

# **Species Inventory for Northern Ireland**

## **Land and Freshwater Mollusca**

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# Species Inventory for Northern Ireland: Land and Freshwater Mollusca

## Introduction

This is one of a series of species inventories covering taxonomic or ecological groups of terrestrial and freshwater invertebrates of N. Ireland. These reviews provide an inventory of the N. Irish fauna. These statements will be used as the local species account in the RECORDER database of CEDaR, the N. Ireland Biological Records Centre.

A major mapping exercise of the British Isles non-marine Mollusca was conducted in the nineteen-seventies by members of the Conchological Society. Progress and the main findings of the N. Ireland part of the exercise were reported in two publications (Anderson 1977, 1983) and the overall mapping results in an *Atlas* published by the Society (Kemey 1976). A more recent publication by the Ulster Museum (Ross 1984) gives updated maps. A further updated *Atlas* is to be published by the Society in 1996. These publications summarise most of what is known of the molluscan fauna of N. Ireland.

## Biogeography and ecology

A total of 130 species of non-marine molluscs have been recorded in this area, of which 9 were not recorded during the Conchological Society mapping exercise and have not been seen recently. Of these the majority are likely to be extinct or very rare: *Hydrobia ventrosa*, *Myxas glutinosa*, *Truncatellina cylindrica*, *Vertigo pusilla*, *V. angustior*, *Testacella haliotidea*, *T. scutulium*, *Pisidium conventus*, *P. moitessierianum*. *Hydrobia ventrosa* is a species of clear saltmarsh pools and may still survive in Strangford or Lame Loughs for which there are old records. *Myxas glutinosa* has become very rare in Britain and although recorded recently from central Ireland is likely to be extinct in the north because the habitats around Lough Neagh from which it was recorded are now eutrophic and unsuitable. *Truncatellina cylindrica* was found as a cabinet specimen in Ulster Museum by the Conchological Society Recorder Michael Kemey. The Groomsport locality is now untenable but if it is native to Ireland it could occur at other Co. Down sites such as Murlough/Tyrella. *Vertigo pusilla* has been searched for at its old localities in Colin Glen and Whitepark Bay without success but it is possibly too early to rule out its re-discovery at some future date. The same holds for *V. angustior* which may survive in some of the extensive north coast dune systems in which sub-fossil shells have been found. However, it seems unlikely that the two *Testacella* species could have survived competition with the New Zealand flatworm for now-scarce earthworms on which they feed, and present water conditions prevailing in the River Lagan make it unlikely that *Pisidium moitessierianum* will ever be refound there. This leaves *P. conventus*, a coldwater bivalve which may still survive in some of the deeper Fermanagh lakes. In summary, roughly 7% of the fauna has either disappeared or become very rare since the turn of the century. Despite this, only a few of the remaining species are in especially vulnerable or endangered categories and there have been many new discoveries, extensions of known range and additions to the fauna in the last twenty-five years. Most of these are reported in the RECORDER local accounts.

Specialisms within the native fauna centre around the oceanicity of the climate. This clearly lends advantage to desiccation-vulnerable organisms and the slug species are particularly well represented. The European slugs are a polyphyletic group belonging to several families of disparate origins: Arionidae, Milacidae, Limacidae, Testacellidae. On mainland north-west Europe about 29 species have been reliably reported from natural or semi-natural environments. In Britain and Ireland the total reaches 30 species each. Two Irish species are unknown elsewhere in our part of Europe: *Geomalacus maculosus* (Kerry slug), *Arion* U1 (Ballywalter slug). Two British species are unrecorded

for Ireland: *Deroceras agreste* (which may eventually turn up) and *Limax tenellus* (an old wood, *urwaldtiere*, species). The N. Ireland total is 26 as we lack *Geomalacus maculosus*, *Arion lusitanicus*, *Milax rusticus* (recently discovered in Cork) and *Testacella maugei* of the Irish species. The only slug species of conservation significance in Ireland are *Geomalacus maculosus*, the *Testacella* species and *Milax rusticus*. None of these are likely to occur now in N. Ireland. The balance of the slug fauna is strongly oceanic with, by European standards, a remarkable variety of *Arion* species and abundance of individuals of relatively localised 'western' species such as *Arion subfuscus* and *Limax marginatus*.

The non-slug Mollusca also has a well-developed oceanic facies and the species list includes *Acricula fusca*, *Pyramidula rupestris*, *Leiostyla anglica*, *Lauria cylindracea*, *Spermodea lamellata* and *Zenobiella subrufescens*. With the exception of *Pyramidula* and *Lauria* these are woodland species and the maintenance of a wide network of semi-natural woodlands in glens and estates is necessary for their continued survival. Fortunately they all appear to adapt well to deciduous plantings and planted beech, not an Irish native, is particularly important for the survival of *Spermodea lamellata*. Despite the abundance of peatlands in Ireland, there are no molluscs specifically adapted to this environment and only one mollusc which is habitually calcifuge, *Zonitoides excavatus*. The latter is typical of lagg woodland round the periphery rather than the exposed surface of bogs and occupies a wide range of woodland types (except conifer) on acid substrata in the north and west of Ireland. The freshwater fauna is relatively impoverished compared to that of the central plain, as also is the fen and swamp fauna. We lack some typical central species such as *Theodoxus fluviatilis* and *Bithynia leachii* among the freshwater species and the very localised *Vertigo moulinsiana*, *V. geyeri* and *Catinella arenaria* among the wetland species. This is more a consequence of topography and geology than climate and most of the central fauna extends at least as far as the Fermanagh lakeland. More species may well be recorded as the Fermanagh wetlands become better explored. The xerophilic helicids which are such a conspicuous component of fauna in Mediterranean countries and dune habitats here are at their best development in south-central Ireland and most are restricted to the coast in the north which is by comparison cold, exposed and base-deficient. Palaeoecological investigations indicate that the majority of these modern Irish helicids are recent introductions and only a minority, the *Cepaea* species and *Helicella itala*, are likely to be native. Conservation targets among the N. Irish Mollusca include the species listed at the beginning of this section. Other species are undoubtedly in decline, mostly as a result of arterial and other land drainage, and the destruction of native scrub woodlands. It is difficult to produce figures to substantiate potential losses but the 1970s mapping exercise provides a useful basis for future investigations into this question. There remain weaknesses in mapping coverage of some species. Some of the smaller and more elusive Vertiginidae, for instance, are often overlooked in mapping exercises and require more effort at specific sites to judge their status. The species of deeper freshwaters are also under-recorded because boats and dredges have only very rarely been used for survey purposes in N. Ireland. The continued occurrence of *Pisidium henslowanum* in L. Neagh and of *P. conventus* in Fermanagh, is uncertain and will only be resolved by this type of investigation. The *Anodonta* spp. are under-recorded throughout Ireland for similar reasons.

The RECORDER Local Species Accounts given below supply more specific information on the fauna. Those using RECORDER should note that *Limax valentianus* and *Arion* U1 are not currently on the programme. *Limax valentianus* records will be added shortly and the inclusion of *Arion* U1 must await its description in the scientific literature.

## SPECIES ACCOUNTS

The writing of local species accounts in the present exercise serves to define current knowledge as a prelude to designation of species within RDB classes. The following accounts have been arranged in systematic order. For each species the number of sites at which it has been recorded since 1970 is denoted by a letter on the first line of each account according to the following categories:

A: 1 site; B: 2-5; C 6-20; D: 21-50; E: 51-100; F: 100+; X: not recorded recently.

