

A search for
***Truncatellina cylindrica* (Férussac)**
The Cylindrical Whorl Snail
in East Bedfordshire

By R, Lawrence

03/04/2003

Ivel and Ouse Countryside Project
Biggleswade Library
Chestnut Avenue
Biggleswade
Bedfordshire

***Truncatellina Cylindrica* (Férussac), the Cylindrical Whorl Snail in Bedfordshire**

Contents

Introduction	3
Methods	3
Possible locations	3
Detailed site survey	3
Detailed site survey at known site	4
Results	5
Possible locations	5
Detailed site survey at known site	8
Discussion	10
Detailed site survey	10
Detailed site survey at known site	11
Conclusions	11
Recommendations	12
Acknowledgements	12
Bibliography	12



Introduction

Truncatellina Cylindrica has been known from the Potton Road verge nature reserve in Bedfordshire since the late 1960's. The species is currently only known from two other locations in Great Britain, and is sparsely distributed throughout the rest of Europe. The species is under threat at the Potton site due to wall maintenance work and its status at the other two sites is uncertain. It is the purpose of this study to ascertain if the species is present at other sites in the east of Bedfordshire.

Methods

Possible locations

The Phase 1 habitat maps for the east of the county (within the Ivel and Ouse Countryside Project area) were examined for sites with the same characteristics as the known population, these were:

- Unimproved Neutral Grassland;
- Other exposure (i.e. a wall).

The search was then broadened to include:

- Semi improved Neutral Grassland or
- Unclassified habitat.

A list of all sites (including grid reference and distance from known population) meeting the criteria was made, see table 2.

Each site was visited and given a visual inspection for similarities to the known site, diversity of vegetation, aspect and type of wall construction.

Sites with a southerly aspect and good vegetation diversity (especially mixed with patches of bare soil) were considered for detailed investigation that included a pH test and soil sieving.

Detailed site survey

The weather conditions at the time of survey were noted from the MSNBC local weather web site and recorded in Table 1.

At each site that fitted all of the selection criteria five samples of approximately 50ml of soil were taken and sieved using 2mm and 0.71mm wire mesh sieves. The particles held back by the 0.71mm sieve were tipped onto an aluminium tray and examined by eye and using x10 magnification for *T. cylindrica*. Any other mollusc species found were also identified. All soil and living molluscs were immediately returned to the location of origin after examination.

The pH was tested using 5 1ml samples and a BDH soil test kit.

The surface of any south (or approximately south) facing wall or structure on each site was examined by eye and using x10 magnification. A selection of cracks, if present in such structures, was examined using an auroscope.

A control sample of 50ml of soil from the known location was examined by sieving as above to ensure specimens of the species can be found by the above methods at the time of year of the survey.

Detailed site survey at known site

50ml soil samples were taken at 5m intervals along the Churchyard retaining wall at Potton Road Verge nature reserve. These were all from within 10cm of the base of the wall to a depth of no greater than 10cm. These were then sieved using 2mm and 0.71mm wire mesh sieves. The particles held back by the 0.71mm sieve were tipped onto an aluminium tray and examined by eye and using x10 magnification for *T. cylindrica*. Any other mollusc species found were also identified. All soil and living molluscs were immediately returned to the location of origin after examination.

Samples at 1m intervals from the first and last positive sample site were taken to establish more precisely the limits of the extent of the population. These were examined in the same way as described above.

Each specimen of *T. cylindrica* found was examined to establish:

- **Living or dead.**
- **Age of shell**
 - very old: white crumbly shell
 - old: white or pale brown shell, perhaps with some outer coating still intact
 - fresh: pale or dark brown shell with outer coating intact.
- **Age** adult or juvenile depending on size and number of whorls.

