Bottle Trapping for Newts and not for Water Shrews

John Durkin MSc MCIEEM, durkinjl@aol.com

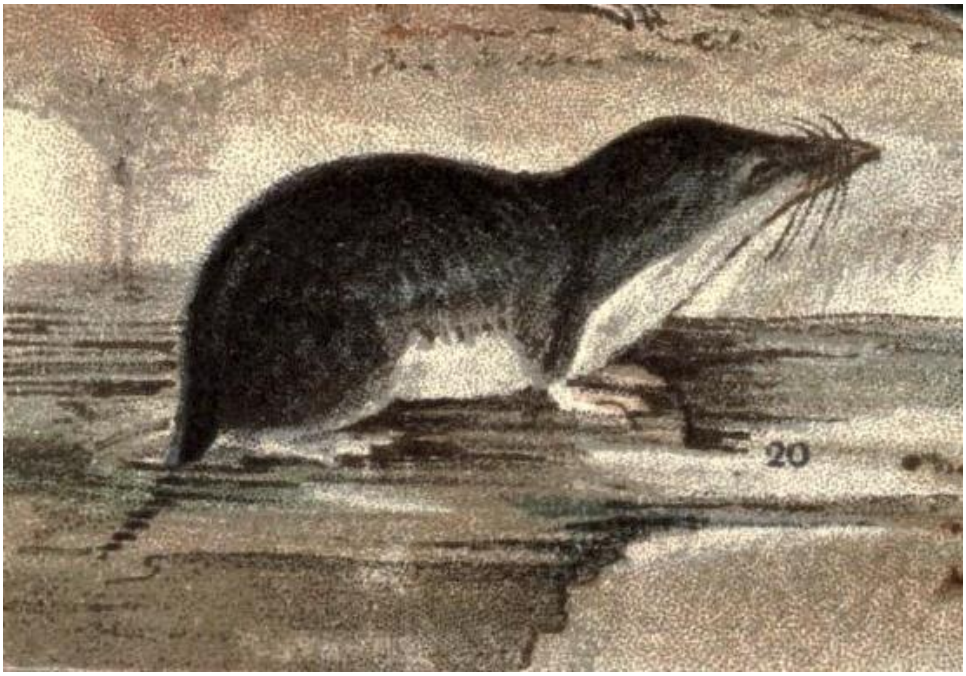
www.durhamnature.co.uk

The Water Shrew *Neomys fodiens* is our smallest aquatic mammal and least well known. They are widely distributed nationally and in the North-east England. Water Shrews nest in burrows in the banks of ponds and rivers, feeding both on land and in the water. In the water they prey upon a variety of invertebrates, especially freshwater shrimps. They will also take frog tadpoles, newt efts and small fish.

They can swim well, but must leave the water to dry off at regular intervals, and must feed often because of their high metabolic rate.

When bottle traps are used for amphibian surveys, Water Shrews are very vulnerable to becoming trapped as well. They die very quickly in bottles, as they cannot escape and they are unable to feed or dry off.

This article proposes, for good practice, a risk assessment and two alternative methods of "bottle trapping" for newts without endangering Water Shrews, which are probably rarer than Great Crested Newts.



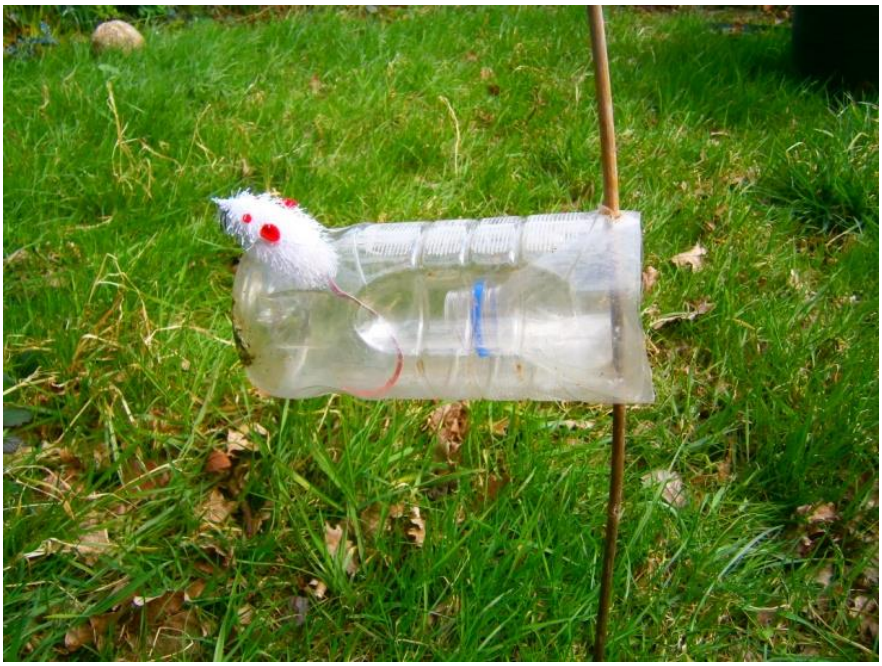
Studies have shown that habitats present can be used to assess the likely presence of Water Shrews, though they are, on the whole, rather unpredictable.