***Theodoxus fluviatilis* (Linnaeus,1758) X**

Widely distributed in central Ireland in slow-moving water or on lakeshores. It is recorded as far north-west as Glenade Lough, Sligo but not in Fermanagh (Kerney 1968). May possibly have been overlooked and could occur on lakeshores or in sluggish rivers in south Fermanagh.

***Valvata cristata* Müller,1774 C**

Mainly recorded from the Lough Neagh Basin, from Co. Down, south Tyrone, Armagh and Fermanagh in N. Ireland i.e. with a southerly distribution. Inhabits clear, weedy habitats of small size and nearly stagnant water such as weedy field drains, drumlin lakes and pools in interdrumlin bog.

***Valvata piscinalis* (Müller,1774) D**

Ubiquitous in slow-flowing, weed-free water to 5 considerable depths in lakes and rivers. An important constituent of the diet of wintering wildfowl on Lough Neagh. Like related species, not usually in acid water, and rare or absent from much of the north and west, but unlike *V. cristata*, recorded from mid Antrim (Maine River System etc.).

***Hydrobia ventrosa* (Montagu,1803) X**

There are old records for Magheramorne (R J Welch, 1898) and Glynn, Lame Lough (J N Milne, 1905), Strangford Lough at Mountstewart (C H Waddell, 1912) and Killough Harbour (R J Welch/A W Stelfox, 1909) but this species has not been recorded since the latest date (1912). It is quite probably extant in some or all of these sites.

***Hydrobia ulvae* (Pennant,1777) D**

Confined to partially saline coastal lagoons and estuaries but will tolerate high salinities in sheltered localities such as upper Belfast Lough. Fairly tolerant of organic pollution and an important item of diet for overwintering waders. Abundant in fine muds through to silty sand from EHWST to LWNT, burrowing just beneath the surface.

***Potamopyrgus antipodarum* (Gray,1843) F**

[= *jenkinsi* (Smith,1889)]

A naturalised New Zealand species which invaded Irish freshwaters about the turn of the nineteenth century. Now abundant and widespread in clear streams, especially those which flow into the sea and some larger, richer lake systems.

***Bithynia tentaculata* (Linnaeus,1758) D**

Like most other species which prefer hard water or larger water bodies this is confined to the south of N. Ireland, but extends along the Bann from Lough Neagh to its estuary on the north coast. Abundant in Lough Neagh where it forms a sizeable part of the diet of winter-visiting, diving ducks.

***Acicula fusca* (Montagu, 1803) C**

Very widespread in Ireland but never found in numbers and very local. Usually in soil or leaf litter in shaded, cool environments, often where base-rich strata outcrop. Most N. Ireland records are for old woodland or scrub on outcropping chalk, basalt or limestone.

It is evidently less rare near the coast and there are a string of records for north Antrim and north Londonderry. It has been found, for instance, in moss on chalk cliffs at Ballycastle, and on chalk underlying basalt at Black Head, Antrim.

***Carychium minimum* Müller, 1774**

**F**

Widespread and generally frequent in wetlands and carr habitats, but easily overlooked. Not usually found at altitude or on base-deficient strata. Can occur with its congener, *C. tridentatum*, in wet woodland, but this is rare.

***Carychium tridentatum* (Risso, 1826)**

**E**

Widespread in shaded habitats, usually in deep forest litter. Almost confined to sites where primaeval woodland survived until supplemented by nineteenth century plantations. Like all the molluscan *urwaldtiere* in Ireland, not in recently established or coniferous plantations.

***Ovatella myosotis* (Draparnaud, 1801)**

**C**

Locally common at the roots of saltmarsh vegetation around the coast. Recorded from Strangford Lough (widely), Dundrum Bay and the Foyle. Will also probably be found in Carlingford Lough.

***Leucophytia bidentata* (Montagu, 1808)**

**B**

May occur with *Ovatella myosotis* in saltmarsh habitats, but not usually in heavy vegetation, preferring open muddy ground, under stones. A member also of the upper tidal crevice fauna and though under-recorded is likely to be common on slate rocks around the Co Down coast.

***Aplexa hypnorum* (Linnaeus, 1758)**

**C**

Scattered and decreasing in frequency in temporary habitats such as seasonal floodwaters behind the shoreline of Lough Neagh. Mainly around Lough Neagh, along the Co. Down coast and in Fermanagh.

***Physa fontinalis* (Linnaeus, 1758)**

**D**

Widespread and abundant in the Lough Neagh and Erne Basins, but recorded also from the north coast of Antrim, Rathlin Island, and the Foyle, Londonderry. Mainly found in clear, weedy and fairly stagnant waters such as canals, slow rivers and small lakes.

***Physa gyrina* (Say, 1821)**

**D**

This is a naturalised N American species which has escaped from aquaria into canals and similar habitats in central and southern England. Despite a number of surveys of freshwater habitats in Ireland since the mid-nineteen-sixties it has not previously been reported from natural habitats here. However, a specimen was taken on 28 September from a pond at the L. Neagh Discovery Centre at Oxford Island. A search of the area on 3 October 1995 produced large numbers both in the pond and in the open waters of L. Neagh at The Closet. It has subsequently been found throughout the Lough Neagh system and Lower Bann.

***Lymnaea truncatula* (Müller, 1774)**

**F**

The main vector for the liver fluke, *Fasciola hepatica*, in N. Ireland. Widespread and abundant at all but higher altitudes, in wet pasture, by small streams and at the margins of a variety of wetlands and bodies of fresh water.

***Lymnaea palustris* (Müller, 1774)**

**D**

A lowland species but extends to north Antrim and north Londonderry. Not recorded from south Londonderry and much of Tyrone. Mainly found at the (flooded) margins of medium to large water-bodies.

***Lymnaea stagnalis* (Linnaeus,1758)** **D**  
Not very common in N. Ireland and with a Lough Neagh/Erne distribution. Prefers larger habitats and is relatively common around the shores of Lough Neagh. Mostly found in deeper and harder water than its congeners except the ubiquitous *L. peregra*.

***Lymnaea auricularia* (Linnaeus,1758)** **D**  
Very sparsely distributed in Ireland but found in north Down, the Lagan Valley and around Lough Neagh. The prevailing form here (var. *lagotis* Schrank) is rather similar to larger forms of *L. peregra*. Confined to larger or hard water habitats.

***Lymnaea peregra* (Müller,1774)** **F**  
Very variable in form, the more extreme soft water forms possess bubble shells and evanescent spires and resemble *Myxas glutinosa*. This is the most commonly recorded freshwater mollusc in N. Ireland and the British Isles, and found in a very wide range of trophic conditions, pH and turbidity.

***Myxas glutinosa* (Müller, 1774)** **X**  
Widely distributed in the canals of central Ireland where it appears to have found a congenial habitat. Prefers solid bottoms in deeper rivers, lakes and canals but is rare and erratic in its appearances. Recorded from the Bann at Portadown, Armagh (W A Greer, 1900) and from Toome Canal, Antrim (R J Welch, 1900). Also from the Newry Canal. Not seen in N. Ireland since 1900.

***Planorbis planorbis* (Linnaeus,1758)** **C**  
Common in temporary habitats or habitats of small size in central and southern Ireland but mysteriously localised in N. Ireland and not reliably recorded outside the Lough Neagh Basin, Lagan Valley and vicinity of Belfast. It may be common in areas of winter flooding behind the shorelines of Lough Neagh.

