter population has declined in Ireland. Ferdia also discussed the rapid assessment surveys which now take place between national otter surveys. We also heard about a radio tracking survey in Roaring Water Bay in West Cork. Ferdia noted how useful DNA technologies potentially are when used in conjunction with ecological methods. Finally, Kate Williamson from the Snowdonia Mammal Group gave a talk about volunteer based otter surveys in Snowdonia National Park and on the Llyn Peninsula in Wales. Kate described their model of surveying by intensively searching 1 km square survey sites and collecting otter spraints throughout the site. Kate also described how dietary studies can also be an interesting component of the otter survey and can involve volunteers in subsequent workshops.

Training workshop

28 people attended the Saturday morning workshop where Chris Hall (Snowdonia Mammal Group) gave a workshop describing otter survey techniques. This included pictures of different otter

spraints and described the places where otters were likely to spraint, including bridges, rocks and visual features, which they use to mark their territories. Chris showed pictures of otter tracks and of mink tracks and scats for comparison. Chris encouraged people to photograph tracks which we could later examine. Everyone was then divided into five teams to survey selected coastal and inland sites on the rivers Colligan, Glendine, Dalligan, Tay and Mahon. Each team had a leader from the MISE project and an otter survey expert (members of Snowdonia Mammal group and Ferdia Marnell). Each team was given a survey pack which contained maps of their survey sites, landowner contact details and points of access. Each team was also provided with recorder sheets, site assessment forms and sample bags, each with a unique sample number. Each team leader had a GPS device and emergency first aid kit equipped with an emergency blanket and whistle.

The survey

Method summary:

Landowner permissions were obtained for a selection of sites including both fresh water and coastal habitats. All otter spraints collected within the site were bagged individually to avoid cross contamination, which was important for DNA analysis. A GPS location was also recorded for each otter spraint. All potential otter tracks, field signs and holts were also recorded. For health and safety reasons, each team leader also noted any safety hazards which could be incorporated into documented site specific hazards for future surveys.

Preliminary Results

All of the rivers surveyed contained signs of otter (Table 1). The coastal areas proved to be most successful with the largest number of samples (46) occurring in the River Mahon which flows into Bunmahon. The least productive coastal site was the River Colligan in the Dungarvan area. The most productive inland/freshwater site was on the River Tay, close to Lemybrien. The least productive inland site was on the River Colligan, where no spraints were found in the area of Comeragh Falls and Colligan woods. Two upland sites were surveyed in the Comeragh Mountains which incorporated the River Tay and the River Mahon. 17 spraints were found in the upper Tay area, but no spraints were found in the upper Mahon, near Mahon Falls. All of the samples collected are mapped on Fig. 1 and Fig 2. In Fig. 2, it can be seen that samples were collected in a Special Area of Conservation on the River Tay and in Special Protection Areas along the coast. Examples of otter tracks and signs photographed from various sites can be found in Appendix 1. Samples that were

not thought to be left by otters were also collected and surveyors were asked to identify the species to the best of their ability (Table 2).

Discussion and future work

Overall, the event was very successful as a volunteer and community involvement event and in the collection of useful data. The training aspect of the survey worked well and volunteers achieved a high level of training both in the form of workshops and practical application. There were over 200 samples collected over the weekend. The DNA analysis of otter spraints will involve species identification, sex identification and individual identification (genotyping). We anticipate that the majority of otter samples will be suitable for species identification, while significantly less will be suitable for gender identification. It is not yet known how many samples will be suitable for genotyping but based on previous pine marten scat results we anticipate that approximately 40% of these samples will be suitable for genotyping. For the other samples, we will attempt to identify the species by DNA sequence analysis or real-time PCR. The species and gender identification analysis of samples will be completed in a number of weeks, however, it may be next year before we have the genotyping analysis complete as this method is currently being optimised. However, the genotyping method will be useful for long term population monitoring of otters in the study area and over the duration of the project we hope to estimate territory sizes of individual otters, estimate population densities in the various rivers and gain an overall insight into otters in the area.

In terms of future surveys, we have learned that the number of sites selected for surveying on this occasion was over ambitious. We will base future surveys on the areas that were surveyed on this occasion and may adopt a strategy of sampling survey plots rather than surveying an entire 1 km square as this was not always feasible, especially inland. We hope to run a similar volunteer based otter survey this time next year. In the meantime we will also have some one day events including red squirrel and pine marten surveys.