The risk assessment factors for Water Shrews being present are-

- ✓ Is the pond a known Water Shrew site or adjacent to one? Check the appended list.
- ✓ Is there a good fringing zone of aquatic vegetation with mixed species and a tussocky nature?
- ✓ Is the pond adjacent to a river or stream with such vegetation?
- ✓ Is the pond close to a salt marsh?
- ✓ Is the pond an old, long established one?
- ✓ Is the pond rich in invertebrates, particularly freshwater shrimp?

Modified bottle traps

Just cut a hole in the base of the bottles, where the air bubble would normally be. It needs to be about 2cm across. The bottle then has to be set in the pond with the escape hole level or a millimetre or two above the water surface. This provides the Water Shrews with an escape route. Newts will also escape. I've assessed this with a comparison of 200 bottle traps of each type, at a mixture of sites not known to have Water Shrews. The results, with over 2,000 newts caught, varied between sites and surveys, but on the whole about 20% of Smooths and 15% of Palmates escaped, and about 40% of Great Cresteds. The variability between ponds and nights may be partly temperature/activity related. The larger newts have more ability to clamber out of the hole. More female Great Cresteds escaped than males, which I can't explain.



I've used 450 of these in ponds known to have Water Shrews, without any casualties. These bottles catch enough newts for their use to be practical, and are safe for Water Shrews. The numbers of traps used may be increased, to allow for escapes. The disadvantages are-

- With the exit hole at the water surface, and the base of the funnel on the bottom of the pond, the water depth in which they can be set is quite limited.
- They take longer to place correctly.
- They are vulnerable to an overnight rise in water level, allowing the catch to escape.
- More traps may be needed to allow for escapes.

Open-topped boxes

Storage boxes from DIY shops or supermarkets can be made into open-topped boxes, with underwater funnel entrances functioning same way as bottle-traps. I've used 50cm long boxes, for ease of handling, with 4 or 6 funnels. The ideal box has a ridged or bevelled top, to facilitate shrews to escape, and a handle for ease of carrying. Some of the plastics used for these boxes will float, others will sit nicely on the bottom of the pond. If yours float, a rock may be necessary to sink them. All of the plastics used for these boxes are liable to shatter if you drill the holes for the funnels, so a hot blade is necessary for this. I place a floating wooden island in each box, partly to assist shrews to escape, but mainly to reduce the risk of predation of newts by herons etc. These boxes catch similar numbers of all species of newts compared with 4 or 6 bottle traps. There is no risk of over-heating, de-oxygenation or overcrowding. The newts have more chance of avoiding the attentions of *Dytiscus* beetles and dragonfly larvae. They allow greater choice of water depth than the open bottles. Lift the newts out of the box, before lifting the box out of the water.

The disadvantages, which I find are small, are that they cost more (£3 or £4), take longer to make, are awkward to carry for a distance, and reduce the "spread" of traps around the pond compared with bottles. They may be more vulnerable to human interference than bottle traps at some sites.

The box, the cable ties secure the funnels.