***Planorbis carinatus* Müller,1774** **D**  
Easily confused with *P. planorbis* in its typical form (var. *dubia* Hartmann) in N. Ireland, but found exclusively in larger water bodies such as the open water of canals, rivers and lakes. Widespread and common in the Lough Neagh/Erne Basins.

***Anisus leucostoma* (Millet,1813)** **D**  
A species of small or temporary water-bodies, often found with *Bathymphalus contortus* and *Aplexa hypnorum*. Widespread in the Lough Neagh Basin, coastal Co. Down, and Fermanagh but very scattered elsewhere.

***Anisus vortex* (Linnaeus,1758)** **C**  
Until the nineteen-sixties restricted to the Erne Basin within N. Ireland. A 'central' species in Ireland, preferring hard water habitats or larger water-bodies. It was recorded in the River Lagan near Belfast in 1972 as a recent introduction and had spread as far upstream as Hilden, Lisburn by 1975 (Anderson, 1979). Its present distribution is unknown but it will probably continue to spread via the Lagan Canal in the direction of Lough Neagh.

***Bathymphalus contortus* (Linnaeus,1758)** **D**  
A species of small or temporary water-bodies, drains and marshy or peaty pools. Widespread and fairly common but not recorded in most of central and north Tyrone or south Londonderry.

***Gyraulus laevis* (Alder,1838)** **B**  
Widely but very thinly scattered and mainly along the coast in N. Ireland. Prefers hard or slightly saline water and is rarely found with more than one or two other species of

molluscs. Recently recorded only from two sites in the Ards Peninsula, Down, and from a Lough Neagh marsh at Rea's Wood NNR.

***Gyraulus albus* (Müller, 1774) E**

The most widespread planorbid but infrequently seen alive as it inhabits deep, weedy water. Mainly in lakes and larger rivers in the south and east of N. Ireland.

***Armiger crista* (Linnaeus, 1758) D**

A very small species and easily overlooked. Very widespread in clean, weedy conditions in still water habitats, although mainly recorded from sluggish streams, drains and marshy pools. Not found in very acid waters.

***Hippeutis complanatus* (Linnaeus, 1758) C**

Mainly in the Lough Neagh/Erne catchments in N. Ireland in hard water and prefers clear, weedy conditions. There are relatively few recent records and it appears to be generally scarce.

***Planorbarius corneus* (Linnaeus, 1758) D**

The large 'ramshorn' snail of aquarists. Not native to N. Ireland but introduced to ornamental ponds in various locations in the last century and a half. Most of these introductions have died out but an introduction to the River Lagan (R J Welch, 1933) spread to Lough Neagh (Anderson 1977) it is now widespread in the Lough Neagh Basin and in Co. Down. Can survive in remarkably acidic conditions in drains including raised bog at Killycolpy on the shores of Lough Neagh where shells are fragile and decorticate.

***Ancylus fluviatilis* Müller, 1774 F**

Abundant in unpolluted running water of all kinds. Also on stones in the wave zone of larger lakes. Disappears with pollution by silage effluent etc. but gradually recolonises lost territory. A good indicator of the pollution status of small streams and rivers. Throughout N. Ireland.

***Acroloxus lacustris* (Linnaeus, 1758) C**

Local in southern parts of N. Ireland. Chiefly found in the Co. Down lakes, around Lough Neagh and in Fermanagh where it lives on the stems of tall marginal or submerged vegetation in still waters.

***Succinea oblonga* Draparnaud, 1801 C**

Confined to five relatively small areas of Ireland but not uncommon within these areas. A boreal relict and rare or very localised in most of the British Isles. In N. Ireland there are two main areas: on the north-eastern shores of Lough Neagh between Cranfield Point and Rea's Wood NNR south of Antrim; and around the shores of Lower Lough Erne, extending northwards into south Donegal. The Lough Neagh form is unusual in having a very thin, greenish shell with a low spire. On Lough Neagh the species inhabits open, sandy, gravelly or stony lakeshores, although sometimes under alder stands. On Lough Erne the habitat is sandy or limestone pasture, on stone dykes and in quarries.

***Succinea putris* (Linnaeus, 1758) C**

Localised to the Lagan Valley, southern shores of Lough Neagh and Fermanagh, but much more widespread and common in southern Ireland. Found in lush waterside vegetation which it crawls up, along riverbanks and lakeshores.

***Oxyloma pfeifferi* (Rossmässler, 1835) E**

The most widespread succineid (amber snail) in N. Ireland and recorded from most areas except mid Tyrone. Found crawling on mud or on low vegetation at the margins of all but the most acid freshwaters or temporary habitats.

***Cochlicopa lubrica* (Müller, 1774)** F  
Ubiquitous in hedgerows, woods, rough pasture and waste places. In peatlands only around sites of former habitation or cultivation.

***Cochlicopa lubricella* (Porro, 1838)** E  
A very similar shell but narrower and smaller than *C. lubrica*. Very widespread and often abundant but not in very wet or base-deficient habitats. Less common than *C. lubrica* in all but drier coastal habitats, and often found with it.

***Pyramidula rupestris* (Draparnaud, 1801)** C  
A western species in Europe and rupestral but strongly calcicole in Ireland. Very common on walls and rocks in Carboniferous limestone areas but exceedingly local elsewhere. In N. Ireland confined to Fermanagh and south Tyrone north to Castledearg and to Cretaceous chalk screes on the Antrim coast. There is an old and probably mistaken record for doleritic rocks in the dolerite plug at Scrabo Hill.

***Columella edentula* (Draparnaud, 1805)** D  
Very similar to *C. aspera* but the shell is narrower, with more whorls and lacks the coarse microsculpture. It is restricted to 'richer' habitats in woodland but also wetlands in lowland areas of N. Ireland. Usually in leaf litter or at the roots of *Iris* and other tall vegetation in wet flushes and in marginal waterside vegetation.

***Columella aspera* Waldén 1966** E  
Widespread and more common than *C. edentula* replacing it entirely in peatland lagg woods and acid woods generally. Particularly widespread in birch woods in the west of N. Ireland, but also occasionally on open, unimproved pasture, cutaway bog or secondary fen. Not on exposed blanket peat.

***Truncatellina cylindrica* (Férussac, 1807)** X  
Very small and possibly overlooked in Ireland. There is a specimen in the Ulster Museum (Mn2039) which was collected by William Thompson at Groomsport, Down in the 19th-century. Subfossil shells have been collected in dune pockets at Portstewart. Should be looked for in yellow dunes among mosses and the roots of vegetation on drier, sunny slopes.

***Vertigo pusilla* Müller, 1774** X  
A woodland species but always very localised and rare in Ireland. Prefers sheltered, warm sites in base-rich woodland or coastal scarps and sands. There are no recent records for N. Ireland although it has been recorded from Whitepark Bay (Standen 1897) and Grogan's Glen near Belfast (specimens in the Ulster Museum, G C Hyndman, 1833; MN2048). Also Colin Glen (R J Welch). There are abundant shells collected from sand dune subfossil deposits on the north coast (Welch 1903).

***Vertigo antivertigo* (Draparnaud, 1801)** D  
Locally frequent in the east and south of N. Ireland in fens, marshes, lakeshores and riverbanks. Usually associated with tall marginal vegetation such as *Juncus* or *Typha* but also at the roots of grasses in the wetter kinds of unimproved pasture. Its occurrence in wet pasture is declining steeply due to drainage and other improvements.