Acknowledgements: We would like to thank all of our volunteers, speakers and experts for the wonderful weekend that was enjoyed by everyone. We hope to be able to update you with our DNA results and final report in due course and we hope that you will join us again on future surveys.

River	Coastal area		Inland area		Upland area		Overall	
	Otter	other	Otter	other	Otter	other	Otter	total
Colligan	11	1	0	1	n/a	n/a	11	13
Glendine	24	6	3	0	n/a	n/a	27	33
Dalligan	44	2	6	3	n/a	n/a	50	55
Tay	37	5	31	5	17	2	85	97
Mahon	46	1	10	3	0	0	56	60
Overall	136	15	42	7	17	2	229	258

Table 1. The number of potential otter spraints and other samples that were collected in each river along coastal, inland and upland habitats. “Other” samples include samples collected that were not thought to be otter. “N/A” means that these areas were not surveyed. All samples will be species tested using DNA analysis.

River	Pine							Overall
	Mink	Fox	Stoat	marten	Badger	Bird	Unknown	
Colligan		2						2
Glendine	2	3				1	1	6
Dalligan	2			3				5
Tay	1	1		1	1	1	7	12
Mahon	3		1					4
Overall	8	5	1	4	1	2	8	29

Table 2. The “other” samples broken down into possible species based on surveyor opinions collected across the five rivers. All samples will be species tested using DNA analysis.

Fig. 1 A partial county map of Waterford's waterways (blue line). The rivers surveyed from left to right include the Colligan, Glendine, Dalligan, Tay and Mahon. The legend below the figure describes the areas surveyed and areas where landowner permissions had been sought where applicable. The red points mark sample collection points and the red line marks the coast line.

