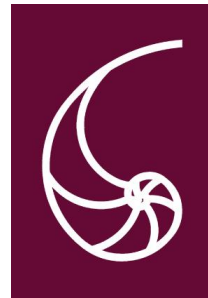


# Non-marine mollusc distribution mapping by the Conchological Society of Great Britain & Ireland

*A citizen science project in the 19<sup>th</sup>, 20<sup>th</sup> and 21<sup>st</sup> centuries*



The  
Conchological  
Society  
of Great Britain & Ireland

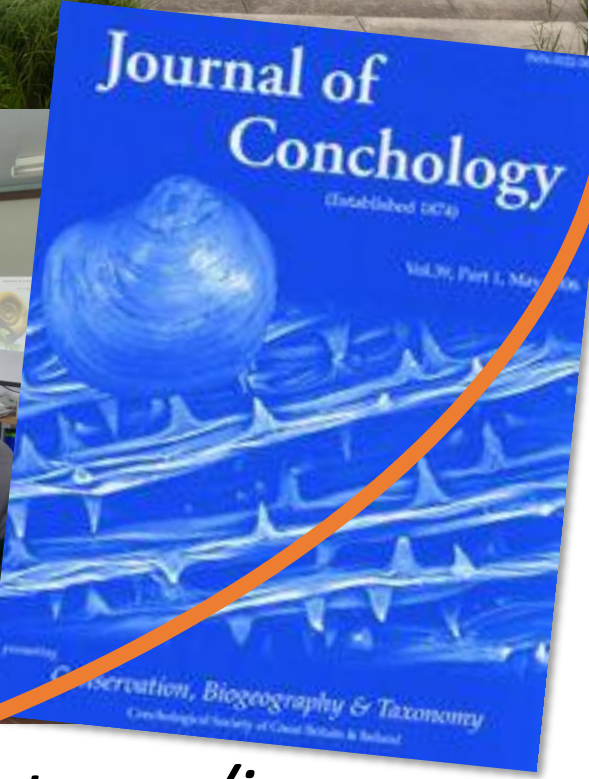
**AMGUEDDFA  
CYMRU**

**Ben Rowson**

Honorary Non-marine Recorder, Conchological Society  
Senior Curator, Amgueddfa Cymru - Museum Wales

[nonmarine@conchsoc.org](mailto:nonmarine@conchsoc.org)

[ben.rowson@museumwales.ac.uk](mailto:ben.rowson@museumwales.ac.uk)

