

The Water Shrew Project!

ROSEMARY WINNALL



Water Shrew feeding, Willow Bank, 26 August 2013

Rosemary Winnall

Part of this article appeared in Worcestershire Record Number 33, November 2012.

It has long been accepted that the identification of bones from owl pellets is a good way of obtaining records of small mammals. This is something I've been doing for some time and I am always on the look out for local roosting and breeding holes used by Tawny Owls or Barn Owls, as these can provide a regular source of pellets.

Barn Owls are known to have roosted and bred regularly in nest boxes at Haye Farm near Bewdley (SO778741) for about 10 years from 1998, although since 2010 they have only been seen intermittently. During the spring of 2012 the farmer Stuart Norgrove cleaned out 2 of his 8 owl boxes and asked me if I wanted the contents for checking. I was enthusiastic, but when they arrived in 2 large fertiliser bags via Brenda Rea, I realised that I had

grossly underestimated the size of the task, and there was an enormous amount of material to sort through!

We could not, of course, presume that all the material had come from Barn Owl pellets. We knew that Kestrels, Tawny Owls and Little Owls had all held territories in the vicinity of the farm, and these, as well as other creatures, might have used the box at some time. But nevertheless, any small mammal records that we could obtain would make valuable records for this locality.

Firstly I recruited the help of Mick Blythe and his battery-powered pooter. (We didn't like the thought of sucking up creatures from such material with standard pooters as you can imagine!) We opened the bags and collected anything that moved. Moths, flies and beetles went into the tubes and were saved for later identification. Then we donned gloves and sorted through the material bit by bit, taking out skulls and lower jaws. These were then soaked overnight in hot soapy water with disinfectant, after which identification could begin. First I sorted the skulls and lower jaws into those of voles, mice, shrews and others, and it was a long business with over 836 skulls examined and many more lower jaws checked. Then I went back and

Table of results of identifying skulls in material from 2 owl boxes from Haye Farm near Bewdley.

Species	Owl Box 1 skulls	Box 1 %	Owl Box 2 skulls	Box 2 %	Total skulls	% of total
Field Vole	172	70%	406	68.7%	578	69%
Common Shrew	31	12.6%	87	14.7%	118	14%
Wood/Yellow-necked Mouse	28	11.4%	43	7.3%	71	8.5%
Bank Vole	8	3.2%	25	4.2%	33	3.9%
Pygmy Shrew	3	1.2%	22	3.7%	25	2.9%
Water Shrew	2	0.8%	4	0.7%	6	0.7%
Rat	1	0.4%	4	0.7%	5	0.6%
Bird	2	0.8%	1	0.17%	3	0.35%
TOTAL	245		591		836	



Water Shrew lower jaw

Rosemary Winnall



Skulls from left, Water Shrew, Common Shrew, Pygmy Shrew
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identified the species in each group, and it was then that I got a surprise (see table for the results)!

Whilst checking the shrew bones, I soon realised that I had the lower jaws and skulls of some Water Shrews amongst those of Common Shrew and Pygmy Shrew! I'd not found these in owl pellets before! Dormice yes, but not Water Shrews! This is an excellent record of a small mammal that is so rarely seen and recorded. The difficulty is that we don't know how recently the Water Shrews were captured - some time within the last 14 years! Were they still present in the area?

The Mammal Society conducted a Water Shrew Survey during 2004/2005 and, as I do not hold a licence for trapping shrews, I decided to follow their survey technique that involves using baited feeding tubes, collecting scats and analyzing those droppings. So I made feeding tubes by cutting 4cm. wide white tubing into 20cm. lengths and covered one end of each with gauze held with a rubber band. I chose 3 sites to survey by positioning these tubes baited with dried mealworms or casters (blowfly pupae) in streamside or pond vegetation within 2 metres of the water, and about 10m apart. 13 feeding tubes went along water courses on Hay Farm, 15 in Snuff Mill near the pools, and 10 in the Bett's Reserve at Far Forest alongside the stream. These were left for 2 weeks after which the tubes were collected, dried, and all small mammal scats collected in labeled containers.



Small mammal feeding tube

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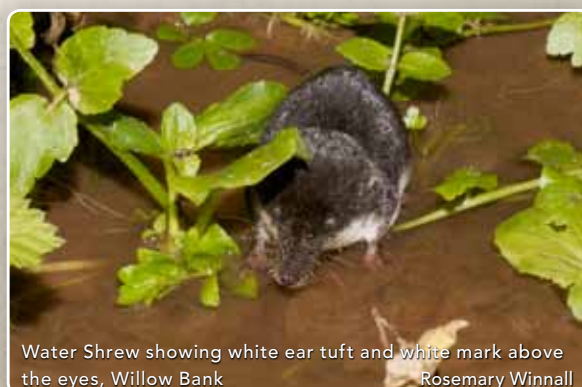
Lower jaws from bottom, Water Shrew, Common Shrew, Pygmy Shrew
Rosemary Winnall

Now we had the job of identifying which mammal each dropping belonged to! The Water Shrew Handbook was helpful and Mick Blythe and I could soon distinguish the difference between

- rodent scats (mice and voles) – smooth, pointed, hard when dry and made up of fibrous material under the microscope;
- shrew scats (shrews) – granular, pale and crumbly, containing parts of their invertebrate prey when seen under the microscope.

