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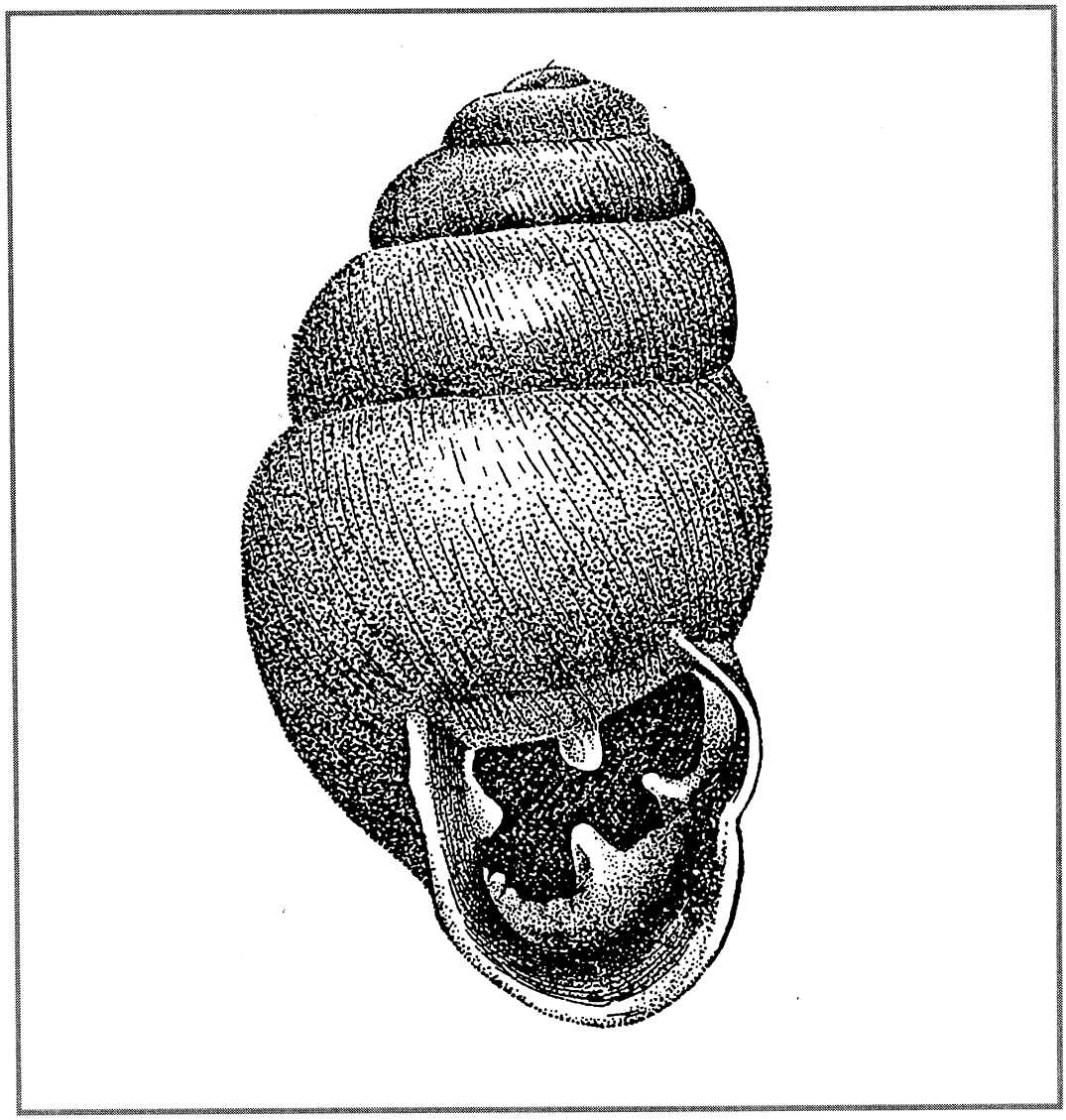

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A survey of Westbere Marshes, Kent for the terrestrial mollusc *Vertigo moulinsiana*

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Summary

The Des Moulin's whorl snail, *Vertigo moulinsiana* (Dupuy, 1849), is listed in the British Red Data Book (Bratton 1991) as an RDB3 (Rare) species, is scheduled on Annex II of the European Habitats & Species Directive and is included on the UK Biodiversity Action Plan short-list of priority species (HMSO 1996).

In Britain *Vertigo moulinsiana* is locally distributed across southern and eastern England from Dorset to north Norfolk with a few isolated colonies elsewhere. It had not been recorded in Kent until August 1999 when specimens were found in a grazing marsh ditch on Westbere Marshes. A brief survey has been carried out to determine the size and extent of the *V. moulinsana* population principally in the area of its initial discovery and also on potentially suitable sites nearby.