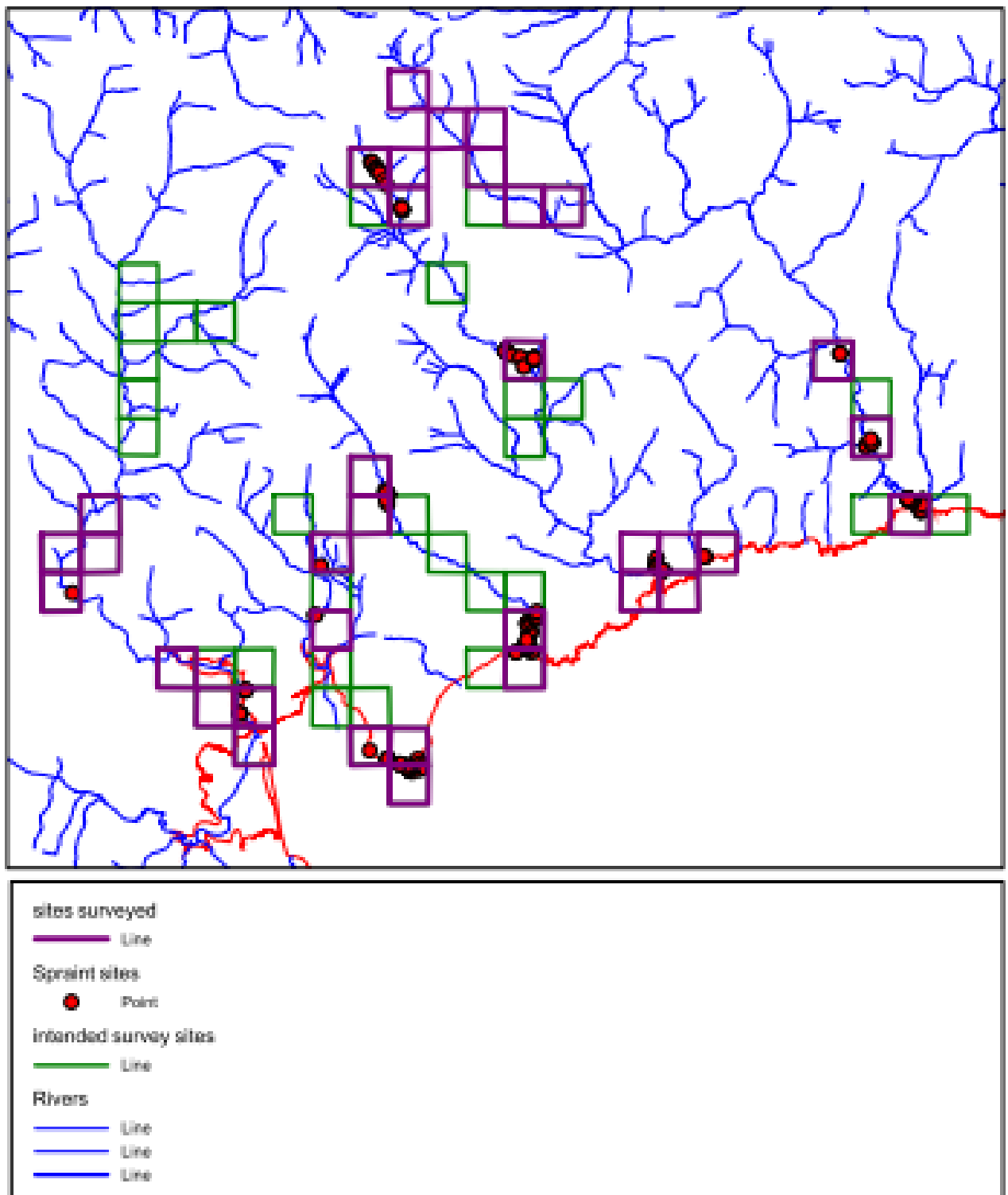
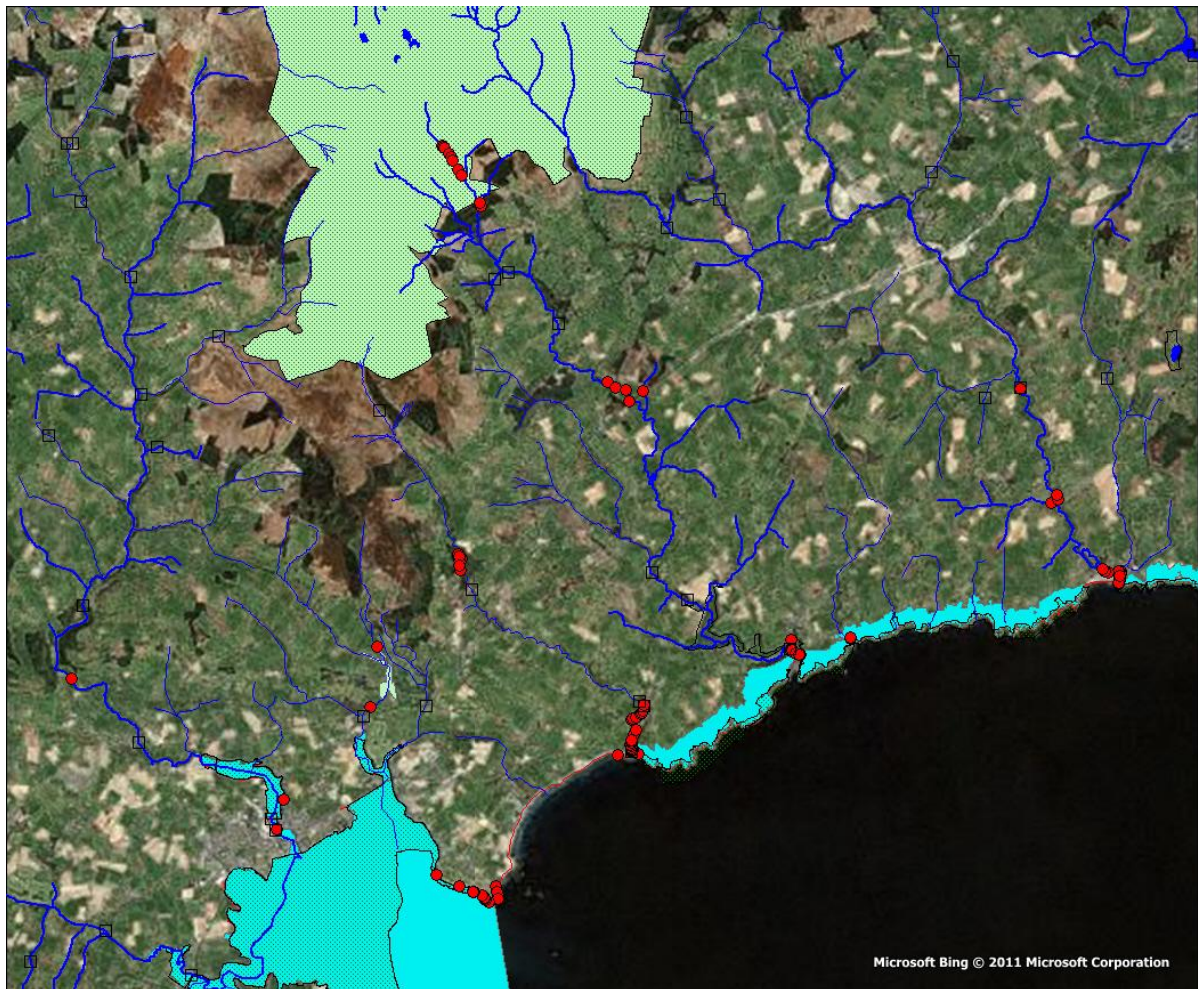


