Whorl snail survey for Tobin Consulting Engineers.

Derryadd wind farm November 2022

Adam Mantell

Figure 1 - View across southern section of the bog from near the Mount Dillon works

Executive Summary

This document reports on the findings of a whorl snail survey commissioned by Tobin Consulting Engineers. The survey took place on a cut-over bog near Lanesborough in Co. Longford as shown in Figure 3. It was conducted on 11th and 12th November 2022. Our findings are intended to inform the ecological appraisal of the proposed development.

Three species of whorl snail were found during the survey. *Vertigo pygmaea* was the most abundant with single specimens of *Vertigo substriata* and *Vertigo antivertigo* also present. They are species of conservation concern as *V. pygmaea* and *V. substriata* have a Near Threatened (NT) red list status and *V. antivertigo* is listed as Vulnerable (VU) on the basis of decline. All are still relatively widespread in Ireland, however.

The part of the site north of the N63 road appears to support greater numbers of whorl snails, having 4 out of the 5 occupied sample points. This is likely to be due to the more advanced vegetative succession providing more favourable conditions.

Due to time constraints and difficult access due to high water levels in some places we were unable to sample significant parts of the site. Figure 9 shows the 31 locations that we visited and sampled.

Of the two Habitats Directive Annex II species that might have been found on a site of this type, *Vertigo angustior* is only rarely found on peatlands with the nearest peatland record over 100km away. We consider it unlikely that *V. angustior* is present. *Vertigo moulinsiana* on the other hand has several records within 3km at Killashee Bridge. The vegetation types, especially *Phragmites* and *Glyceria maxima* reed beds are potentially suitable for this snail. It is therefore considered possible that *V. moulinsiana* is present but was not revealed by this survey.

We therefore recommend that either additional surveys are undertaken focussing on areas where the development works will take place, or protective measures are adopted during any development works to ensure that any undiscovered populations that may be present are not adversely impacted. Protective measures would need to ensure the physical integrity of any areas of habitat that may support *Vertigo moulinsiana* including potential changes to the hydrology. Even modest changes in water levels can be detrimental for this species.

1. Staffing for the project

Fieldwork, taxonomy and report writing was completed by Adam Mantell. Adam has over 10 years' experience completing entomological surveys including molluscs for a range of clients including the National Parks and Wildlife Service, the National Trust, Northern Ireland Environment Agency and environmental/engineering consultancies.

2. Description of the site

This is a large site of several square kilometres in extent located in County Longford between Lanesborough and Killashee. The site and habitat map provided by Tobin Consulting Engineers is shown in Figure 3. There are several Protected Sites nearby including Lough Ree SPA, Lough Ree SAC and Fortwilliam Turlough SAC.

The site is comprised mainly of cut-over bog and is divided by the N63 road with Bord na Mona's Mount Dillon works. Recent and historic peat cutting has left a varied terrain with a variety of habitat types (Figure 3). Significant parts of the site are at an early successional stage with sparse ruderal vegetation such as that shown in Figure 2. Some parts of the site have been cut down to the mineral layer, and peat of variable thickness remains elsewhere. Some areas have more mature vegetation including young carr woodland. North of the N63 road, habitats appear to be generally more mature in nature indicating that peat cutting may have ceased earlier.

