

# **N4 Collooney to Castlebaldwin, Proposed Road Development**

## **APPENDIX NO. 12.7**

### **TARGETED MOLLUSCAN SURVEY**

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## Document Control

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**SURVEY OF TWO FEN AREAS CLOSE TO THE N4 FOR MOLLUSCS,  
PARTICULARLY WITH REFERENCE TO *VERTIGO GEYERI***

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**A report for Sligo County Council**

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## 1.0 Introduction

County Sligo is an important area for the wetland *Vertigo* snail species, with both *Vertigo geyeri* and *Vertigo angustior* known to be present in a number of sites in the county. The combination of calcareous limestone influence with high quality flushing wetland provides pockets of habitat that are ideal for *Vertigo* species.

Two areas of fen habitat with potential to support Annex II *Vertigo* species have been identified close to the N4. As improvements to the N4 are planned, these two sites were checked for their potential for *Vertigo*.

*Vertigo geyeri* requires conditions that are saturated but not inundated, and has a very low tolerance to change in groundwater conditions (Kuczynska & Moorkens, 2010). Their habitats are found in mosaics of suitable patches within wider fen macrohabitats. Within suitable microhabitats, the snail lives within the saturated and decaying roots of small sedges (particularly *Carex viridula ssp. brachyrrhyncha*) and associated fen mosses (particularly *Drepanocladus revolvens* and *Campyllum stellatum*).

*Vertigo angustior* requires better draining soils with calcareous conditions, and can be in drier habitats with dense fescue grasses, or wetter but not inundated *Iris* marsh.

Two fen sites close to the N4 have been identified as potentially fitting the above characteristics and thus a survey was undertaken of each on 16<sup>th</sup> of November 2012 to assess their potential for Annex II molluscan species. The two sites are Lackagh Fen in the townland of Doorly and Ardloy and Aghalenane Loughs, in the townland of Aghalenane, County Sligo. They were identified as part of a wider spring survey of County Sligo by Wilson *et al.*, (2010). The survey was also informed by a bryophyte survey undertaken on the sites (Denyer Ecology, 2012).

## 2.0 Study Sites and Methodology

The two sites were investigated by Wilson *et al.* (2010).

### Site 1 Lackagh Fen

This site is described by Wilson *et al.* (2010) as a transition mire ranging from acid environment to more alkaline conditions. The site was originally surveyed by Dr Don cotton. Annex I habitats of Degraded raised bogs still capable of natural regeneration (7120), Transition mires and quaking bogs (7140) and Petrifying springs with tufa formation (7220) were listed as present. These habitats have the potential to support *Vertigo geyeri* (Cameron *et al.*, 2003).

The potential habitat comprises spring seepages, emerging mainly from old peat diggings, with widespread swampy environments. The general area was sampled in the field, and vegetation was removed from amalgamating appropriate damp litter from three areas. A standard net mollusc collection bag was filled with the litter (approx. 2 litres), air dried in the laboratory and then sieved through two mesh sizes, 3mm and 0.5mm. The contents of each sieve were examined for snails. An Olympus 40X binocular microscope was used to examine the smaller species. The key areas were as follows:

Sample No.	Grid Reference	Description
1A	G69976 21836	Flushy swamp with pools, sedges and mounds of moss
1B	G69929 21834	Flush in old peat diggings
1C	G69872 21882	Flush in old peat diggings with some <i>Campyllum stellatum</i> moss

#### Site 2 Ardloy and Aghalenane Loughs

This site is described by Wilson *et al.* (2010) as a complex of wetland habitats which has developed on cutover raised bog, some of which is regenerating. The site was originally surveyed by Dr Don cotton. Denyer (2012) describes alkaline fen surrounding the lough system. Annex I habitats of Degraded raised bogs still capable of natural regeneration (7120), Calcareous fens with *caladium mariscus* and species of Caricion davallianae (7210), Petrifying springs with tufa formation (7220) and Alkaline fens (7230) were listed as present. These habitats have the potential to support *Vertigo geyeri* (Cameron *et al.*, 2003).

The key potential habitat area for *V. geyeri* was the spring habitat is present on the western and south-western margins of the lough. The general area was sampled in the field, and vegetation was removed from amalgamating appropriate damp litter from three areas. A standard net mollusc collection bag was filled with the litter (approx. 2 litres), air dried in the laboratory and then sieved through two mesh sizes, 3mm and 0.5mm. The contents of each sieve were examined for snails. An Olympus 40X binocular microscope was used to examine the smaller species. The key areas were as follows:

Sample No.	Grid Reference	Description
2A	G73068 17151	Mostly <i>Juncus</i> fen with open patches and pools with sedges and mossy mounds
2B	G73013 17191	Shorter wet fen nearer the lake with more sedge than site 2A
2C	G73200 17108	Shallow ditch with <i>Iris</i> , grasses and mosses

### 3.0 Results

A total of 134 individuals from 12 different species were found at Lackagh Fen. A total of approximately 400 individuals from 20 different species were found at the Ardloy and Aghalenane Loughs site. The results are shown in Table 3.1. Photographs of the two sites are provided in Appendix 1. *Vertigo geyeri* was found to be in good numbers at the Ardloy and Aghalenane Loughs site. The last sample from the site had abundant snails but neither *V. angustior* nor *V. geyeri* was found.