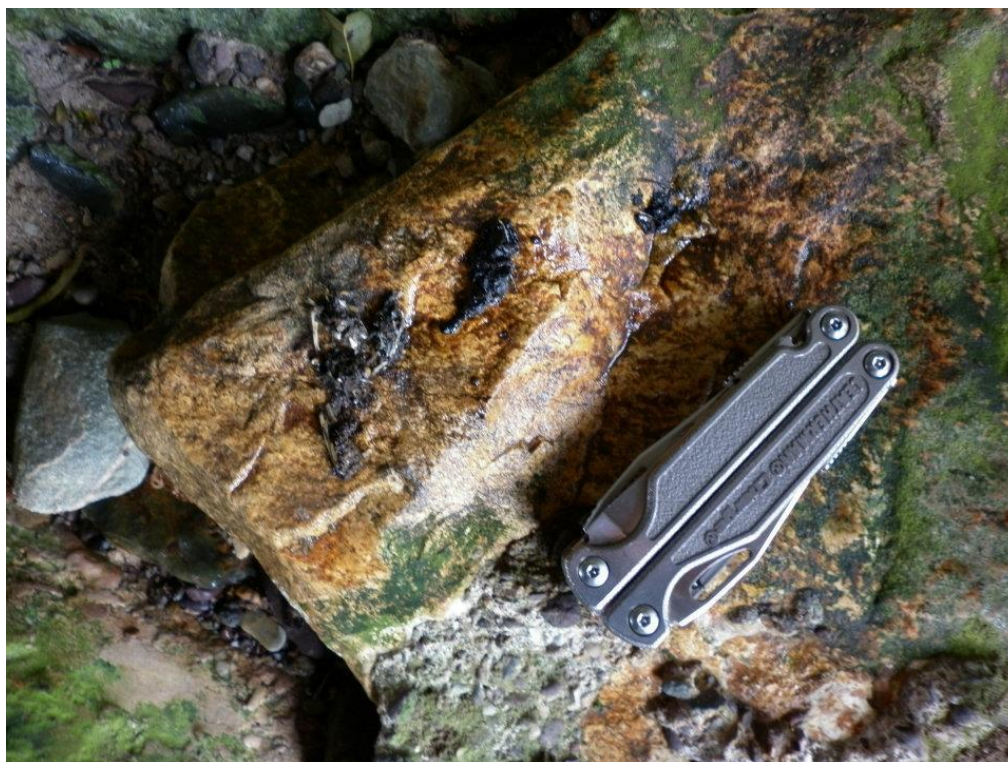
Fig. 2 A partial county map of Waterford with the waterways marked in blue. The rivers surveyed from left to right include the Colligan, Glendine, Dalligan, Tay and Mahon. Each of the rivers surveyed contain red points which represent sample collection points, the green overlay represents and a Special Area of Conservation and the blue overlay represents Special Protection Areas.



Appendix 1. Otter signs



(a) Otter footprint (photo taken by Jason Mc Guirk)



(b) Otter spraint (photo taken by Jason McGuirk)



(c) Otter spraint on grass (Photo by Andrew Harrington)



(d) Otter spraint (Photo by Kate Williamson)



(e) Otter sign heap on the sand with a spraint on top (Photo by Chris Hall)



(f) Surveying under bridges (Photo by Chris Hall)



(g) Surveying in an upland area under a rock (photo by Brian Power)