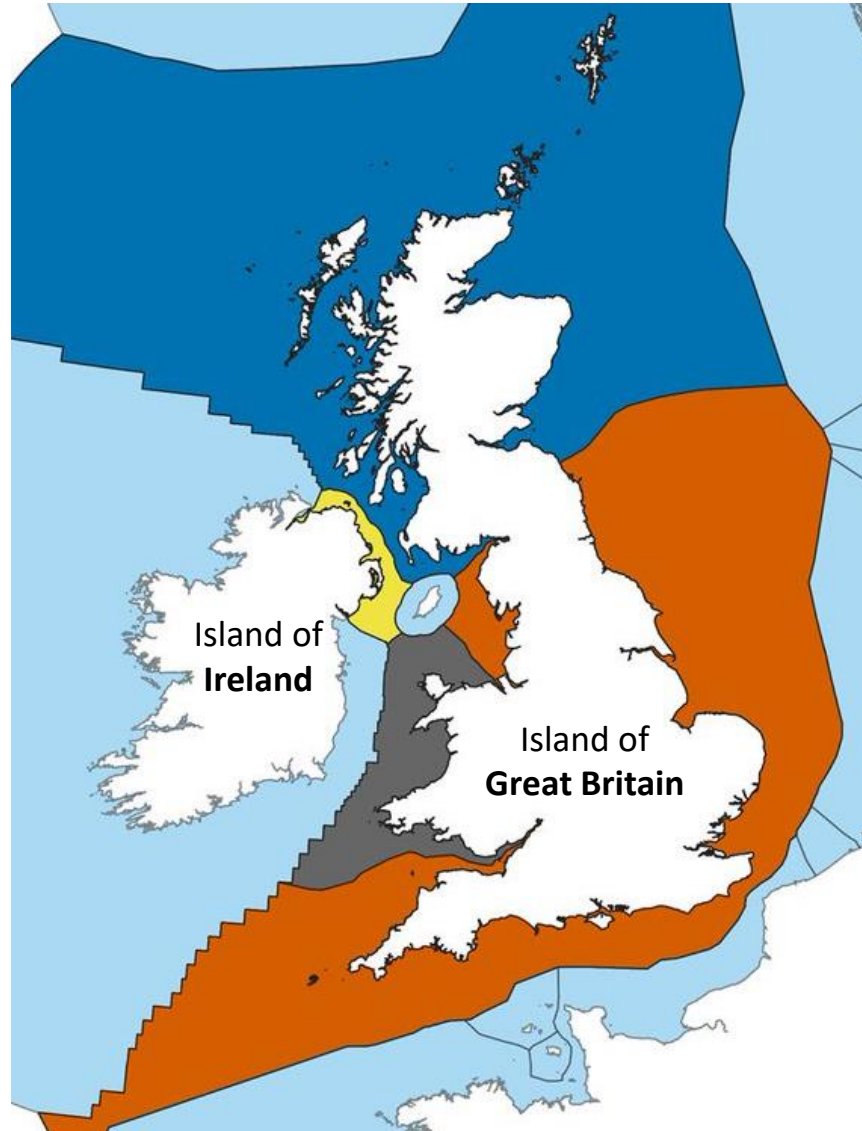


Public

Citizen Scientists

Fachamateure/innen

# Conchological Society of Great Britain & Ireland



- Founded in Leeds, 1876 (*Journal of Conchology* begun in 1874)
- 200-500 members worldwide (amateurs and professionals)



J. W. Taylor  
(1845-1931)  
(co-founder, Leeds)



F. M. Hele  
(1842-1923)  
(first record, Devon)