***Vertigo substriata* (Jeffreys, 1833)** D  
In wet unimproved pasture in areas with underlying calcareous rocks. Mostly near the coast in Down and Derry but inland in Antrim and Fermanagh. Becoming much more local due to drainage and land reclamation and, unlike, *V. antivertigo*, which can occur with it in places, not in riparian or lacustrine habitats.

- Vertigo pygmaea* (Draparnaud, 1801) D**  
 This species seems less tolerant of base-deficient conditions than, for instance, *V. antivertigo*. Mainly coastal but also very locally inland where conditions suit. Sometimes found together with *V. antivertigo* and *V. substriata* in wet pasture e.g. Lagan Meadows, Belfast.
- Vertigo lilljeborgi* (Westerlund, 1871) X**  
 This species is very locally distributed in the western half of Ireland in swampy margins along lakeshores. There are records for Sligo and Cavan so it could turn up in the lakes of southern Fermanagh
- Vertigo angustior* Jeffreys, 1830 X**  
 Local, rare and disappearing in Ireland and the British Isles as a whole although once widespread. A Boreal relict and now restricted to sandy hollows around the west and north coasts and to one or two rich marshes across the central plain to Dublin. Recently recorded only from a site on Malin within the northern part of Ireland (Anderson 1981). Formerly recorded from Port Noffer, Giant's Causeway (Stelfox 1907) and abundant in subfossil dune pockets on the north coast (Standen 1897; Welch 1903).
- Pupilla muscorum* (Linnaeus, 1758) C**  
 A species which is probably in decline in Ireland. Restricted to dry, warm calcareous habitats and in N. Ireland only in sand dune systems or calcareous rocks on the coast. Recorded widely from the coastal counties but appears to have disappeared from the Ards Peninsula in Down.
- Leiostyla anglica* (Wood, 1828) F**  
 A western, 'Atlantic' species in Europe and confined to the British Isles and a small area of north-west France. Its centre of distribution is in Ireland and it is common in a variety of wet, shaded habitats in woods and wetlands. Also occurs in open pasture along the northern and western seaboard.
- Lauria cylindracea* (Da Costa, 1778) F**  
 Another 'Atlantic' species at its most abundant near the western seaboard in Europe. Ubiquitous on walls, rocks and screes in N. Ireland, but also in woodland at lower altitudes.
- Vallonia costata* (Müller, 1774) C**  
 Common on the limestone of south central Ireland but entirely restricted to the coast and comparatively rare in N. Ireland. A xerophilous species living on chalk rocks near the shore or on calcareous coastal sands.
- Vallonia pulchella* (Müller, 1774) C**  
 Difficult to distinguish from *V. excentrica* but unlike that xerophilous species, found mainly in pasture on the floodplains of lakes and rivers inland. Some of the coastal records may refer to *V. excentrica*. *V. pulchella* is recorded with certainty only from the floodplain of the Erne System in Fermanagh, from Lough Neagh and from the Quoile estuary in Strangford Lough.
- Vallonia excentrica* Sterki, 1892 C**  
 Locally common on calcareous sands on the coast of N. Ireland and not reliably recorded inland where it is replaced by *V. pulchella*.
- Acanthinula aculeata* (Müller, 1774) D**  
 A woodland species which prefers drier, less acid soils and is recorded mainly from the east of N. Ireland. Found in overgrown hedgerows as well as woodland. Much less

widespread or abundant than *Spermodea*, the other Irish woodland valloniid, in contrast to Britain where the reverse is true.

***Spermodea lamellata* (Jeffreys 1830) E**

An 'Atlantic' woodland species which is found only on the fringes of north-west Europe. Now restricted to north Germany, southern Scandinavia and the British Isles having recently become extinct in the low countries. Commonest in Ireland and widespread in N. Ireland in old semi-natural woodlands or broad-leaved plantations. Prefers deep, stable leaf litter and the vast majority of occurrences are in beech woods or under isolated beech trees in plantations of other species.

***Ena obscura* (Müller 1774) B**

Only two recent records for N. Ireland: in scrub near Hill's Island, Lower Lough Erne and in scrub on coastal scarps south of Larne, Antrim (Kerney 1968). Very local and rare except in the east centre and south of Ireland on rocks and walls in scrub.

***Punctum pygmaeum* (Draparnaud 1801) E**

Widespread in wet unimproved pasture, the margins of wetlands and wet woodland. In acid ground conditions usually restricted to scrub or mature woodland. Not recorded from large areas of Antrim, Londonderry and Tyrone but possibly overlooked.

***Discus rotundatus* (Müller, 1774) F**

The commonest shelled mollusc in Ireland, followed closely by *Cochlicopa lubrica*. Ubiquitous in man-altered terrain and in woods. Often recorded around the edges of raised bog or in lagg woodland and occasionally on blanket bog but usually where there are signs of human disturbance or attempts at cultivation.

***Arion ater* (Linnaeus, 1758) F**

Most of the large *Arion* slugs encountered will be this species which is ubiquitous and abundant in Ireland. Several other superficially very similar species occur and can only be distinguished with certainty by dissection or through examination by a specialist i.e. *A. rufus*, *A. flagellus* and *A. lusitanicus*.

***Arion rufus* (Linnaeus, 1758) B**

A southern species in Ireland and Europe but occurs at several sites around Belfast in gardens and on waste ground. Probably not native here but likely to spread with global warming.

***Arion lusitanicus* Mabille 1868 X**

An agricultural pest in Europe but local in south and west Britain and recorded only from the edges of conurbations at Dublin and Galway in Ireland (Ross 1984). Very difficult to distinguish from others in the *A. ater* group without dissection. It is not autogamous, unlike *A. ater*, and any large *Arions* seen copulating should be kept for closer examination. Likely to spread into our area.

***Arion flagellus* Collinge, 1893 C**

Only recently distinguished from *A. lusitanicus* in the British Isles although described from specimens collected in west Cork by Collinge in 1893. Widespread in north-west Ireland, especially Donegal, but getting into N. Ireland in Fermanagh and Tyrone. V. local and rare (?relict) in the Lough Neagh Basin and Lagan Valley up to Belfast. Found mainly in wet (alder) woodland along river and lake valleys.

***Arion subfuscus* (Draparnaud, 1805) F**

The second most common slug after *Deroceras reticulatum*. Ubiquitous and abundant in

all categories of land to the summits of high mountains including Slieve Donard. A western species in Europe and commonest near the western seaboard.

***Arion circumscriptus* Johnston, 1828** **E**

Very widely distributed in leaf litter of woodlands and in other kinds of shady places - occasionally in gardens. Almost never common and scarcer towards the west. Brown or orange forms occur from time to time.

***Arion silvaticus* Lohmander, 1937** **F**

A species of exposed grassland and heath and widespread in N. Ireland. It occasionally overlaps with *A. circumscriptus* in grazed valley hazelwoods in the west but otherwise in more open, base-deficient habitats. Also on agricultural grasslands and occasionally in gardens.

***Arion fasciatus* (Nilsson 1823)** **B**

A naturalised introduction in Ireland and localised and rare, mainly in disturbed or waste places. Recorded recently from semi-natural woodland at Strabane Glen, from estate woodland at Rosemount, Greyabbey and from a sand-pit near Cranfield, south Down.