Results

Table 1. weather conditions at time of survey

Date	Clarity	Temp.	Wind	Pressure	Humidity
17/03/2003	Sun, Haze	13°C	9NE	30.59"	54%
18/03/2003	Sun, Haze	11°C	8ENE	30.53"	66%
19/03/2003	Sun, Haze	15°C	5VAR	30.42"	41%

Possible locations

A total of 25 sites including the known site were found to fit the Phase 1 habitat criteria, these are listed in table 2. Of these sites only the known location, Potton Road verge, and Everton Church fitted the first set of criteria (unimproved neutral grassland), the other sites were either semi-improved neutral grassland or uncertain habitat.

Three of the sites (Ickewll Bury, Everton Church and Abbey Farm) were in County Wildlife Sites. 13 of the sites were either in, or adjacent to churchyards. The other sites were boundary walls, a windmill, a World War II pillbox, and other walls.

Not all of the sites could be visited due to lack of permission, funerals occurring at the time of visit, or for other reasons, this eliminated seven sites from the survey.

At two sites no suitable structure could be found.

Visual inspection eliminated 10 sites due to lack of vegetation or too much shading.

This left five sites that were surveyed for the snail in addition to the known location; these are listed in table 3 along with some habitat information.

Table 2. Sites considered during this survey. (Key, SI = Semi improved grass, U = Unimproved grass, ? = Unclassified habitat, E = Exposure)

ID	Grid ref	Habitat	Distance to Potton site (m)	Survey	Nearest town	Site type	Site notes
1.	TL 227 495	?, E	185	no	Potton	Adjacent to buildings	Site is short grass and brick wall
2.	TL 230 489	?, E	570	no	Potton	Sutton road	Wall not found
3.	TL 221 490	SI, E	875	no	Potton	Alongside B1040	Brick wall all but gone, very small strip of grass
4.	TL 213 498	?, E	1604	no	Potton	Potton windmill	Area with domestic fowl and no vegetation, brick
5.	TL 225 473	SI, E	2165	no	Sutton	Inside circular area	No ownership details, brick
6.	TL 219 475	SI, E	2190	no	Sutton	Church	Wall next to road + no vegetation, brick + sandstone
7.	TL 203 513	U, E	3200	19/03/03	Everton	Church	No specimens found (see table 3), brick + sandstone
8.	TL 249 456	SI, E	4170	no	Eyeworth	Church	Heavy ivy growth + trees shading wall, brick
9.	TL 189 458	SI, E	5300	18/03/03	Biggleswade	Shortmead House	No specimens found (see table 3), brick
10.	TL 238 442	SI, E	5330	no	Dunton	Church	Wall appears to be next to improved grass, brick
11.	TL 229 433	SI, E	6130	no	Dunton	Millow Bury, beside rd	Wall not found
12.	TL 153 511	SI, E	7800	no	Blunham	Church	Not visited
13.	TL 149 465	SI, E	8460	no	Northill	Church	No vegetation or heavily shaded, brick + sandstone
14.	TL 143 493	SI, E	8580	no	Moggerhanger	Church	Not visited
15.	TL 185 414	SI, E	9145	no	Langford	Church	Heavily shaded, brick + sandstone
16.	TL 145 455	SI, E	9200	no	Ickwell	Ickwell Bury	CWS, no permission
17.	TL 146 422	SI, E	10960	no	Southill	Church	Not visited
18.	TL 166 393	SI, E	11895	no	Clifton	Church	Heavily shaded, no permission, brick
19.	TL 119 439	SI, E	12270	no	Old Warden	Abbey Farm	CWS, Southill Estate, no permission
20.	TL 193 375	SI, E	12470	no	Arlesey	Church	Close mown grass + bare soil, brick with concrete facing
21.	TL 135 359	SI, E	16450	no	Meppershall	Church	Not visited
22.	TL 228 493	?, E	40	18/03/03	Potton	Pill Box	No specimens found (see table 3), brick
23.	TL 228 448	U, E	0	17/03/03	Potton	Potton Road verge	Species present (see table 3), brick + sandstone
24.	TL 188 458	U, E		18/03/03	Biggleswade	Common boundary wall	No specimens found (see table 3), brick + sandstone
25.	TL 187 457	SI, E		18/03/03	Biggleswade	Fairfield cottage	No specimens found (see table 3), brick

Table 3. Data from field survey.