## Twin Recording Schemes

- Provide the majority (c. 85%) of UK & ROI mollusc data
- All data on NBN (GB) or NBDC (NI, ROI)
- Strict: all verified by the respective Honorary Recorder
- Data CC-BY[NC] >3,000 downloads last 12 months



### Non-marine Scheme (est. 1879)

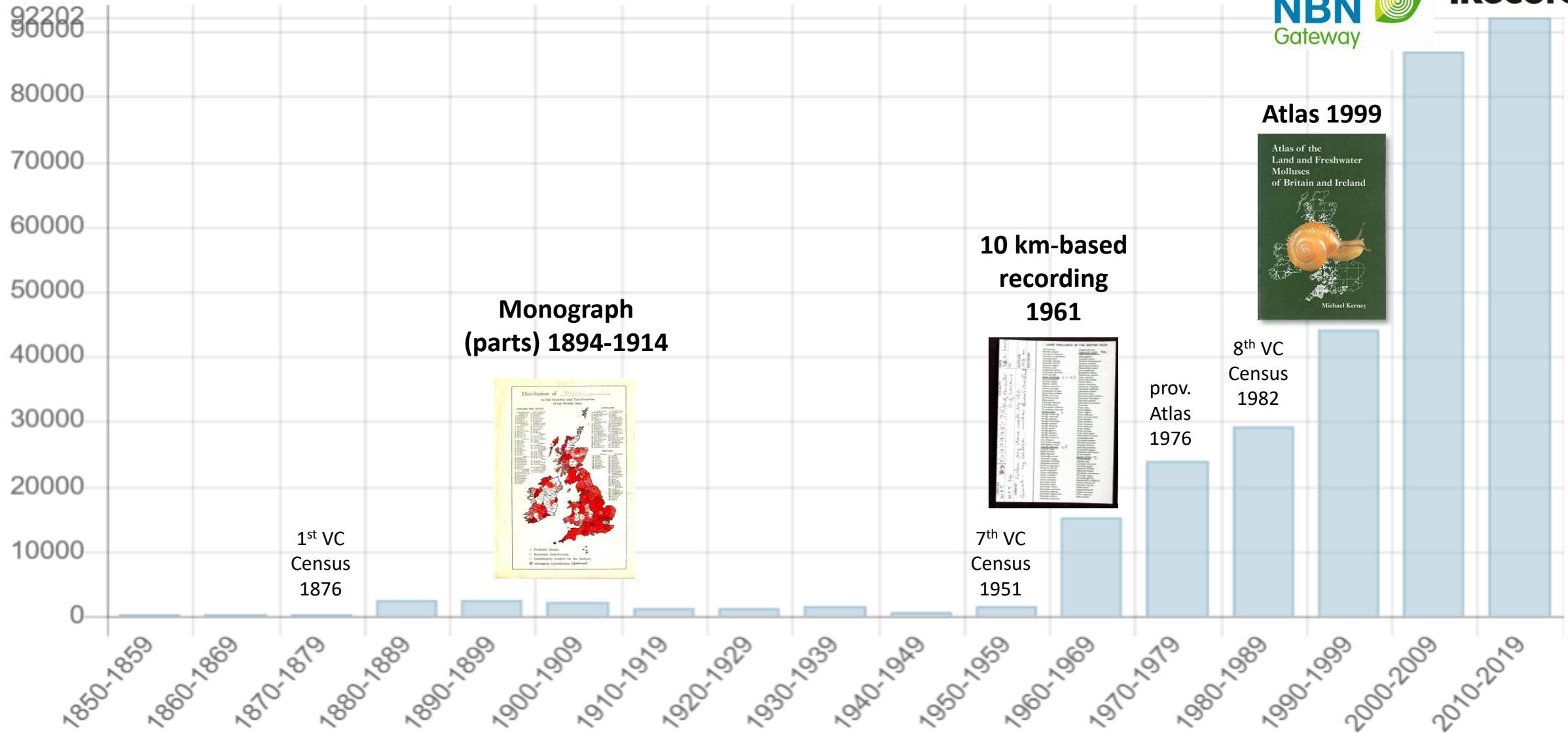
- > 341,654 records on NBN
- > 250 species
- > 10,000 new records a year
- > 1000 contributors in total