Figure 2 - Area where peat cutting has recently ceased

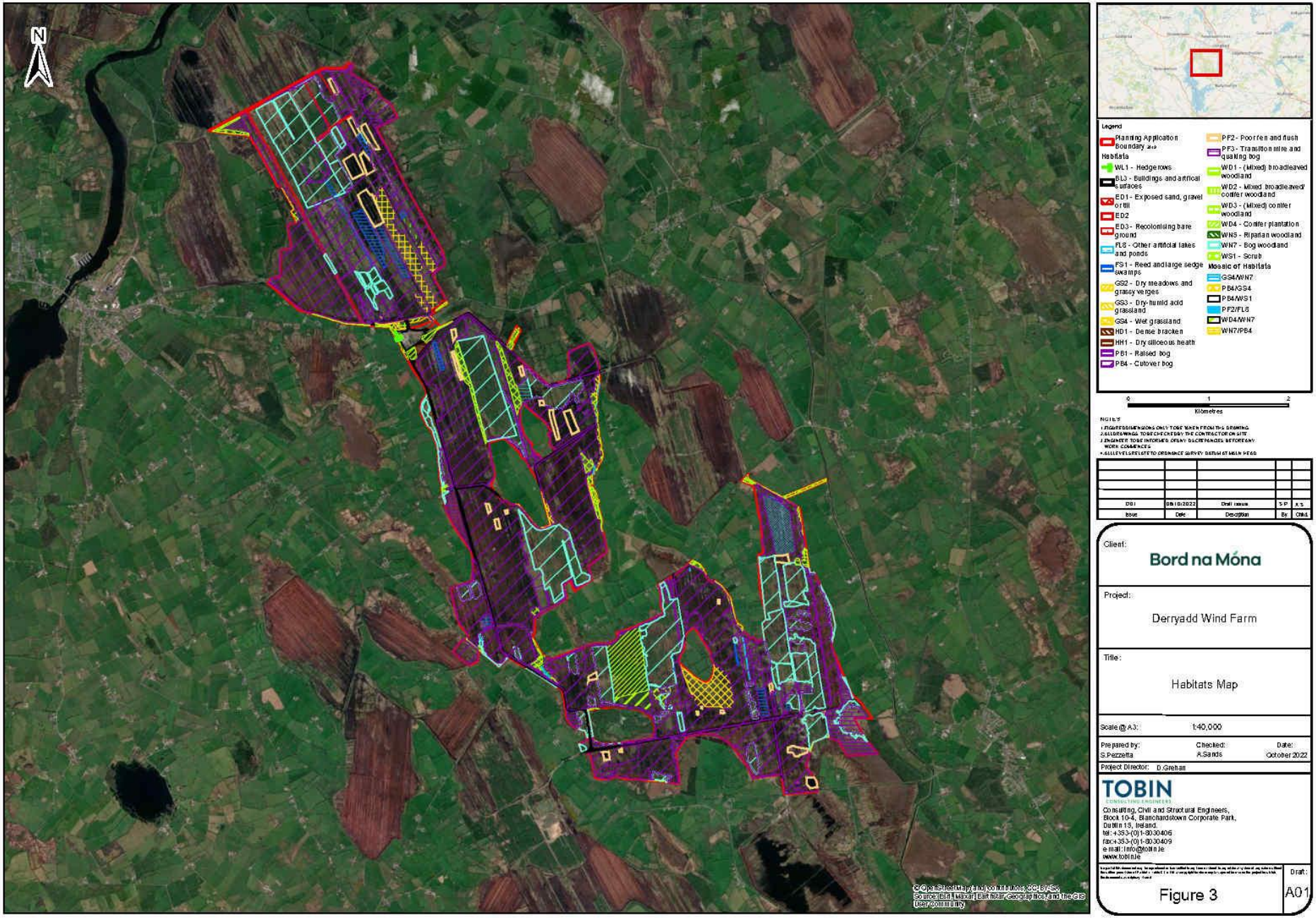

Figure 3 - Location and habitat map for Derryadd wind farm

3. Methods

Guidance on population and habitat condition assessment for Annex II listed whorl snails are by Moorkens & Killeeen, (2011) & Long & Brophy (2019). However, these guidelines are designed to facilitate repeatable population and habitat quality assessments for EU Article 17 reporting. For the survey at Derryadd, the survey objective relied on establishing presence or absence of whorl snails at the site, and not completing habitat condition assessment or monitoring population size. To that effect, an adapted methodology was adopted, following the aforementioned guidance's whorl snail search methods, but permitting the survey period to extend late into the winter period (which is not considered to affect whorl snails presence and/or detectability during the survey), while allowing professional judgement and experience to identify and select the most suitable areas for whorl snails within the site.