This brief survey has shown that *Vertigo moulinsiana* is widely distributed within the survey area, and in places, is locally abundant. On the south side of the river the snail was found alongside ditches with margins vegetated by *Carex acutiformis* and *Glyceria maxima*. Numbers of individuals recorded compared favourably with large populations elsewhere such as those in the Lambourn valley, Berkshire. On the north side of the river *V. moulinsiana* was found to be widespread and locally common in a range of habitats including overgrown ditches, fen/carr at the lake margins, and open areas of reedbed with *Glyceria*.

Suggestions for conservation and management are discussed. Further survey is recommended from Fordwich through to Stodmarsh NNR to determine the full extent of the population and to allow a more informed Conservation and Management policy to be developed.

1. Background and objectives

The Des Moulin's whorl snail, *Vertigo moulinsiana* (Dupuy, 1849) is listed in the British Red Data Book (Bratton 1991) as an RDB3 (Rare) species, is scheduled on Annex II of the European Habitats & Species Directive and is included on the UK Biodiversity Action Plan short-list of priority species (HMSO 1996).

Vertigo moulinsiana is an inhabitant of mainly calcareous fens and marshes. It occurs in swamps, fens and marshes usually bordering rivers and lakes. It lives on both living and dead stems and leaves of tall plants: grasses (eg *Glyceria maxima*), sedges (eg *Carex riparia, C. acutiformis* and *Cladium mariscus*), and reeds (eg *Phragmites australis*). The species shows a preference for taller vegetation upon which it climbs during the season and is rarely found in litter.

In Britain *V. moulinsiana* is locally distributed across southern and eastern England from Dorset to north Norfolk with a few isolated colonies elsewhere (see Kerney 1999; Drake 1999). The distribution given by Kerney (1999) shows that *V. moulinsiana* is absent from south-east England with no records east of western Sussex and Surrey. However, there are many records from tufa deposits which show that it was very common in Kent during the Postglacial (Kerney 1999). It was, therefore, a great surprise when it was discovered living at Westbere Marshes, Kent in August 1999. Specimens were retrieved from a sample of freshwater molluscs collected from an overgrown grazing marsh ditch as part of a survey for the aquatic snail *Segmentina nitida* (Killeen in press).

Although one of the proposals in the Species Action Plan for *Vertigo moulinsiana* is to undertake further survey to determine its distribution, the UK Terrestrial Mollusc Steering Group decided that that further speculative survey was not necessary as the species is widespread and its distribution reasonably well understood. However, the discovery of the site in Kent, well outside its known range in England, merited further investigation.

A brief survey has been carried out to determine the size and extent of the *Vertigo moulinsiana* population principally in the area of its initial discovery on Westbere Marshes and also on potentially suitable sites nearby.

This report summarises the results of the survey and provides recommendations for future management and conservation.

2. Sampling and recording procedure

Based on personal experience with *Vertigo moulinsiana,* particularly in Berkshire and Wiltshire, but also elsewhere in the country, the sampling strategy was designed to yield the maximum data on this species within the time available.

Experience elsewhere had revealed that close examination of the stems and leaves of sedges and *Glyceria* in the field is both time consuming and not always reliable at sites where *V. moulinsiana* was living at low density. To maximise productivity on this survey the snails were sought using only a beating technique. A large sheet of heavy duty, blue polythene was spread on the ground at the base of the vegetation. The leaves were then bent over the sheet and vigorously shaken to release all the adherent snails. At some locations the number of *V. moulinsiana* individuals were counted in the field, but at most sites snail abundance was assessed using a crude ACFOR scale.

The locations of all the sampling sites are marked on the map in Figure 1. Brief descriptions of each area are given in Section 3. The work was carried out on 14 November 1999.

3. Site descriptions

Two areas were searched:

3.1 The grazing marshes on the south side of the River Great Stour from where the original specimens were discovered. The site comprises 'semi-improved', cattle-grazed grassland intersected by drainage ditches, most of which drain into the river. Most of the ditches were in an advanced stage of vegetational succession with margins of mainly dense *Glyceria maxima*, and in some, *Carex acutiformis*. Most are poached by cattle and two of the ditches (including the original site) had been recently cleared although some marginal sections had been left intact. At the eastern end of the site there is an area of ungrazed marsh dominated by *Phragmites australis* and *Glyceria maxima*.