***Arion hortensis* Férussac 1819** **B**

The true *Arion hortensis* Férussac is very local in N. Ireland on coastal sandy soils as at Murlough, Down, or on sandy eskers inland as at Annagarriff NNR, Armagh. Only reliably distinguished from *Arion distinctus* by dissection (Davies 1979) and distribution still imperfectly known.

***Arion distinctus* Mabille, 1868** **F**

Ubiquitous in forest soils across N. Ireland. A pest or potential pest also on arable land and in gardens. Distinguishable with certainty from *A. hortensis* s.s. only by dissection.

***Arion owenii* Davies, 1979** **D**

Described from material collected near Buncrana in Donegal (Davies 1979) and a member of the *Arion hortensis* group of species. Widespread and locally common in old woodland, roadsides and gardens in Donegal, Tyrone and Londonderry. Rare in the east Antrim glens and a recent colonist of the Lagan Valley west of Belfast (Anderson 1977, 1984, 1991).

***Arion* U1** **B**

Discovered in a farm dump on the Dunleath Estate at Ballywalter Bay, Down (RA, 1986). Presumably an introduction, and although the origins of the species are unknown it is certainly new to science, and at present undescribed. Very similar to other members of the *Arion hortensis* group and distinguishable with certainty only by dissection. Currently (1995) widespread in the Ballywalter area and perhaps spreading.

***Arion intermedius* Normand, 1852** **F**

Very variable in colour, from pure white or orange in unimproved pasture through to a very dark coloration similar to *A. distinctus* on inter-drumlin bogs in Co. Down (var. *molleri*). Slightly local in the extreme east but common in the west, including on blanket peat.

***Vitrina pellucida* (Müller, 1774)** **F**

A winter species, adults disappearing in the spring and eggs hatching to produce juveniles in early summer. Very common in all kinds of shaded or wet places including coastal dune slacks but becoming more scattered in acidic terrain and towards the west.

- Semilimax pyrenaicus* (Férussac, 1821) C**  
 In the last century known only from rubbishy sites on the borders of Louth and Meath but since found widely across Ireland (Ross 1984). Now known from Glenariff (Anderson 1974), the Lower Bann woodlands near Coleraine, the north-east corner of Lough Neagh (Anderson 1977), the Clogher Valley (Anderson 1978), and several sites in and around Belfast (Anderson 1991, 1992a). It is seemingly spreading via forestry operations.
- Vitrea crystallina* (Müller, 1774) E**  
 Widespread in well-vegetated or shady places such as fens and marshes as well as woodland. Usually found in organic litter.
- Vitrea contracta* (Westerlund, 1871) E**  
 A closely related but smaller species than *V. crystallina*. As widespread as that species and in similar places but in addition unimproved pasture and rocky places.
- Nesovitrea hammonis* (Ström 1765) F**  
 Found in wet places in woods, unimproved pasture and marshes. Widespread in all counties but somewhat sparse in mid Tyrone and Fermanagh. Occurs occasionally in moderately acid conditions around the periphery of peatlands.
- Aegopinella pura* (Alder, 1830) F**  
 Widespread and often common in woodland, particularly in beech litter. Puzzlingly scarce in the west of N. Ireland (Anderson 1983) and never common on acid soils.
- Aegopinella nitidula* (Draparnaud, 1805) F**  
 Widespread and common, particularly in woodland, but also in a variety of man-modified habitats. Synanthropic around abandoned crofts in very exposed or base-deficient terrain.
- Oxychilus draparnaudi* (Beck, 1837) C**  
 A naturalised species in Ireland and commoner in the south. Recorded from several sites around Belfast and very scattered elsewhere. Mostly living in rubbishy or waste places but found in native chalk woodland at Murlough Bay, Antrim (??native here).
- Oxychilus cellarius* (Müller, 1774) F**  
 The Irish form of this species ("*Vitrea hibernica* Kennard") is larger and more deeply coloured in the body and mantle than British forms, approaching the size and colour of *O. draparnaudi*. This form is now mainly recorded from old native woodland. In more disturbed habitats smaller, less deeply coloured forms occur, presumably naturalised introductions. Widely distributed and common in wet shaded places.
- Oxychilus alliarius* (Miller, 1822) F**  
 Very common and tolerant of acid ground conditions. Often the only shelled mollusc in acid grassland and wet heathland, but also common in woodland. Not in very wet habitats.
- Zonitoides excavatus* (Alder, 1830) D**  
 The only obligate calcifuge land mollusc in Ireland and absent from eastern counties of N. Ireland apart from isolated colonies in Mourne Park and Rostrevor Forest, south Down. Common only in woodland and scrub in river valleys of west Tyrone and south Londonderry.
- Zonitoides nitidus* (Müller, 1774) D**  
 Follows the distribution of many 'central' freshwater molluscs and confined to Co Down, the Lough Neagh Basin, south Tyrone and Fermanagh. Locally abundant in 'fenny'

margins of lakes and rivers, typically where *Mentha* spp. grow. Very hygrophilous and often submerged or drowned in flood water.

***Milax gagates* (Draparnaud, 1801) C**

Probably the only species of the Milacidae native to Ireland. Formerly widely recorded but in the nineteen-seventies seen mainly in coastal habitats, where it occurs in wild, rocky terrain. Increasingly of late it has been noted as a pest in gardens and is common in and around Belfast. Synanthropic behaviour may be more a feature of introduced populations as appears to be the case with *Oxychilus cellarius*.

***Milax sowerbyi* (Férussac, 1823) D**

Commonest in southern Ireland and mainly coastal in N. Ireland. Everywhere restricted to disturbed places in woods and gardens. This and *M. budapestensis* are now placed in the genus *Tandonia* Lessona & Pollonera 1882.

***Milax budapestensis* (Hazay, 1881) E**

An accidental introduction to Ireland and the British Isles early in this century (Philipps and Watson 1930). Now widespread and locally abundant in gardens and woodland except perhaps west Tyrone and Donegal.

***Boettgerilla pallens* Simroth, 1912 B**

Naturalised in Ireland and first recorded in 1973, a year after its first British record (Anderson and Norris 1974). Found in the east of N. Ireland in rubbishy or waste places but also in rough pasture and woodland. Only detectable under deeply embedded stones as it is strongly hypogeic.

***Limax maximus* Linnaeus, 1758 F**

Common and widespread as a fungivore under rotting wood in estates, woods and gardens.

***Limax cinereoniger* Wolf, 1803 C**

Very local and confined to old native woodlands within N. Ireland. Similar in habits and appearance to dark forms of *L. maximus* but with a tripartite sole in which the inner area is dark, contrasting with the pale outer areas.

***Limax flavus* L., 1758 B**

Confused with *L. pseudoflavus* in the past, but the present species is only incompletely naturalised and is rare in synanthropic situations in N. Ireland. Recent records are for the Tropical Ravine in Belfast Botanical Gardens and for a stable yard at Belvedere, Lagan Valley.

***Limax pseudoflavus* Evans, 1978 E**

Widespread and often abundant under rotting wood in a variety of woodland types, in gardens and in waste ground. Will feed on anything vegetable as well as fungi. There is controversy about the name to be applied, *L. maculatus* Kaleniczenko being used by some workers (Evans 1986).