### Marine Scheme (est. 1923)

- > 178,686 records on NBN
- > 1,700 species
- > 50% records digitised since 2013

# More records being made and submitted than ever

By decade



1<sup>st</sup> VC  
Census  
1876

Monograph  
(parts) 1894-1914



7<sup>th</sup> VC  
Census  
1951

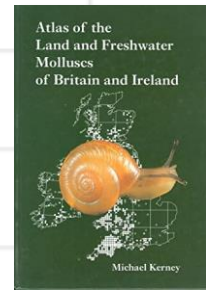


10 km-based  
recording  
1961

prov.  
Atlas  
1976

8<sup>th</sup> VC  
Census  
1982

Atlas 1999



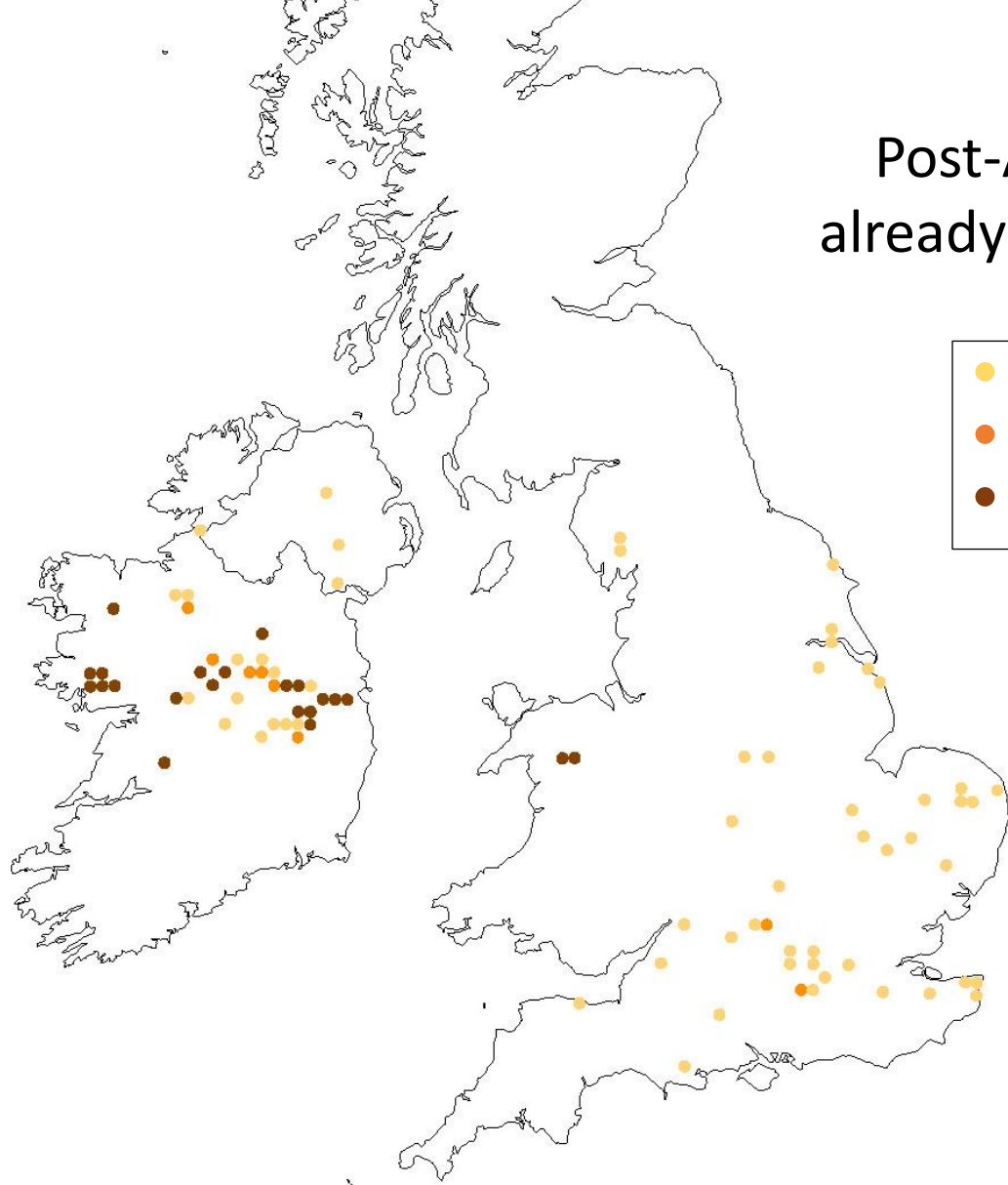
First data  
online, 2004



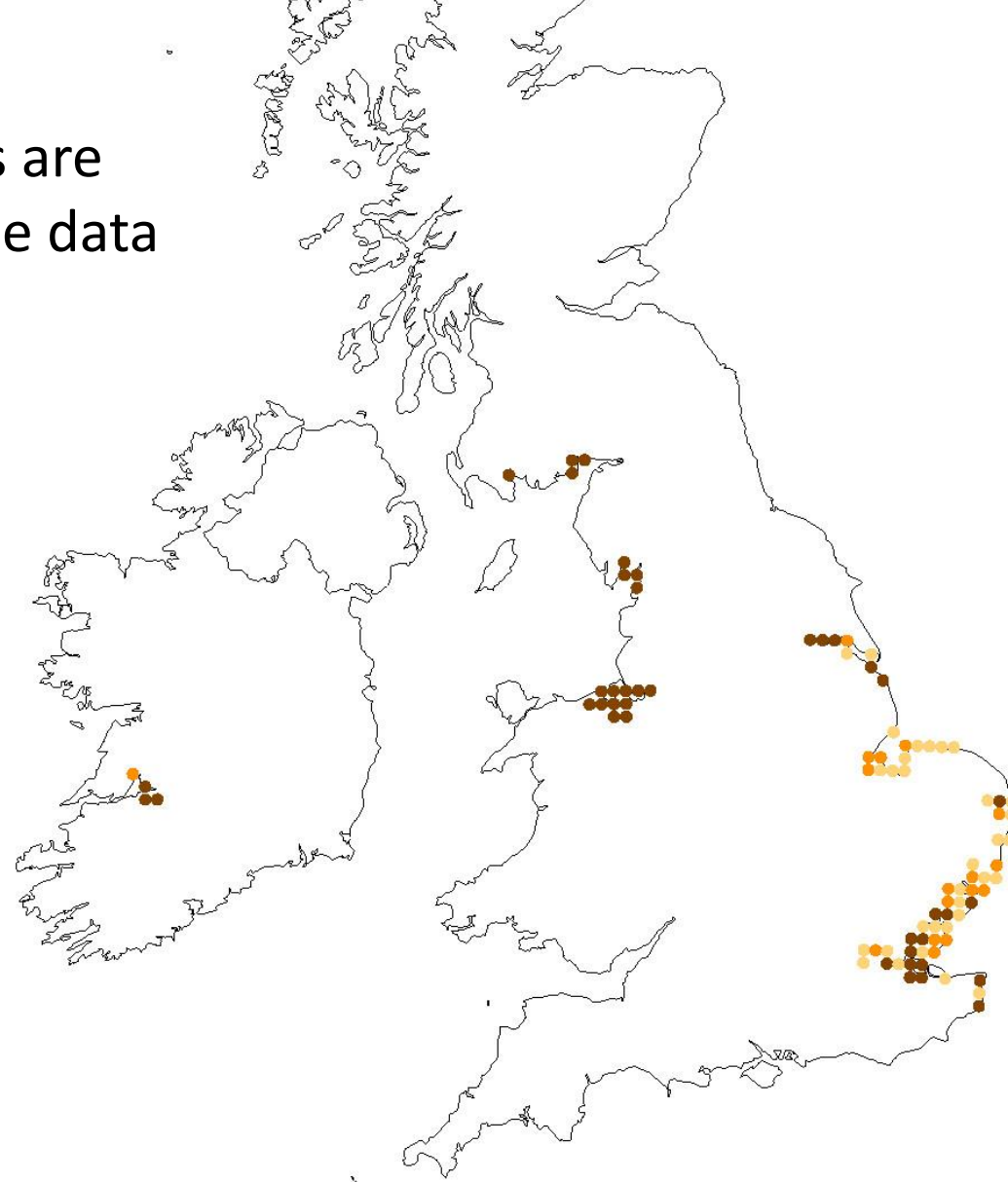
Smartphone  
era



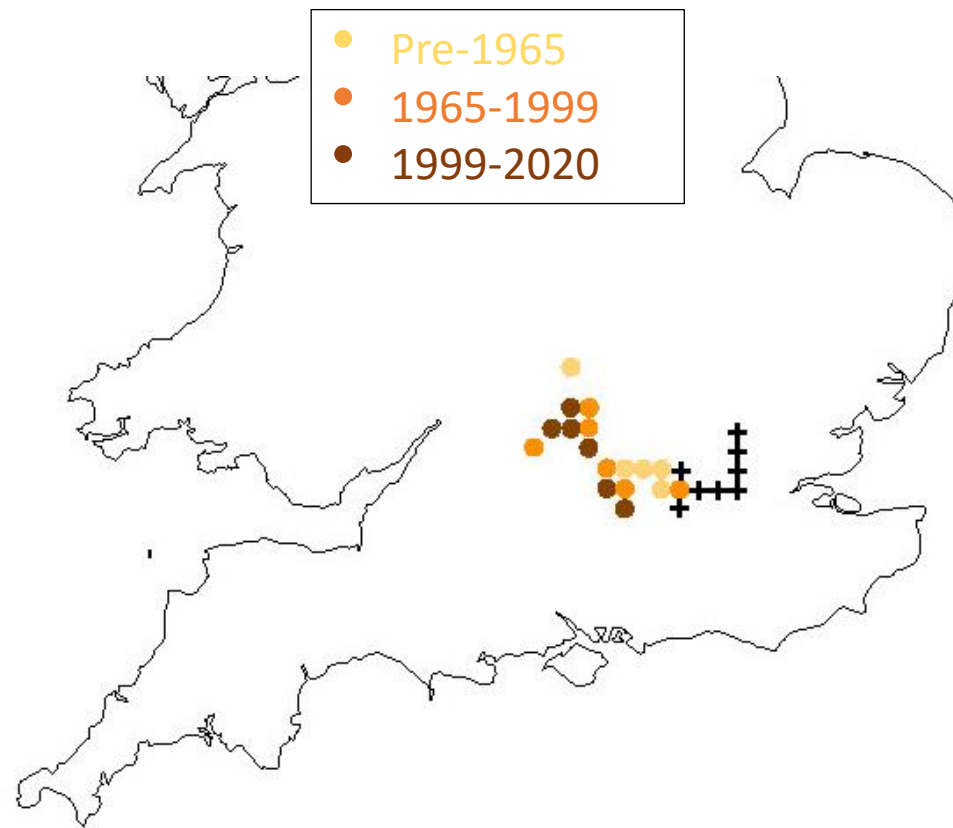
Post-Atlas changes are  
already evident in the data