The survey comprised a detailed search of habitats and niches capable of supporting *Vertigo* snail species, with an emphasis on *Vertigo moulinsiana* (Desmoulin's whorl snail) which is listed in Annex II of the Habitats Directive. Searching targeted the vegetation types considered the most suitable habitat, including areas of reed bed (*Phragmites* and *Glyceria* reeds), wet grassland and waterside vegetation with sedges, rushes and grass. Examples are shown in Figures 1, 3, 4 & 5. Searching reeds and tall vegetation is particularly important in locating *Vertigo moulinsiana*. Some damp grassy habitats were searched to discover any populations of *Vertigo angustior* (also Annex II listed) and other whorl snail species present at the sampling points.

Figure 4 - reed beds and wet waterside vegetation

These areas were sampled by:

- beating tall vegetation such as reeds onto a white tray and inspecting the tray for snails. Care was taken to sample the full height of the vegetation from ground level upwards, although snails are more likely to be found higher in vegetation at this time of year.
- pulling out handfuls of grasses, sedges and herbs and beating these onto a white tray to dislodge snails.
- at one location wind-blown strand line flotsam was checked for presence of snails, see Figure 6. We have found this technique useful on other sites that seasonally flood such as turloughs although no snails were found on this occasion.

Figure 5 – typical waterside vegetation with grasses and rushes supporting whorl snails.

Figure 6 - wind-blown strand line in a flooded part of the site

Specimens were collected into a container and labelled with date, name of collector, an eight-figure grid reference and a description of the habitat type. Specimens were stored in a refrigerator until identification was completed in the laboratory. Photographs were taken of representative habitat types. Locations that were searched but no whorl snails found were recorded in a field notebook with a grid reference and date.

A desk study of records of Annex II listed whorl snails was carried on the National Biodiversity Data Centre's online archive (NBDC, 2023) and on Byrne *et. al.* (2009) Irish non-marine mollusc red list. No records of *Vertigo angustior* have been found within 100km of the site, but there are nearby records of *Vertigo moulinsiana* (e.g. Grid References N16, N07). This is discussed in more detail in Section 4.

4. Results and discussion

Three species of whorl snail were found during the survey. They were:

- *Vertigo pygmaea,* found at 4 of the 32 locations sampled during the survey; and
- *Vertigo substriata* and *Vertigo antivertigo* were both found at a single location.

Details of the sampling results are contained in Table 1. Figure 9 shows the locations of all sample points and where different whorl snail species were found.

Table 1 – results of the survey

Sample Point	Date	Grid reference	Whorl snail numbers and species	Habitat type
1	11/11/22	N04196896	-	Wet grassland
2	11/11/22	N04506974	-	Phragmites and sedges
3	11/11/22	N04416990	-	Phragmites and sedges
4	11/11/22	N04646966	5 x V. pygmaea	Grass, rush, sedges and scrub
5	11/11/22	N04626976	17 x V. pygmaea	Grass and sedges
6	11/11/22	N04776947	1 x V pygmaea	Rushes, grass and scrub swamp
7	11/11/22	N04776943	2 x V. pygmaea	Grass and rush swamp
8	11/11/22	N04906912	-	Sparse Phragmites
9	11/11/22	N04527021	-	Grass and rush swamp
10	11/11/22	N04547017	-	Sparse Phragmites
11	11/11/22	N04666995	-	Grass and sedges
12	11/11/22	N04736984	-	Grass, sedges and scrub swamp
13	11/11/22	N04766973	-	Sedge and bulrush bed
14	11/11/22	N04866954	-	Rushes, grass and scrub swamp
15	12/11/22	N05126876	-	Sparse Phragmites bed
16	12/11/22	N05376899	1 x Vertigo substriata 1 x Vertigo antivertigo	Rush, bulrush, grasses and herbs
17	12/11/22	N05446897	-	Grass growing over water
18	12/11/22	N05506891	-	Low sedge/herb swamp
19	12/11/22	N05406871	-	Strandline flotsam
20	12/11/22	N05486841	-	Small Phragmites bed
21	12/11/22	N05536829	-	Low sedges and grasses
22	12/11/22	N05626829	-	Sparganium sp. burr reed growing along a drainage channel
23	12/11/22	N05626773	-	Sparse Phragmites
24	12/11/22	N05836713	-	Ruderal swamp wet grass, rush and herb community
25	12/11/22	N05326738	-	Low dense sedges in drainage channel
26	12/11/22	N05296749	-	Grasses in drainage channel