***Lehmannia marginata* (Müller, 1774) F**

The generic name was formerly *Limax*. This species is widespread and usually abundant on trees in woodland and hedgerows as well as on walls and natural rocks. It is a lichen feeder and may also occur on the walls or roofs of dwellings where suitable lichens grow. Western in Europe and at its greatest abundance in Ireland.

***Lehmannia valentiana* (Férussac, 1823) B**

First recorded in the British Isles from the Palm House in Belfast Botanic Gardens in

1948. This is a southern European species, abundant in Spain and the Balearic Islands, but increasingly recorded as a greenhouse alien in northern Europe. There are now a number of records of full naturalisation in the British Isles and it is occasional in gardens around Belfast and Dublin. Distinguished from the very similar *L. marginatus* by the lateral bands which are higher on the back and faint by comparison. It is neither arboreal nor a lichen feeder.

***Deroceras laeve* (Müller, 1774) F**

Ubiquitous at the margins of wetlands, particularly on ground subject to regular flooding. Before the arrival of *D. caruanae* it was probably even more widespread, but is now restricted to wet waterside habitats in the east of its range; more eurytopic in the west.

***Deroceras reticulatum* (Müller, 1774) F**

The commonest Irish land mollusc but not found on water-logged peatlands or at altitude on peat. Ubiquitous elsewhere. Distinguishable from the closely related *Deroceras agreste* which occurs in unimproved pasture in southern Scotland but has not yet been found in Ireland, only by dissection of the genitalia.

***Deroceras panormitanum* (Lessona & Pollonera 1882) F  
[= *caruanae* (Pollonera, 1891)]**

An introduction from the Mediterranean countries. First noted as Irish in the nineteen-fifties (Makings 1959). Now widespread and abundant in disturbed habitats, woodland and marshes throughout N. Ireland. A notable pest in gardens.

***Euconulus fulvus* agg. (Müller 1774) F**

Widely spread, mostly in woodland, where it occurs on fallen twigs and in leaf litter. A range of habitats may be occupied, from fairly wet to dry and from calcareous to distinctly acid, as under conifers.

***Euconulus alderi* (Gray, 1840) C**

Only distinguished from *E. fulvus* s.s. recently and therefore overlooked in nineteen-seventies' recording. Widespread but less common than *E. fulvus* and only seen by the author in wet, open habitats rather than woodland.

***Ceciliodes acicula* (Müller, 1774) A**

A soil-dwelling species preferring dry, warm, calcareous sites and getting into N. Ireland only in Co. Fermanagh.

***Cochlodina laminata* (Montagu, 1803) C**

The Irish distribution of this species is centred around the Cuilcagh Range in south Fermanagh, where it occupies broad-leaved scrub on limestone. Usually found climbing the trunks of smooth-barked trees such as beech and ash both here and north to the shores of Lower Lough Erne. Not known outside this area within N. Ireland.

***Clausilia bidentata* (Ström, 1765) F**

The commonest Irish clausiliid and abundant in most areas on walls, rocks, tree boles and fallen timber. Usually found in broad-leaved woodland but also on rocks, screes or mortared walls in open sites.

***Balea perversa* (Linnaeus, 1758) D**

A local species but probably once more widespread as a lichen-feeder on the higher branches of tall broad-leaved trees. Usually found by day in bark fissures or crevices or on gale-felled branches. Also on rocks and walls, especially in sheltered parts of the coastline.

- Testacella haliotidea* Draparnaud, 1801** X  
 A species of deep cultivated loams where it is a predator of earthworms. Always localised and rare and recorded at only two localities in N. Ireland, in Tyrone and Armagh in the nineteenth century. Possibly extinct now due to competition with the New Zealand flatworm (*Artioposthia triangulata*) which is a much more efficient and damaging earthworm predator.
- Testacella scutulum* Sowerby, 1821** X  
 The only *Testacella* recently recorded from Ireland. There are two old records for N. Ireland, for gardens in Enniskillen and Portadown.
- Candidula intersecta* (Poiret, 1801)** C  
 Mostly found in the south central plain in Ireland and confined to the coast in northern parts. In N. Ireland springing on dune grassland or other calcareous soils near the coast.
- Cernuella virgata* (da Costa, 1778)** B  
 Like other Irish xerophilic helicids commonest in the south central plain and entirely coastal in the north. Recorded only from Carlingford Lough and several sites on the north coast with an old record for the railway line and spoil heaps at Magheramome, south Antrim. An introduced species.
- Helicella itala* (Linnaeus, 1758)** D  
 Restricted to the north coast in N. Ireland and not recorded from east Antrim or Down. A xerophilic helicid which is common on calcareous pasture in south-central Ireland but restricted to the coast in other areas. Decreasing in Britain but there is no evidence of recent decline here.
- Cochlicella acuta* (Müller, 1774)** D  
 Entirely coastal in N. Ireland but the most widespread xerophilic helicid and found widely in coastal Down on dunes and neglected sandy ground. Has the appearance of native but has never been found in Postglacial deposits earlier than the very recent past.
- Ashfordia granulata* (Alder, 1830)** C  
 A western species in Europe and almost confined to the British isles. Commoner, however, in Britain than Ireland and possibly sensitive to grazing pressure. Recorded in N. Ireland only from scrubby pasture or hazel scrub in the Sperrins (Anderson 1977, 1983).
- Zenobiella subrufescens* (Miller, 1822)** D  
 An old woodland relict and confined to scrub woodland in river valleys and scarps across N. Ireland, but mainly in north Londonderry (Faughan Valley), east Antrim (The Glens) and Fermanagh (south of Lower Lough Erne). Usually found in association with the wood rush, *Luzula*.
- Trichia striolata* (Pfeiffer, 1828)** F  
 A garden pest nicknamed the strawberry snail and typical of synanthropic habitats generally. Locally abundant in woodland, scrub, waste ground and around old buildings but not in wetlands or peatlands.
- Trichia hispida* (Linnaeus, 1758)** F  
 Widespread but rarely abundant in wet, shaded habitats. Like *T. striolata* often in synanthropic situations but also in all kinds of other 'rich' or eutrophic places. Both species are frequent inhabitants of nettle beds. A hairless, flattened form with very wide

umbilicus is frequent in calcareous coastal districts. A very variable species in size, colour and shape.

***Arianta arbustorum* (Linnaeus, 1758) C**

Confined to the northern half of Ireland and local and rare in rich, fenny, unimproved pasture, scrub woods and rocks in limestone or chalk areas. Mainly recorded from chalk in east Antrim and from limestone in west and south Fermanagh, Leitrim and Sligo.

***Cepaea nemoralis* (L., 1758) F**

Abundant in natural situations only on or near the coast in dunelands etc. Inland mostly synanthropic but occurs thinly in scrub woodland in most soils although shells are fragile and thin on base-deficient soils.

***Cepaea hortensis* (Müller, 1774) C**

A central and eastern species in Ireland and strangely rare in N. Ireland. Found at very scattered sites, usually on the mortar of old walls or in scrub woodland. Generally smaller and more rotund than the very similar *C. nemoralis* but always with a pale lip to the shell.

***Helix aspersa* Müller, 1774 D**

A Mediterranean species which is common over much of Ireland but very scarce inland in N. Ireland away from human habitation. Fairly common on coastal dunes or near the coast.

***Margaritifera margaritifera* (Linnaeus, 1758) C**

Once widespread in the Sperrins and Moumes, this species has declined significantly in recent years through arterial drainage and silting of its habitats from the drainage and exploitation of peatlands. Rare and endangered.