**Table 3.1 Results of molluscan sampling from Lackagh Fen (Samples 1A-C) and Ardloy and Aghalenane Loughs (Samples 2A-C). Nomenclature follows Anderson (2005).**

	1A	1B	1C	2A	2B	2C
<b>Aquatic</b>						
<i>Valvata cristata</i>	1		3			
<i>Galba truncatula</i>		1				
<i>Stagnicola fuscus</i>						O
<i>Bathymphalus contortus</i>	1		7			O
<i>Pisidium obtusale</i>	3		2			O
<i>Pisidium personatum</i>						F
<i>Pisidium milium</i>			1			
<b>Terrestrial</b>						
<i>Oxyloma elegans</i>	2		1	4	1	F
<i>Carychium minimum</i>	3	78	7	12	15	C
<i>Carychium tridentatum</i>						C
<i>Cochlicopa lubrica</i>	3	1				O
<i>Columella edentula</i>						C
<i>Vertigo antivertigo</i>		7	1	2	3	O
<i>Vertigo substriata</i>				2	2	F
<i>Vertigo pygmaea</i>						O
<b><i>Vertigo geyeri</i></b>				<b>14</b>	<b>17</b>	
<i>Leiostryla anglica</i>						C
<i>Punctum pygmaeum</i>						F
<i>Acanthinula aculeata</i>						O
<i>Nesovitrea hammonis</i>				1		O
<i>Zonitoides nitidus</i>		4			1	
<i>Euconulus alderi</i>	3	3	1	4	3	O
<i>Cepaea nemoralis</i>	1				2	O
<b>Total Number of Species</b>	8	6	8	7	8	18
<b>Total number of individuals</b>	17	94	23	39	44	>300

Sample 2C analysed according to abundance scale: O = occasional (<10 individuals); F = Frequent (10-25 individuals); C = Common (>25 individuals)

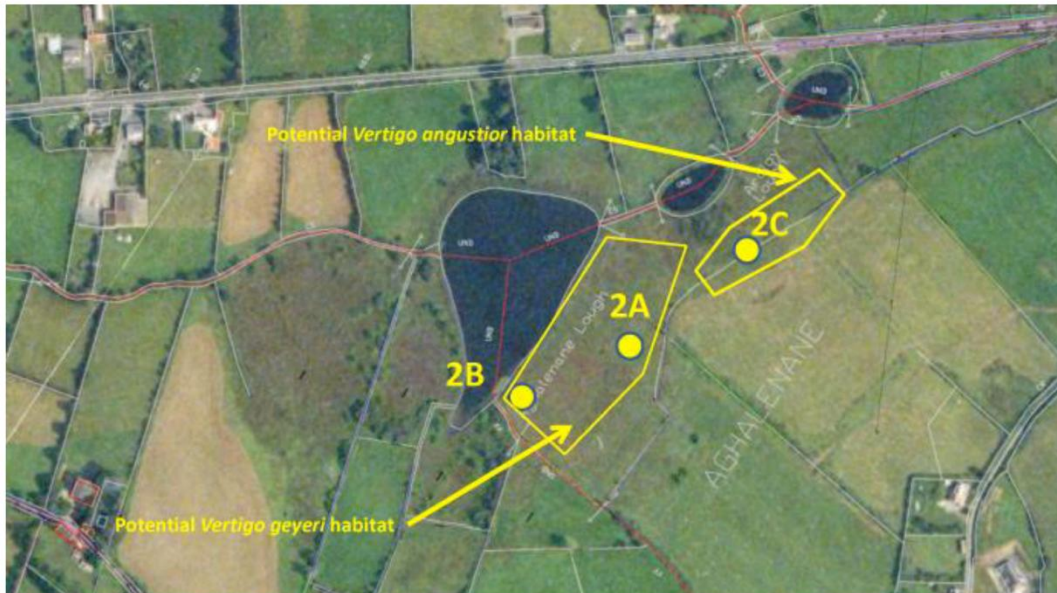
#### 4.0 Discussion

The Lackagh Fen site was of high habitat quality, but not suitable for *V. geyeri* or *V. angustior*, being too wet and not quite calcareous enough for either species where their potential habitat was present.

The Ardloy and Aghalenane Loughs was a large and varied site, and on walking over the site it had clear potential for both *V. geyeri* and *V. angustior*. *Vertigo geyeri* was found in good numbers in two out of three sampled areas. The third area of potential (2C) was surveyed because it had potential for *Vertigo angustior*. This species can easily be missed in samples, and is better surveyed in dry conditions through multiple field sampling by bashing vegetation over a white tray and examining the contents. This way the narrow transition zone that the snail is occupying can be found. In such a widespread habitat area, any *V. angustior* present is liable to move upslope and downslope in different wetness conditions. Sampling in wet conditions, it is not possible to remove enough vegetation to assess all potential zones of occupation without being destructive to the habitat. *Vertigo angustior* was not found in this survey, but the potential for its presence remains. However, a large sample was amalgamated from a wide area of potential and in spite of over 300 snail individuals being found, none were *V. angustior*.

Figure 4.1 shows the extent of habitat at the Ardloy and Aghalenane Loughs site that is likely to support *V. geyeri*, and from within which both samples 2A and 2B were taken. The habitat is on the far side of the lake from the N4, but an opinion from a hydrogeologist regarding whether there could be any potential negative effect from any proposed road works should be sought. Figure 4.1 also shows the area of potential for *V. angustior*. The best of the potential habitat was concentrated on the flat at the base of the slope (see photo in Appendix 1), and this may get too wet in winter to support the snail. Therefore, it is not very likely that the snail is present here, but it is possible. Mitigation measures should be employed that would protect this site from both construction traffic, and from changes in hydrology and hydrogeology. The area of occupancy for *V. geyeri* is potentially very large and compares very well with other sites for the species around the country, therefore it must be considered to be of high importance for the species, and from a molluscan aspect the Ardloy and Aghalenane Loughs site would demand an A rating. Lackagh Fen would demand a locally important C rating for molluscs, but of course would have a higher rating for habitat interests.

Figure 4.1 Extent of potential habitat for Annex II *Vertigo* species at Ardloy and Aghalenane Loughs.





## 5.0 References

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