Sample Point	Date	Grid reference	Whorl snail numbers and species	Habitat type
27	12/11/22	N05296759	-	Sparse wet ruderal swamp vegetation
28	12/11/22	N05376769	-	Ruderal grasses, rushes and herbs
29	12/11/22	N05286806	-	Sparse Phragmites
30	12/11/22	N05256808	-	Grass and rush swamp
31		N05186826	-	Grass and rush swamp
32		N05136847	-	Grass and sedge swamp with sparse scrub

None of the whorl snail species found at Derryadd are listed in Annex II of the Habitats Directive. Listed species are of relevance to any proposed development as they benefit from specific legal protection preventing development works from damaging populations. *V. pygmaea* and *V. substriata* are however species of conservation concern as they have a Near Threatened (NT) red list status. *V. antivertigo* is listed as Vulnerable (VU) (Byrne *et al.*, 2009). Both are still widespread in Ireland and are red-listed on the basis of decline.

The two Annex II listed species that are most likely to be found in a site of this type are *Vertigo angustior* and *Vertigo moulinsiana*. The third listed species is *Vertigo geyeri*, which is only found in undisturbed base-rich upland seepages with abundant brown *Scorpidium* mosses and it is considered highly unlikely to be present on cut-over bog. *Vertigo angustior* has a largely coastal distribution in dune slacks and marshes but is occasionally found on peatland sites. It is unlikely to be present at Derryadd, but it is not impossible. The nearest *V. angustior* record is from Pollardstown fen, over 100km distant from Derryadd.

Vertigo moulinsiana is associated with tall vegetation especially *Glyceria maxima* and *Phragmites australis* in a variety of wetland situations. The snail requires very specific hydrological conditions where the ground is wet all year, but flooding is of limited amplitude. Habitat of a type that could potentially support *Vertigo moulinsiana* is present at this site, see Figure 4, Figure 7 and Figure 8 for examples of *Phragmites* reed beds. *Glyceria maxima* is also present, often in a matrix with grasses.

There are historic records of *V. moulinsiana* from within 3km of the site as recently as 2006 from a dried-up stretch of the Royal Canal at Killashee. Two days of searching has revealed three of the commoner whorl snail species and we cannot rule out the possibility that *Vertigo moulinsiana* could be present. To overcome this uncertainty, we suggest two possible options. Firstly, additional searching could be undertaken in areas likely to be directly affected by the development, i.e. the locations of turbines and their access roads. Secondly, protective measures could be put in place to ensure that any Annex II listed whorl snails are not impacted through development. That would mean ensuring turbine bases, access roads and other infrastructure are sited in areas that are unsuitable for either *Vertigo angustior* or *Vertigo moulinsiana* and taking care to ensure that development will not affect the existing hydrological regime across a wider area. Even modest

changes to water levels can have a significant impact on whorl snail populations especially *Vertigo moulinsiana*.

Adam Mantell – Entomologist

5. References

Byrne, A., Moorkens, E.A., Anderson, R., Killeen, I.J. and Regan, E.C. (2009) *Ireland Red list No. 2: Non-marine Molluscs*. National Parks and Wildlife Service.

Long, M.P. & Brophy, J.T. (2019) Monitoring of sites and habitat for three Annex II species of whorl snail (Vertigo). Irish Wildlife Manuals, No. 104. National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht, Ireland

Moorkens, E.A. & Killeen, I.J. (2011) Monitoring and Condition Assessment of Populations of Vertigo geyeri, Vertigo angustior and Vertigo moulinsiana in Ireland. Irish Wildlife Manuals, No. 55. National Parks and Wildlife Service, Department of Arts, Heritage and Gaeltacht, Dublin, Ireland

National Biodiversity Data Centre online mapping system <https//maps.bioversityireland.ie)> Accessed November 2022