3.2 Westbere Marshes on the north side of the River Great Stour, south of Westbere village. The survey area focused on habitats to the south and east of a large flooded gravel pit. Two habitats were searched on the south side of the lake: a ditch running parallel to the river with *Phragmites, Phalaris, Glyceria* and tall herbs, and the flooded lake margins which comprise alder and willow carr with more open areas of fen with mainly *Phragmites* and *Carex acutiformis*. The area to the east of the lake comprises an extensive area of marsh dominated by *Phragmites* and *Glyceria*, and open willow/alder carr, both intersected by a network of drainage ditches. It should be noted that the present margin of the lake on the eastern side is different from that shown on maps. It now extends virtually to the footpath running south-east from Westbere village.

All of the sites lie within the Stodmarsh SSSI in 1km national grid squares TR1960 and TR2060. Brief descriptions of each sample site are given in Tables 1 and 2.

4. Results

This survey has shown that *Vertigo moulinsiana* is widely distributed within the survey area, and in places, is locally abundant (Tables 3 & 4).

On the south side of the river the snail was found in 9 of the 14 sample locations. Whilst the snail was widespread across the site, the core of the population was located along three ditches (sites 3-5) in the central part of the area. Although all of these ditches had been recently cleared, broad fringes of *Carex acutiformis* and *Glyceria* remained undamaged. In these ditches, *Vertigo moulinsiana* was either common or abundant and in some cases the counts per sample compared favourably with large populations elsewhere such as those in the Lambourn valley, Berkshire (e.g. Killeen & Stebbings 1999). In most of the samples juveniles outnumbered adults by a factor of at least 2:1, suggesting healthy recruitment, and which again compares favourably with results obtained in the Lambourn at a similar time of year.

On the north side of the river *V. moulinsiana* was found to be widespread and locally common. It was found in a range of habitats including overgrown ditches, fen/carr at the lake margins, and open areas of reedbed with *Glyceria*.

No specific attempt was made to record all of the other terrestrial mollusc species at each sample location. Species which found on the same vegetation as *V. moulinsiana* were noted (Tables 3 & 4) and comprise mainly the succineids *Succinea putris* and *Oxyloma pfeifferi*, and the slugs *Deroceras laeve* and *D. reticulatum*. In some samples where the *Glyceria* had collapsed to ground level a more diverse suite of species was recorded including *Vertigo antivertigo, V. pygmaea* and *Ashfordia granulata*. The latter species appears to be rare (or poorly recorded) in east Kent (Kerney 1999).

5. Recommendations for conservation, management and further work

Vertigo moulinsiana may be considered to be a species that is dependent upon conservation and preservation of habitat and is especially vulnerable to a lowering of the water table. There are a number of general factors applicable at any site which would adversely affect the *V. moulinsiana* populations:

- Changes in hydrology such as water abstraction from the rivers, deepening of drainage channels, drainage of wetlands generally.
- Changes in land use e.g. from rough pasture or meadow to improved grassland.
- Encroachment by scrub which may result in too much shade and drying out of the habitat.
- Over grazing or excessive poaching of ditch margins
- Introduction of cutting programmes at sites where there is no history of this activity.

The area of occupancy of the *V. moulinsiana* population lies within Stodmarsh SSSI which is also a proposed Special Protection Area and Ramsar site. As such, the requirements of the snail can be taken into account within the overall management plan for the site.

The population on the south side of the river is potentially the most vulnerable. It is understood from the landowner that ditch clearance is infrequent (several years) but owing to the difficulty in getting machinery on site, the ditches are often completely cleared. During the recent clearance operation some margins with *Carex* and *Glyceria* were left intact, however, any change in this practice could eliminate the snail and its habitat. In addition, poaching by cattle (particularly on the *Glyceria*) prevents any expansion of the snail's habitat. An option would be to fence off one side of the ditches which support the highest population densities.

Without information on past and present management practice in the area on the north side of the river, it is difficult to assess any specific threats to the *V. moulinsiana* population other than the general issues listed above. Given that the snail is widespread and locally common, unless there are significant changes to existing management practice, there is no immediate threat. Further survey to establish the extent of the population would be required before determining whether any active management or site enhancement is merited.

In light of the results of this brief survey, it would appear likely that *V. moulinsiana* occurs elsewhere within the wetlands adjacent to the River Great Stour. It is recommended that further survey is carried out from Fordwich through to Stodmarsh NNR. Once the full extent of the

population is established a more informed Conservation and Management policy can be developed.