**Glutinous Snail *Myxas glutinosa***  
Declining, extinct except ROI & Wales



**Dun Sentinel *Assiminea grayana***  
Spreading (assisted?)



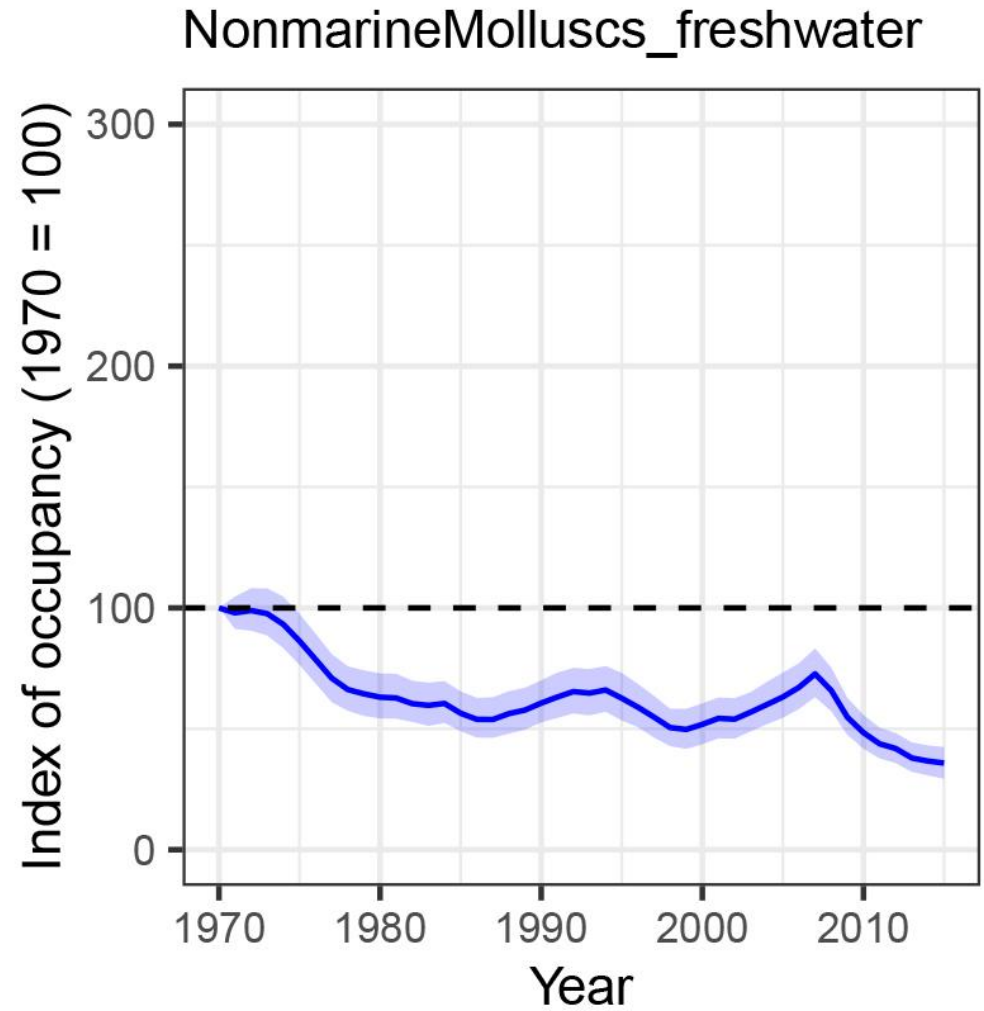
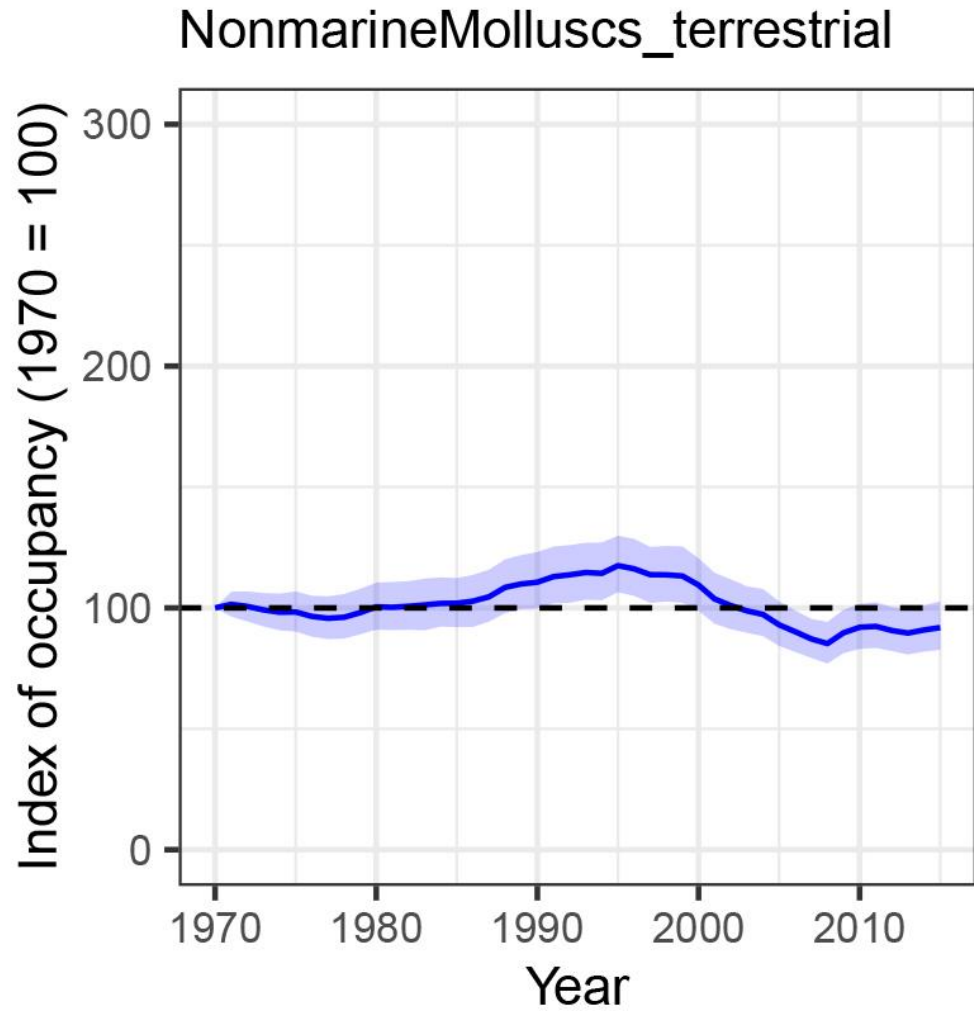
## A Review of the Non-Marine Mollusca of Great Britain: Species Status No. 17