***Anodonta cygnea* (Linnaeus, 1758) B**

A species of stagnant muddy or silty habitats in larger water bodies. Often seen protruding from the bottom in low summer water from fishing stands on lakeshores etc. Not generally recorded from exposed or sandy shorelines. Seemingly restricted to the Lough Neagh/Erne Basins and very local but probably very under-recorded.

***Anodonta anatina* (Linnaeus, 1758) B**

Regarded as a 'central' species in Ireland and widespread in waters on the west and north of the central plain to the Erne System. Severely affected by the large fluctuations in the level of Lower Lough Erne from the Ballyshannon Hydroelectric Scheme, and dead shells can be cast up in numbers on the sandy shorelines. Common only in exposed, sandy places. Recently found in Lough Neagh (Anderson 1992b) so could have a wider distribution in N. Ireland.

***Sphaerium corneum* (Linnaeus, 1758) D**

Abundant in a variety of freshwaters in southern and eastern parts of N. Ireland. Usually found in weedy stagnant water in rivers, streams, lakes and drains.

***Sphaerium lacustre* (Müller, 1774) C**

A species of small, temporary or 'poor' habitats with few other species in lowland areas of N. Ireland. Occasional in sand-pits and areas subject to seasonal flooding around Lough Neagh.



***Pisidium pulchellum* Jenyns, 1832**

**B**

A rare species preferring very clean, clear flowing water habitats. Scattered across the Lough Neagh/Erne Basins but probably in decline.

***Pisidium moitessierianum* Paladilhe, 1866**

**X**

Not recorded recently from Ireland. There is an old record for the Lagan Canal at Moira in which Kemey (1969) recorded *P. pseudosphaerium* but Kemey was of the opinion that the habitat was then unsuitable for *P. moitessierianum*. Prefers slow-flowing, moderately calcareous rivers. Must be presumed extinct.

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## APPENDIX I

### CHECKLIST OF IRISH NON-MARINE MOLLUSCA

#### Class GASTROPODA

[recorded for N. Ireland +; not recorded -]

#### Subclass PROSOBRANCHIA

##### Order Mesogastropoda

###### 1. Neritidae

THEODOXUS de Montfort 1810

*fluviatilis* (Linnaeus 1758) -

###### 2. Valvatidae

VALVATA Müller 1774

*cristata* Müller 1774 +

*piscinalis* (Müller 1774) +

###### 3. Hydrobiidae

HYDROBIA Hartmann 1821

*ventrosa* (Montagu 1803) +

*neglecta* Muus 1963 -

*ulvae* (Pennant 1777) +

PSEUDAMNICOLA Paulucci 1878

*onfusa* (Frauenfeld 1863) -

POTAMOPYRGUS Stimpson 1865

*antipodarum* (Gray 1843) +

###### 4. Bithynidae

BITHYNIA Leach 1818

*tentaculata* (Linnaeus 1758) +

*leachii* (Sheppard 1823) -

###### 5. Pomatiidae

POMATIAS Studer 1789

*elegans* (Müller 1774) -

###### 6. Assimineidae

ASSIMINEA Leach 1828

*grayana* Fleming 1828 -

###### 7. Aciculidae

ACICULA von Hartmann 1821

*fusca* (Montagu 1803) +

#### Subclass PULMONATA

##### Order Basommatophora

###### 8. Ellobiidae

CARYCHIUM Müller 1774

*minimum* Müller 1774 +

*tridentatum* (Risso 1826) +

OVATELLA Bivona 1832 <i>myosotis</i> (Draparnaud 1801)	+
LEUCOPHYTIA Winckworth 1949 <i>bidentata</i> (Montagu 1808)	+
<b>9. Otinidae</b>	
OTINA Gray 1847 <i>ovata</i> (Brown 1827)	+
<b>Order Stylommatophora</b>	
<b>10. Physidae</b>	
APLEXA Fleming 1828 <i>hypnorum</i> (Linnaeus 1758)	+
PHYSA Draparnaud 1801 <i>fontinalis</i> (Linnaeus 1758)	+
<i>acuta</i> Draparnaud 1805	+
<b>11. Lymnaeidae</b>	
LYMNAEA Lamarck 1799 <i>truncatula</i> (Müller 1774)	+
<i>glabra</i> (Müller 1774)	-
<i>palustris</i> (Müller 1774)	+
<i>stagnalis</i> (Linnaeus 1758)	+
<i>auricularia</i> (Linnaeus 1758)	+
<i>peregra</i> (Müller 1774)	+
<b>12. Planorbidae</b>	
PLANORBIS Geoffroy 1767 <i>planorbis</i> (Linnaeus 1758)	+
<i>carinatus</i> Müller 1774	+
ANISUS Studer 1820 <i>leucostoma</i> (Millet 1813)	+
<i>vortex</i> (Linnaeus 1758)	+
BATHYOMPHALUS Charpentier 1837 <i>contortus</i> (Linnaeus 1758)	+
GYRAULUS Charpentier 1837 <i>laevis</i> (Alder 1838)	+
<i>albus</i> (Müller 1774)	+
ARMIGER Hartmann 1843 <i>crista</i> (Linnaeus 1758)	+
HIPPEUTIS Charpentier 1837 <i>complanatus</i> (Linnaeus 1758)	+
PLANORBARIUS Friepe 1806	

<i>comeus</i> (Linnaeus 1758)	+
<b>13. Ancyliidae</b>	
ANCYLUS Geoffroy 1767	
<i>fluviatilis</i> Müller 1774	+
<b>14. Acroloxidae</b>	
ACROLOXUS Beck 1846	
<i>lacustris</i> (Linnaeus 1758)	+
<b>15. Succineidae</b>	
CATINELLA Pease 1871	
<i>arenaria</i> (Boucard-Chantereaux 1837)	-
SUCCINEA Draparnaud 1801	
<i>putris</i> (Linnaeus 1758)	+
<i>oblonga</i> Draparnaud 1801	+
OXYLOMA Westerlund 1885	
<i>pfeifferi</i> (Rossmässler 1835)	+
<b>16. Cochlicopidae</b>	
COCHLICOPA RISSO 1826	
<i>lubrica</i> (Müller 1774)+	
<i>lubricella</i> (Porro 1838)	+
<b>17. Pyramidulidae</b>	
PYRAMIDULA Fitzinger 1833	
<i>rupestris</i> (Draparnaud 1801)	+
<b>18. Vertiginidae</b>	
COLUMELLA Westerlund 1878	
<i>edentula</i> (Draparnaud 1805)	+
<i>aspera</i> Waldén 1966	+
TRUNCATELLINA Lowe 1852	
<i>cylindrica</i> (Férussac 1807)	+
VERTIGO Müller 1774	
<i>angustior</i> Jeffreys 1830	+
<i>antivertigo</i> (Draparnaud 1801)	+
<i>geyeri</i> Lindholm 1925	-
<i>illjeborgi</i> (Westerlund 1871)	-
<i>moulinsiana</i> (Dupuy 1849)	-
<i>pusilla</i> Müller 1774	+
<i>pygmaea</i> (Draparnaud 1801)	+
<i>substriata</i> (Jeffreys 1833)	+
<b>19. Pupillidae</b>	
PUPILLA Leach 1831	
<i>muscorum</i> (Linnaeus 1758)	+
LEIOSTYLA Lowe 1852	

