



Otter Spotter

# Otter Spotter

Discover how otter populations are monitored in Birmingham & the UK

## Keys Terms:

Spraint, survey, GPS coordinates

[canalrivertrust.org.uk/stem](https://canalrivertrust.org.uk/stem)

Canal & River Trust charity number: 1146792



# Otter Spotter

## Objectives

- To discover processes that the Canal & River Trust use to monitor otter populations.
- Understand how **GPS coordinates** work.
- Use coordinates to plot potential locations of otters.
- Explore other **data visualisation** techniques including bar charts and pie charts.





# STEM

## Otter Spotter

### Otters in Birmingham

- We're very excited because in recent years we've seen more evidence of otters on the waterways of Birmingham and the West Midlands.
- This is great not only for otter population, but it's also a good indication that water quality and biodiversity are improving in Birmingham.



What do you know about otters?



## Otter Spotter

### How do we monitor otters?

- Otters are very shy animals so spotting them can be very difficult.
- Instead, we keep a lookout for their **spraints**. Can you guess what this word means?
- Yes, poo!



Otter Poo!



## Otter spraints

- Otters use their spraints to mark their territory.
- The spraints can often be found under bridges or next to locks.
- They are made up of visible fish bones and scales bound with a sticky, dark mucus.



Image credit Andrew Graham



# Otter Spotter

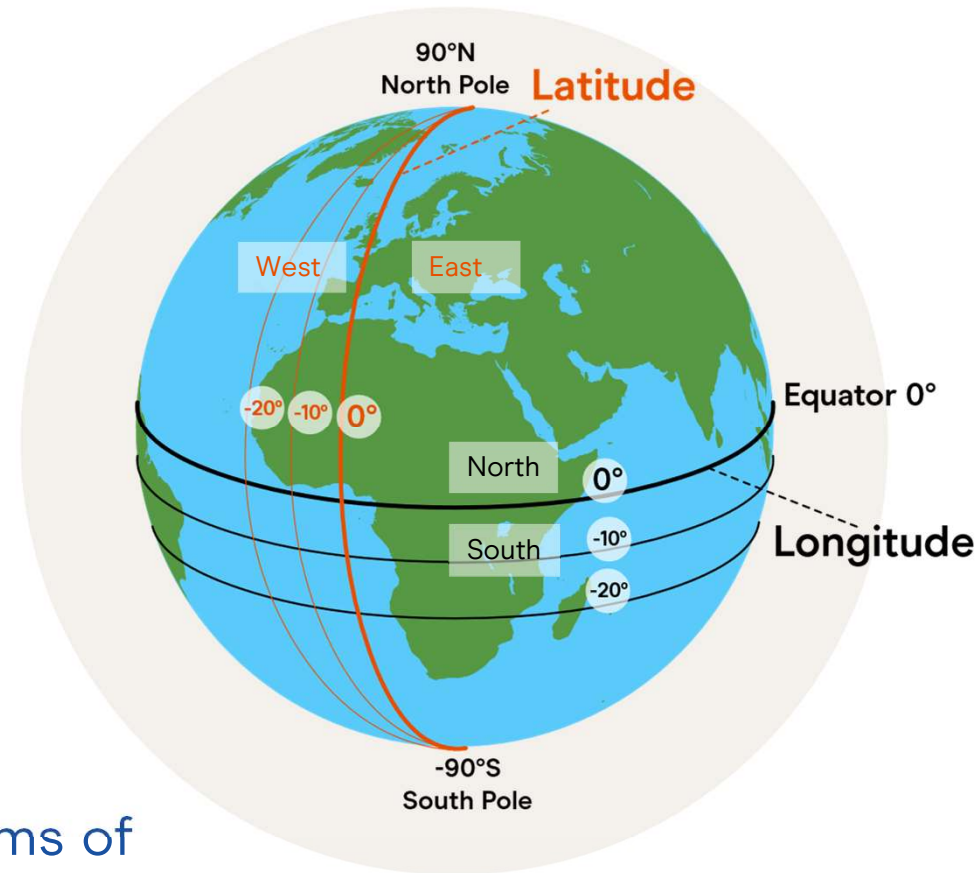
## Otter survey

- Each year we ask volunteers to help us with an otter survey.
- We ask them to go on the lookout for otter spraints.
- If they find a spraint, they should take a photo of it and make a note of the GPS coordinate.



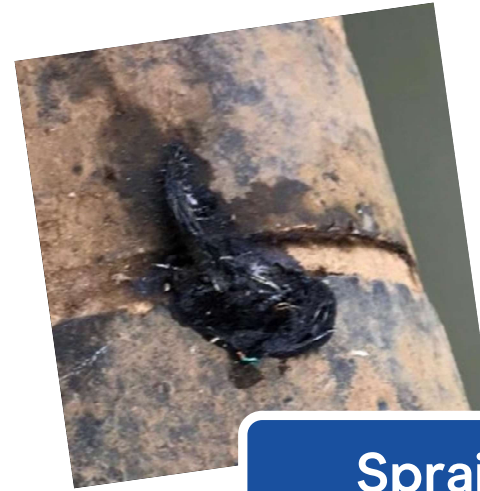
## GPS coordinates

- GPS coordinates are made up of **two** numbers, both measured in degrees.
- One tells us how far **north or south** of the equator it is (**longitude**).  
Birmingham is around 52 degrees.
- The other relates to Greenwich, London.  
Every place on the Earth is measured in terms of its angle **east or west** from this point (**latitude**).  
Birmingham is around -2 degrees.