Date	Site	Grid ref.	pH	Aspect	Wall type	Habitat	<i>T. cylindrica</i> present
17/03/03	Potton Road verge	TL 228 448	7.5	S	Brick and sandstone with lime mortar	Herb rich unimproved neutral grassland	Yes
18/03/03	Potton Pill Box	TL 228 493	6	360°	Brick structure with sand rich mortar and concrete roof	Bare ground with nettles and Yorkshire fog	no
18/03/03	Shortmead House	TL 189 458	7.5	S	Brick wall with lime rich mortar	Bare ground with recently cleared ornamental planting	no
18/03/03	Biggleswade Common boundary wall	TL 188 458	7	W	Brick wall with new sand rich mortar and concrete base	Semi-improved neutral grassland	no
18/03/03	Fairfield Cottage	TL 187 457	6.5	S	Brick wall with lime rich mortar	Ornamental boarder and abandoned agricultural field (not cultivated at wall base)	no
19/03/02	Everton Church	TL 203 513	7	S	Brick and sandstone wall with lime mortar and concrete	Fairly herb rich semi-improved neutral grassland with ornamental bulb planting	no

Table 4 lists other mollusc species found at the five sites sampled during this survey.

Table 4. Other snail species recorded during this survey.

Site	Date	Species
Biggleswade Common	18/03/03	<i>Cochlicopa lubrica</i>
"	"	<i>Aegopinella nitidula</i>
Fairfield Cottage	18/03/03	<i>Cochlicopa lubrica</i>
"	"	<i>Aegopinella nitidula</i>
"	"	<i>Cepaea nemoralis</i>
Shortmead House	18/03/03	<i>Cochlicopa lubrica</i>
"	"	<i>Helix aspersa</i>
"	"	<i>Cepaea nemoralis</i>
"	"	<i>Cepaea hortensis</i>
"	"	<i>Ena obscura</i>
Potton Pill Box	18/03/03	<i>Lauria cylindracea</i>
"	"	<i>Cecilioides acicula</i>
"	"	<i>Lauria cylindracea</i>
Everton Church	19/03/03	<i>Lauria cylindracea</i>

See table 6 for species found at Potton Road Verge nature reserve

Five specimens of *T. cylindrica* were found at the known location in one 50ml soil sample on 17th March 2003. This indicates that evidence of the species presence can be found at the time of year this survey was carried out. None of the specimens were alive but they still had the brown outer coating indicating they were fairly fresh.

No further specimens of *T. cylindrica* were found during this survey either by soil sieving or visual searching of the walls, see table 3.

Detailed site survey at known site

Table 5 details the occurrence of *T. cylindrica* at the Potton Road Verge site by 5m intervals. A total of 25 specimens were found, including three living animals, two of which were juveniles at quite an early stage of development. Two fresh shells that showed very little wear were also found, indicating the specimens had probably died recently.

The extent of occupation by *T. cylindrica* covers most of the length of the retaining wall (a total of 62m). The first 18m section had dense Ivy growth and a high proportion of Elm suckering; this type of vegetation cover provides dense shade. The last 19m of the site is beyond the end of the road verge where the wall base is at the same level as the road with very little in the way of vegetation.

Most of the vegetation (particularly ivy) has been scraped from the wall during the survey leaving a thick layer of vegetation material at the base of the wall.

Table 5. Results from detailed Potton Road Verge survey

Distance (m)	Date	Number of shells	Alive or dead	Age of shell	Age
0	26/03/03	0	-	-	-
5	"	0	-	-	-
10	"	0	-	-	-
15	"	0	-	-	-
18	"	0	-	-	-
19	"	1	dead	very old	adult
20	"	1	dead	old	adult
25	"	2	living	-	juvenile
30	"	1	dead	old	adult
35	"	1	dead	old	adult
40	"	2	dead	old	adult
45	"	1	dead	old	adult
50	"	4	dead	old	adult
50a	"	1	dead	old	juvenile
55	"	1	dead	old	adult
55a	"	1	dead	old	juvenile
60	"	1	dead	fresh	adult
65	"	1	dead	fresh	adult
70	"	1	dead	very old	adult
75	"	1	dead	old	juvenile
80	"	0	-	-	-
85	"	4	dead	old	adult
86	"	1	living	-	adult
87	"	0	-	-	-
90	"	0	-	-	-
95	"	0	-	-	-
100	"	0	-	-	-