<i>anglica</i> (Wood 1828)+	
LAURIA Gray 1840	
<i>cylindracea</i> (Da Costa 1778)	+
<b>20. Valloniidae</b>	
VALLONIA Risso 1826	
<i>costata</i> (Müller 1774)	+
<i>pulchella</i> (Müller)	+
<i>excentrica</i> Sterki 1892	+
ACANTHINULA Beck 1846	
<i>aculeata</i> (Müller 1774)	+
SPERMODEA Westerlund 1902	
<i>lamellata</i> (Jeffreys 1830)	+
<b>21. Enidae</b>	
ENA Leach 1831	
<i>obscura</i> (Müller 1774)	+
<b>22. Endodontidae</b>	
PUNCTUM Morse 1864	
<i>Punctum pygmaeum</i> (Draparnaud 1801)	+
DISCUS Fitzinger 1833	
<i>rotundatus</i> (Müller 1774)	+
<b>23. Arionidae</b>	
GEOMALACUS Allman 1846	
<i>maculosus</i> Allman 1843	-
ARION Féruccac 1819	
<i>ater</i> (Linnaeus 1758)	+
<i>rufus</i> (Linnaeus 1758)	+
<i>lusitanicus</i> Mabilie 1868	-
<i>flagellus</i> Collinge 1893	+
<i>subfuscus</i> Draparnaud 1805	+
<i>circumscriptus</i> Johnston 1828	+
<i>silvaticus</i> Lohmander 1937	+
<i>fasciatus</i> (Nilsson 1823)	+
<i>hortensis</i> Féruccac 1819	+
<i>distinctus</i> Mabilie 1868	+
<i>owenii</i> Davies 1979	+
U1 (undescribed)	+
<i>ntermedius</i> Normand 1852	+
<b>24. Vitrinidae</b>	
VITRINA Draparnaud 1801	
<i>pellucida</i> (Müller 1774)	+
SEMILIMAX Gray 1847	
<i>pyrenaicus</i> (Féruccac 1821)	+

## 25. Zonitidae

VITREA Fitzinger 1833	
<i>crystallina</i> (Müller 1774)	+
<i>contracta</i> (Westerlund 1871)	+
NESOVITREA Cooke 1921	
<i>hammonis</i> (Ström 1765)	+
AEGOPINELLA Lindholm 1927	
<i>pura</i> (Alder 1830)	+
<i>nitidula</i> (Draparnaud 1805)	+
OXYCHILUS Fitzinger 1833	
<i>draparnaudi</i> (Beck 1837)	+
<i>cellarius</i> (Müller 1774)	+
<i>alliaris</i> (Miller 1822)	+
<i>helveticus</i> (Blum 1881)	-
ZONITOIDES Lehmann 1862	
<i>excavatus</i> (Alder 1830)	+
<i>nitidus</i> (Müller 1774)	+

## 26. Milacidae

MILAX Gray 1855	
<i>gagates</i> (Draparnaud 1801)	+
TANDONIA Lessona & Pollonera 1882	
<i>sowerbyi</i> (Férussac 1823)	+
<i>budapestensis</i> (Hazay 1821)	+
<i>rustica</i> (Millet 1843)	-
BOETTGERILLA Simroth 1910	
<i>pallens</i> Simroth 1912	+

## 27. Limacidae

LIMAX Linnaeus 1758	
<i>maximus</i> Linnaeus 1758	+
<i>cinereoniger</i> Wolf 1803	+
<i>flavus</i> Linnaeus 1758	+
<i>pseudoflavus</i> Evans 1978	+
LEHMANNIA Heynemann 1862	
<i>marginata</i> (Müller 1774)	+
<i>valentiana</i> (Férussac 1823)	+
DEROCERAS Rafinesque 1820	
<i>laeve</i> (Müller 1774)	+
<i>reticulatum</i> (Müller 1774)	+
<i>panormitanum</i> (Lessona & Pollonera 1882)	+

## 28. Euconulidae

EUCONULUS Reinhardt 1883	
<i>fulvus</i> (Müller 1774)	+
<i>alderi</i> (Gray 1840)	+

<b>29. Ferussaciidae</b>	
CAECILIOIDES Hermannsen 1846	
<i>acicula</i> (Müller 1774)	+
<b>30. Clausiliidae</b>	
COCHLODINA Férussac 1821	
<i>laminata</i> (Montagu 1803)	+
CLAUSILIA Draparnaud 1805	
<i>bidentata</i> (Ström 1765)	+
BALEA Gray 1824	
<i>perversa</i> (Linnaeus 1758)	+
<b>31. Testacellidae</b>	
TESTACELLA Cuvier 1800	
<i>maugei</i> Férussac 1819	-
<i>haliotidea</i> Draparnaud 1801	+
<i>scutulum</i> Sowerby 1821	+
<b>32. Helicidae</b>	
CANDIDULA Kobelt 1871	
<i>intersecta</i> (Poiret 1801)	+
<i>gigaxii</i> (Pfeiffer 1850)	-
CERNUELLA Schlüter 1838	
<i>virgata</i> (Da Costa 1778)	+
HELICELLA Férussac 1821	
<i>itala</i> (Linnaeus 1758)	+
COCHLICELLA Risso 1826	
<i>acuta</i> (Müller 1774)	+
ASHFORDIA Taylor 1817	
<i>granulata</i> (Alder 1830)	+
ZENOBIELLA Gude & Woodward 1821	
<i>subrufescens</i> (Miller 1822)	+
TRICHIA Hartmann 1841	
<i>striolata</i> (Pfeiffer 1828)	+
<i>hispida</i> (Linnaeus 1758)	+
ARIANTA Leach 1831	
<i>arbustorum</i> (Linnaeus 1758)	+
HELICIGONA Risso 1826	
<i>lapicida</i> (Linnaeus 1758)	-
THEBA Risso 1826	
<i>pisana</i> (Müller 1774)	+

CEPAEA Held 1837  
*nemoralis* (Linnaeus 1758) +  
*hortensis* (Müller 1774) +

HELIX Linnaeus 1758  
*aspersa* Müller 1774 +

**Class BIVALVIA**

**Subclass PALAEOHETERODONTA**

**Order Unionida**

**33. Margaritiferidae**

MARGARITIFERA Schumacher 1816  
*margaritifera* (Linnaeus 1758) +

**34. Unionidae**

ANODONTA Lamarck 1799  
*cygnea* (Linnaeus 1758) +  
*anatina* (Linnaeus 1758) +

**Subclass HETERODONTA**

**Order Cyrenodonta**

**35. Sphaeriidae**

SPHAERIUM Scopoli 1777  
*comeum* (Linnaeus 1758) +  
*lacustre* (Müller 1774) +

**PISIDIUM Pfeiffer 1821**

*amicum* (Müller 1774) +  
*casertanum* (Poli 1791) +  
*conventus* Clessin 1877 +  
*personatum* Malm 1855 +  
*obtusale* (Lamarck 1818) +  
*milium* Held 1836 +  
*pseudosphaerium* Schlesch 1947 +  
*subtruncatum* Malm 1855 +  
*henslowanum* (Sheppard 1823) +  
*lilljeborgi* Clessin 1896 +  
*hibemicum* Westerlund 1894 +  
*nitidum* Jenyns 1832 +  
*pulchellum* Jenyns 1832 +  
*mitessierianum* Paladilhe 1866 +