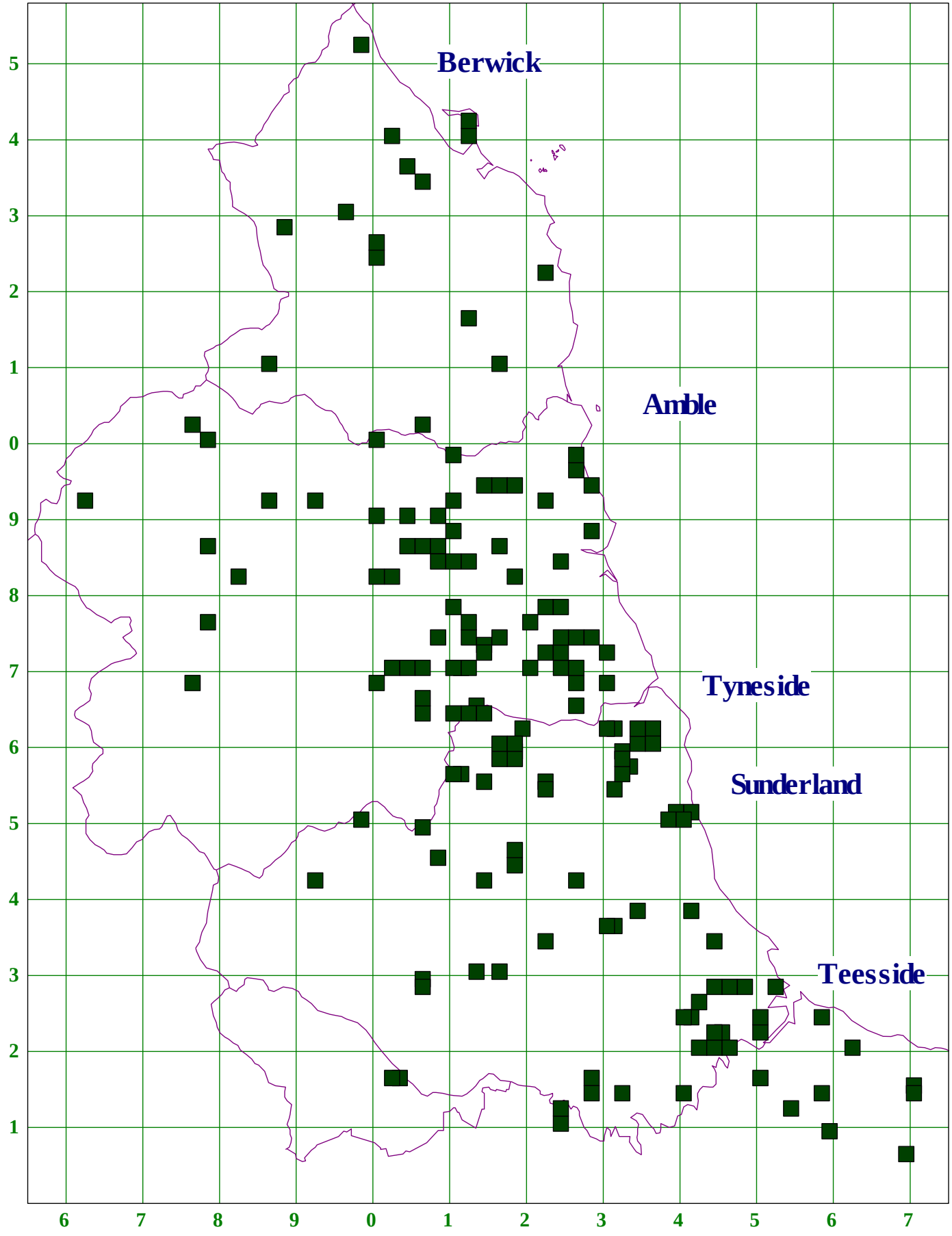
Deployed.

Checklist of known Water Shrew ponds in North-east England, 2014

Sites are listed in alphanumeric order of grid reference. Please add any new pond sites for water shrews to the list by e mailing me at durkinjl@aol.com.

Site	Grid ref
Wedder Leap	NT866104
Tommy the Millers Field	NT982535
Marygate, Holy Island	NU126419
Gilsland	NY6366
Redesdale	NY833961
Derwent Reservoir, Carrick's Haugh	NY985515
Hamsterley Forest : The Grove	NZ0629
River Browney ponds at Stuartfield Lodge	NZ084452
Bellingham	NZ111651
Eachwick , pond by track	NZ117705
Witton-Le-Wear	NZ1330
Clara Vale/ Maryside Pond	NZ1365
Cold Cotes Moor Farm pond	NZ142736
Low Barnes, Coot pond	NZ161314
Gibside, Warren's Haugh	NZ170586
Gibside, Lily Pond	NZ178591
Gibside, Octagon Pond	NZ180587
Malton Nature Reserve ponds	NZ181460
Gibside, Snipes Dene	NZ182596
Tranwell Ponds, Morpeth	NZ183832
Shibdon Pond	NZ1962
Woolsington Hall	NZ200700
Blagdon lakes	NZ2077
Pockerley Farm Pond SSSI	NZ222554
Page Bank, Spennymoor	NZ2335
Big Waters Nature Reserve	NZ2373
Weetslade	NZ255727
Gosforth Park Nature Reserve	NZ2570
East Chevington	NZ269981
Drinkfield Marsh Darlington	NZ280160
Black Path Ponds Darlington	NZ281164
Brinkburn Pond Darlington	NZ282160
Blakemoor Farm, Cresswell Pond	NZ284941
Pelaw Ponds	NZ3162
Coxhoe Claypits CWS 4.37	NZ318365
Sir James Steel Park Lake	NZ318548
East Farm Pond	NZ318592
Joe's Pond	NZ3258
Washington Waterfowl Park	NZ3356
Nissan, Pond north of Hylton Plantation	NZ337576
Cassop Pond	NZ342383
Mount Pleasant , West Boldon Environmental Centre	NZ3460
West Boldon Lake	NZ3461
Boldon Crossing Pond	NZ361621
Thorpe Beck Fen	NZ4124
Fleet Ponds	NZ450210
Billingham Beck Country Park	NZ4522
Air Products Reed Bed	NZ460210
ICI Reedbeds	NZ466209
Saltholme	NZ5023
Dormans Pool	NZ510220
Nunthorpe	NZ550129
Dykes Lane, Great Ayton	NZ577110
Coatham Marsh	NZ5824
Lovell Hill Ponds	NZ597189
New Marske	NZ6220
Danby Dale	NZ693060
Liverton	NZ701154
Dale House	NZ770181
Bluebell Pond, Ravenscar	NZ978016

Water Shrew Neomys fodiens



Known Water Shrew distribution in North East England January 2014, all habitats.