Table 5a. Total specimens found

Total	adult	juvenile
living	1	2
dead	19	3
all	20	5

A total of 19 additional species of mollusc were recorded from Potton Road Verge nature reserve during this survey (see table 6) no effort was made to search for additional species (as was done in 2002) and no slugs were found. Of the 20 species recorded three are in the Local Red Data Book (LRDB) (Rands & Nau 2001) and one is also in the National Red Data Book (RDB) (Bratton, 1991). These species are:

<i>Helicella italia</i>	LRDB A (Declining in Britain)
<i>Helicodiscus singleyanus</i>	LRDB F (No action required)
<i>Truncatellina cylindrica</i>	RDB 2 (Vulnerable) & LRDB A (Declining in Britain)

Table 6. Molluscs recorded from Potton Road Verge nature reserve on 26/3/2003

Date	Species	Status
26/03/03	1. <i>Aegopinella nitidula</i>	
"	2. <i>Arionata arbustorum?</i>	
"	3. <i>Candidula intersecta</i>	
"	4. <i>Cecilioides acicula</i>	
"	5. <i>Cepaea hortensis</i>	
"	6. <i>Cepaea nemoralis</i>	
"	7. <i>Cochlicopa lubrica</i>	
"	8. <i>Ena obscura</i>	
"	9. <i>Helicella italia</i>	LRDB A (Declining in Britain)
"	10. <i>Helicodiscus singleyanus</i>	LRDB F (No action required)
"	11. <i>Helix aspersa</i>	
"	12. <i>Lauria cylindracea</i>	
"	13. <i>Monacha cantiana</i>	
"	14. <i>Trichia hispida</i>	
"	15. <i>Trichia plebeia</i>	
"	16. <i>Truncatellina cylindrica</i>	RDB 2 (Vulnerable) & LRDB A (Declining in Britain)
"	17. <i>Vallonia costata</i>	
"	18. <i>Vallonia excentrica</i>	
"	19. <i>Vertigo pygmaea</i>	
"	20. <i>Vittrina pallucida</i>	

Discussion

Detailed site survey

No new sites for *T. cylindrica* were identified during this survey. Of the five sites intensively studied Everton Church wall most closely matched the initial criteria, but when visited the habitat and wall were found to be very different from the known location, lacking both the vegetation diversity and the lime rich mortar found at the Potton Road Verge site. This site is also more acidic than the Potton site with a pH of 7 (Potton pH = 7.5).

Of the newly surveyed sites Shortmead House showed the most variety in mollusc species present with five compared to Potton Road Verge that had 20 species. This site also had the closest pH match to the Potton location (both pH 7.5), but lacked vegetation diversity and until the end of February 2003 was heavily shaded by shrubs (Mr Bond pers. com.).

None of the other sites visited during the course of this survey appeared suitable for the Cylindrical Whorl Snail given the current state of knowledge on this species. No sites were found to support *Sedum* (thought to be of importance for the species). All but one of the sites tested for pH were acidic or mildly acidic and many of the sites were heavily shaded or had heavily managed improved grassland.

The weather conditions did not vary greatly during the course of the survey so this factor is unlikely to have effected the survey results.

Detailed site survey at known site

More specimens of *T. cylindrica* were found during this survey than in the previous survey (Lawrence, 2002) (25 this time, nine in 2002). The extent of the population also appears to be greater than previously thought. It is probable that this is due to specimens being missed during the previous survey rather than an expansion of the population. This is illustrated by the presence of old or very old specimens at points where no specimens were found in 2002. A single living specimen was found at the western extent of the population but it is not possible to say that this indicates a range expansion.