Figure 7 - View looking south from IGR N051688. Phragmites reeds on the left

Figure 8 - View looking north from IGR N044703. Note dense stands of Phragmites reeds straight ahead

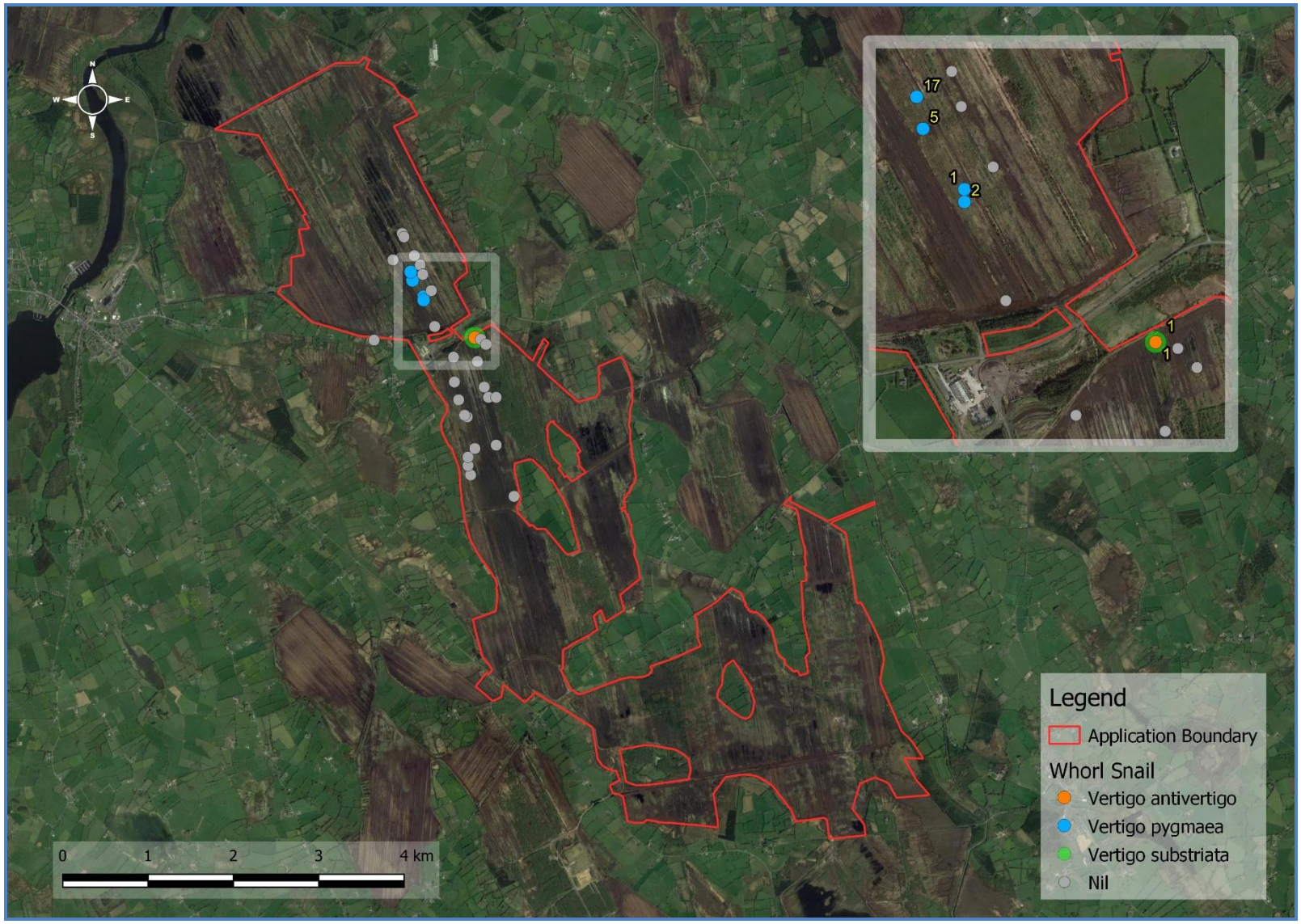

Figure 9 - distribution of whorl snails and sample points across the site