Although Common Shrew, Pygmy Shrew and Water Shrew all eat a selection of terrestrial invertebrates, only Water Shrews consume aquatic invertebrates and millipedes, so if we could find these within the droppings we could confirm Water Shrew was present.

Then something special occurred on 26 August 2013. I was in my back garden at Bliss Gate near Bewdley approaching the stream to photograph insects on the flowering Wild Angelica when to my surprise and delight I spotted a Water Shrew feeding in the small stream. I have not seen a live Water Shrew before and first impressions were how much larger it was compared to a Common Shrew and how black when seen from above with contrasting white fur below. Feeding activity was frenzied with frequent ducking down under the water. I watched it for about 5 minutes during which I was able to take a number of still photographs with a macro lens the only lens I had with me (see photo on main cover too). Sadly, when I returned from a quick dash to



Water Shrew showing white ear tuft and white mark above the eyes, Willow Bank
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Pieces of rodent dropping under the microscope R. Winnall

the house for my movie camera, the Water Shrew had disappeared, not to be seen again!

Later that day I put out baited feeding tubes along our small stream and a few days later we were able to confirm that we had collected Water Shrew droppings! The scats were larger than those of the Common Shrew, and contained pieces of *Gammarus* and Stonefly nymphs (see photographs), as checked against the live animals collected in the stream. (Mick Blythe made microscope slides of pieces of prey found in the dropping, plus reference slides of parts of commonly found aquatic creatures and millipedes - see photographs).

We were then able to check the scats collected at the 3 original survey sites, and although droppings from rodents and shrews were present, none were identified as those from Water Shrew.

The Mammal Society's baited feeding tube method of checking for the presence of Water Shrews is easily undertaken. Experience is required to identify the different droppings, but we have proved that this can be learned with practice, perseverance and a good microscope!

Acknowledgements

Many thanks are due to Stuart Norgrove for his enthusiasm for the wildlife around his farm, and for his interest in this project. Thanks to Jenny Robins for providing permission to survey at Snuff Mill, and



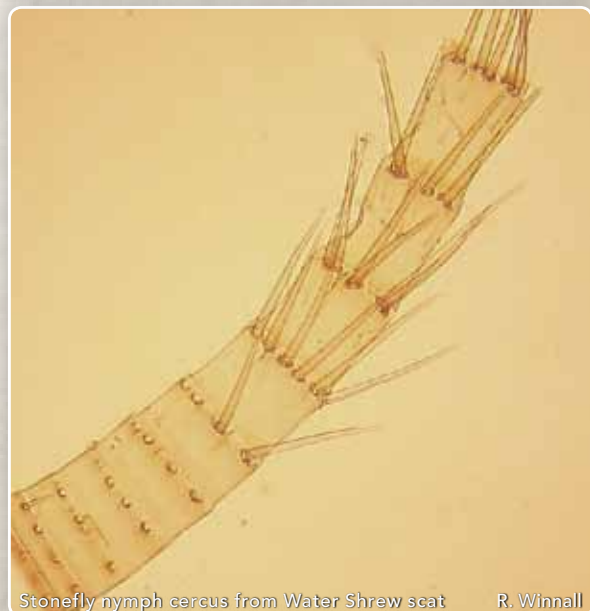
1 Water Shrew dropping with 3 mouse droppings R. Winnall



Stonefly nymph leg from Water Shrew scat Rosemary Winnall



Gammarus legs from Water Shrew scat Rosemary Winnall



Stonefly nymph cercus from Water Shrew scat R. Winnall

the Worcestershire Wildlife Trust for permission to survey in the Betts Reserve at Far Forest. Mick Blythe's dedicated commitment to the project and microscopy skills have been of enormous help in so many ways.

Reference

Carter P. and Churchfield S. (2006) The Water Shrew Handbook. The Mammal Society
<http://cdn.environment-agency.gov.uk/scho0506bknd-e-e.pdf>
<http://www.mammal.org.uk/sites/default/files/Shrew%20News%20Results%202006.pdf>

Reference photographs of Water Shrew prey

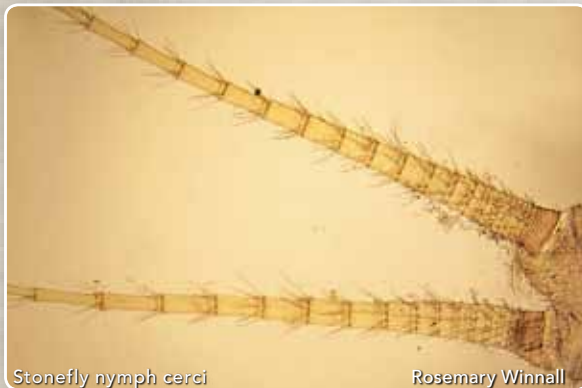
Stonefly nymph *Leuctra nigra*



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Gammarus Freshwater Shrimp



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Tip of one of the *Gammarus* walking legs Rosemary Winnall



Millipede mouthparts

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Millipede



Millipede antenna

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Millipede legs

Rosemary Winnall



Millipede leg

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Common Shrew emerging from feeding tube at night,
Willow Bank

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Mick Blythe working in the Records Room on the Water Shrew project

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