The vegetation was being, or had recently been cleared from the wall at the time of this survey and it is possible that shells from the wall or vegetation had been dislodged and fallen to the soil below. Samples were taken from beneath the build up of scraped vegetation but dislodged specimens may still have been present.

The presence of living juveniles is confirmation that *T. cylindrica* continues to breed on the site.

More mollusc species were recorded from this survey than in 2002 (Lawrence, 2002). A total of 20 species were recorded in 2003 and 19 in 2002. No slugs were recorded during the 2003 survey and there were three additional snail species: *Trichia hispida*, *Vallonia excentrica* and a possible specimen of *Arionata arbustorum* (although this identification requires verification).

The Potton Road Verge is far more diverse for molluscs in general than any of the other sites visited. There were 20 species recorded from Potton, and five as a maximum from the other sites. The list from Potton also includes three notable species: *T. cylindrica*, *Helicella italia* (including a living juvenile specimen) and *Helicodiscus singleyanus* (a synanthropic species for which no conservation is considered necessary at the moment (Rands & Nau, 2001)). *H. italia* is a species of short calcareous grassland but has declined significantly in Bedfordshire since the 1960s-70s, a survey is required for this species throughout the county to ascertain how it is faring (Rands & Nau, 2001).

It is not certain why this site is so good for molluscs but the vegetation appears more diverse than at the other sites and the pH was more acidic at most of the other sites.

Conclusions

It does not appear from this study that there are any likely locations for *T. cylindrica* in the east of Bedfordshire other than the Potton Road Verge nature reserve. Most sites that appeared similar to the known population from the Phase 1 habitat maps were assessed and/ or studied and no specimens were found. The habitats at these sites did not appear to be suitable from visual inspection.

The Potton site remains the only known locality for *T. cylindrica* in Bedfordshire and there does not appear to be any likely second site in the east of the county.

The Potton Road Verge nature reserve appears to continue to support a breeding population of *T. cylindrica* with a total of three living specimens found during this survey, including two juveniles. This site also supports a wide variety of other mollusc species including two other notable species.

Recommendations

T. cylindrica occurs on limestone based habitats in Yorkshire (Norris, pers. com.) and it is probably worth examining the limestone based habitats, particularly rocky outcrops, in the north of Bedfordshire for this species.

This survey has highlighted the importance of Potton Road Verge nature reserve to the Cylindrical Whorl Snail, along with molluscs in general and as such everything possible should be done to protect the habitat of the site. The re-introduction of spring grass cutting, in addition to late summer/ autumn cutting of the verge will help to keep the vegetation short and open, this should help other species (e.g. *Helicella italia* (Rands & Nau, 2001)) in addition to *T. cylindrica*.

The Potton Road Verge nature reserve should be monitored annually to ensure there are still living or freshly dead specimens still present. If there appears to be a decline in the species then a change in management will have to be considered. A decline would be indicated if no living or fresh specimens were found anywhere on the site.

Acknowledgements

The author would like to thank John Comont for access to the Phase 1 habitat maps, Brian Eversham for help in some snail identification, the various landowners of the sites surveyed for their permission and co-operation and English Nature for their financial support.

Bibliography

Bratton, J.H. (ed.), 1991 *British Red Data Books: 3 Invertebrates other than insects*. Joint Nature Conservation Committee. Peterborough.

Lawrence, R. (2002) *The habitat, Ecology, Distribution and Conservation of T. cylindrica (Ferussac) The Cylindrical Whorl Snail. With particular emphasis on the Bedfordshire population*. Ivel and Ouse Countryside Project, Biggleswade.

Rands, B. and Nau, B. (2001) Bedfordshire Mollusca. In: *Bedfordshire and Luton Biodiversity Action Plan, The red Data Book, Rare and Threatened Species in Bedfordshire and Luton*. Bedfordshire and Luton Wildlife Working Group, Bedford.

Phase 1 Habitat maps held by Heritage and Environment Group, Bedfordshire County Council, courtesy of John Comont, County Ecologist.

Weather information from: http://www.msnbc.com/news/wea_front.asp