6. References

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Table 1. Descriptions of sites on south side of River Great Stour

Site No.	Description	No. of samples
1	Choked ditch with *Glyceria, Phalaris, Berula* along margins, poached in places.	5
2	Choked ditch with *Glyceria, Phalaris, Berula* along margins, poached in places.	5
3	Ditch recently cleared along west bank. Undamaged, c. 3m wide fringe of mainly *Carex acutiformis* along east bank.	3
4	Continuation of site 3. Ditch cleared along north bank. Wide fringe of mainly *Carex acutiformis* along south bank.	2
5	Original site. Recently dredged ditch, cleared along entire length of west bank and northern part of east bank. Southern part of east bank undamaged with broad fringe of *Glyceria* with *Juncus, Berula* and occasional *Typha.*	3
6	Ditch with dense marginal *Glyceria* in places	2
7	Ditch with dense marginal *Glyceria* in places	2
8	Steep -sided, overgrown ditch with *Phragmites* and occasional *Glyceria* and *Carex acutiformis.* Herbs inc. *Filipendula* and *Urtica* on east bank.	4
9	Marsh dominated by *Phragmites* at N end and *Glyceria* at S end.	3
10	Shallow ditch with broad *Glyceria* margin on east side. Sparse *Phragmites* at S end.	4
11	Ditch with narrow (heavily poached) *Glyceria* margins.	Margin
12	Ditch with narrow (heavily poached) *Glyceria* margins.	Margin
13	Choked ditch with *Glyceria*, sedges, *Berula* extending all the way across, poached at margins.	2
14	Ditch/pond with broad *Glyceria* margins.	3

Table 2. Descriptions of sites on north side of River Great Stour

Site No.	Description
A	Ditch running parallel with river, partially shaded in places. Vegetated mainly by *Phalaris, Phragmites* and tall herbs. Some damper depressions with *Glyceria.*
B	Lake margin. Fen with ditches. Vegetated mainly by *Carex acutiformis* and *Phragmites.*
C	Lake margin. Open willow & alder carr with stands of *Phragmites* and *Carex acutiformis.*
D	South-east corner of lake. Margin and ditch with *Phragmites, Phalaris*, occasional *Glyceria* and *Carex.*
E	Overgrown ditch (with water) running parallel with river, partially shaded in places. Vegetated mainly by *Phragmites, Glyceria* and tall herbs.
F	Open ditch with *Glyceria.*
G	Extensive area of marsh dominated by *Phragmites.* Some depressions (?old ditches) with *Glyceria.* Evidence of recent red cutting and scrape creation.
H	Ditch alongside path. *Carex acutiformis & paniculata, Glyceria, Sparganium, Phragmites* etc.
I	Lake margin (NE corner). Open willow car with tussocks of *Carex paniculata.*

Table 3. Results for sites south of River Great Stour

Site No.	*Vertigo moulinsiana*	Counts		Other mollusc species
		Adult	Juvenile	
1a - c	Absent			} succineids, *Deroceras laeve, D. reticulatum*
1d & e	Rare			}
2a	Absent			}
2b	Absent			}
2c	Frequent	9	4	} succineids, *D. laeve*
2d	Rare	-	1	}
2e	Rare	3	2	}
3a	Common	23	13	}
3b	Common	13	29	} *Deroceras laeve, D. reticulatum*
3c	Abundant	34	69	}
4a	Common	19	34	} succineids, *D. laeve*
4b	Common	36	24	}
5a	Common	12	27	}
5b	Abundant	62	263	} succineids, *D. reticulatum*
5c	Abundant	95	175	}
6a	Frequent	0	17	} *Deroceras laeve, D. reticulatum*
6b	Frequent	2	11	}
7a	Rare	0	2	} *Deroceras laeve, D. reticulatum*
7b	Occasional	4	6	}
8a - d	Absent			*Deroceras laeve*
9a - c	Absent			*Deroceras* x2, *Vertigo antivertigo, V. pygmaea, Euconulus alderi, Monacha cantiana, Arianta arbustorum, Trichia hispida*
10a	Absent			}
10b	Rare	2		} succineids, *D. laeve*
10c	Rare		1	}
10d	Rare		1	}
11	Absent			NR
12	Absent			NR
13a	Occasional			NR
13b	Rare			
14a - c	Absent			NR

Table 4. Results for sites north of River Great Stour

Site No.	*Vertigo moulinsiana*	Other mollusc species
A	Occasional but patchy	succineids, *Deroceras laeve, D. reticulatum, Ashfordia granulata, Cochlicopa lubrica, Punctum pygmaeum, Lauria cylindracea, Euconulus alderi, Monacha cantiana, Discus rotundatus, Vertigo antivertigo, V. pygmaea.*
B	Locally frequent	succineids, *D. laeve, Ashfordia granulata, Vertigo antivertigo*
C	Common, abundant in places	*Succinea putris*
D	Occasional	NR
E	Frequent	NR
F	Occasional	NR
G	Locally common on *Glyceria*	*Vertigo antivertigo, V. pygmaea, Succinea putris*
H	Common	NR
I	Absent	NR