## Survey results

- When we receive a photo and a GPS coordinate location of the otter spraint, we can plot its position on a map.
- GPS coordinates are usually very long, but this is what helps them to be so accurate. We use **rounding** to make them easier to work with.
- Each year, we can compare data to see if the population has changed significantly.



Spraint Photo

+

Round these  
coordinates to  
two decimal  
places.

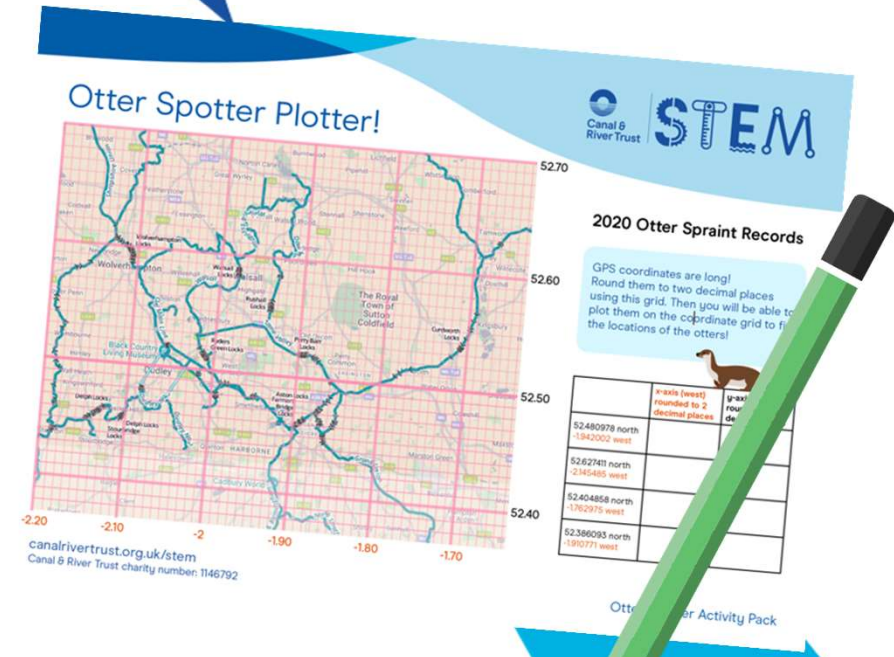
GPS Coordinate:

52.480978 north  
-1.942002 west



## Task 1

- Have a go at plotting a set of otter spraint locations in the 'Otter Spotter Activity Pack'.
- You could compare the results from the 2020 survey and the 2022 records to see if there have been any changes.
- Remember you will need to round the GPS coordinate numbers to make them easier to work with.





# Otter Spotter

## Otter survey sheet



- Ecologists use surveys to ask people to record details of human activity, vegetation, and litter around the canals.
- The results of these surveys help to reveal reasons why otters **may or may not** be present in an area.
- This is a real example of a survey sheet that the Canal & River Trust have been using to monitor habitats.



West Midlands Otter Survey  
February 2021

### Your Information

Name		Date	
Start Time		End Time	

### Site Information

Canal Name		Site Number (Section of canal Surveyed)	
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### Habitat Measurements (optional)

Human Use (Tally)		Total	Width of Canal		
Please record a tally of the amount of people you see along the towpath during your walk			What's the approximate width of the canal?		
Walkers / Cyclists			2-5m	5-10m	>10m
Boats (stationary)			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Boats (moving)					
Anglers					
Is there any flytipping / litter present?			Aquatic Plants		
Further notes / comments			Are there any plants growing in the canal?		
				Rooted to canal bed	Floating
			None	<input type="checkbox"/>	<input type="checkbox"/>
			Some	<input type="checkbox"/>	<input type="checkbox"/>
			Lots	<input type="checkbox"/>	<input type="checkbox"/>

Towpath Plants					Offside Plants				
What plants are growing on the towpath? <small>Shrub = woody plant smaller than a tree (bushes) Herb = non-woody plants with green stems (flowers)</small>					What plants are growing on the opposite side of the canal?				
	Trees	Shrubs	Herbs	Grasses		Trees	Shrubs	Herbs	Grasses
None	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	None	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Some	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Some	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lots	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Lots	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



## Task 2 & 3

Make comparative graphs using the otter survey data. This will help you to visualise the information and make conclusions.

**Human Activity Results**

Volunteers collected information about human activity at five locations along the Birmingham Canal Navigations. Each site was surveyed for 1 hour and the results are recorded below.

Location	Walkers/cyclists	Boats	Anglers
A	4	3	1
B	5	3	0
C	9	3	4
D	2	5	3
E	8	6	5

Complete the comparative bar chart with the rest of the data.

- Otter spraints were not found anywhere near locations A and B
- Locations C, D, and E are all sites where otter spraints have been found.

What conclusions can we make from this data?

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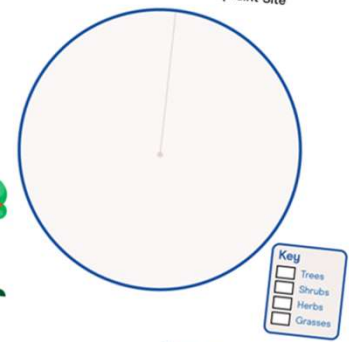


**Chart to Show the Variety of Vegetation Found at One Otter Spraint Site**

Create a pie chart to help to visualise the data.

- Which type of vegetation represents nearly one quarter of the data?
- What fraction of the pie chart do herbs and grasses together make?
- Grasses represent what percentage of the pie chart?
- What is the difference in degrees between the smallest and largest segments of the pie chart?
- How many more trees would be needed to account for exactly one third of the current total of data?

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 Find these worksheets in the Otter Spotter Activity Pack