NR = Not recorded; succineids = *Succinea putris* and *Oxyloma pfeifferi*

Abundance Scale:
Rare = 1-5 individuals
Occasional = 6-10
Frequent = 11-25
Common = 26-100
Abundant = >100

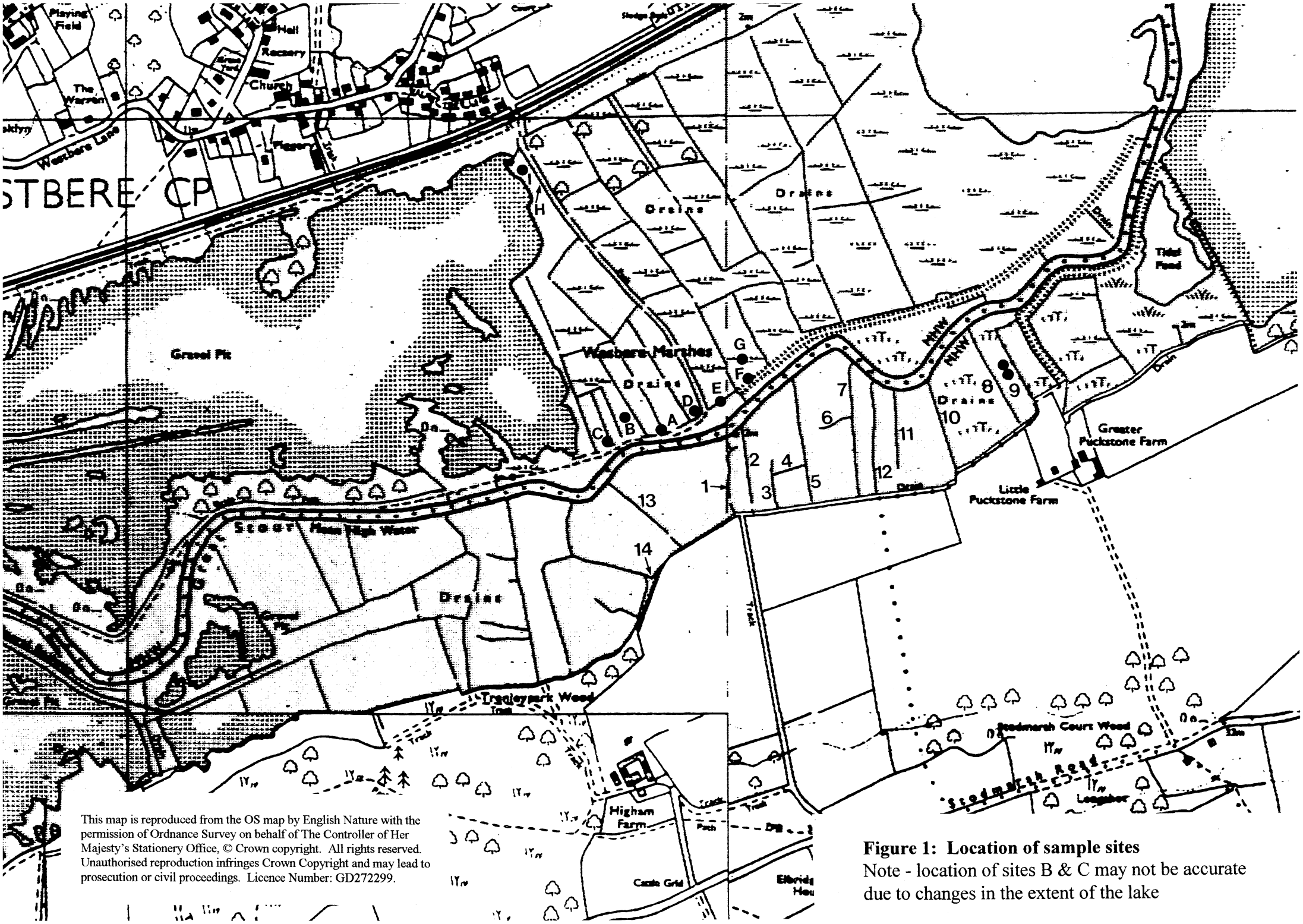

Figure 1: Location of sample sites
Note - location of sites B & C may not be accurate due to changes in the extent of the lake