M.B. Seddon, I.J. Killeen & A.P. Fowles

Evidence Report No. 14

### *Gyraulus acronicus* (Thames Ram's-horn)

- Decline since 2000, even since 2010
- May already be extinct; members have failed to find it alive
- Red Lists for GB (Seddon et al., 2014) and Ireland (Byrne et al., 2009) need updating



Average site occupancy (% of 1km squares occupied) inferred from the Recording Scheme data

Outhwaite et al. (2020) *Nature Ecology & Evolution* (BRC)

Used in UK "State of Nature" reports



## Provision of horizon scanning and analysis of pathways of spread of invasive species into Scotland

### Scottish Government

**Title:** Provision of horizon scanning and analysis of pathways of spread of invasive species into Scotland

**Client:** Scottish Government

**Client reference:** CR/2020/13

**UKCEH contact details:**  
Helen Roy and Laurence Carvalho  
UK Centre for Ecology & Hydrology  
Benson Lane  
Crowmarsh Gifford  
Wallingford  
Oxfordshire, OX10 8BB, UK  
t: 01491 692252  
e: [helen@ceh.ac.uk](mailto:helen@ceh.ac.uk)

**Date:** November 2021

### *Corbicula fluminea* (Asian Clam)

Spreading widely...

Both in the top 10 species likely to arrive  
and cause problems in Scotland  
(Roy et al., 2023)

### *Dreissena r. bugensis* (Quagga Mussel)

Spreading in S. E. England  
First Irish records 2021

### *Rangia cuneata* (Gulf Wedge Clam)

First British record 2015 (South Lincolnshire)  
Second British site 2020 (Glamorgan)



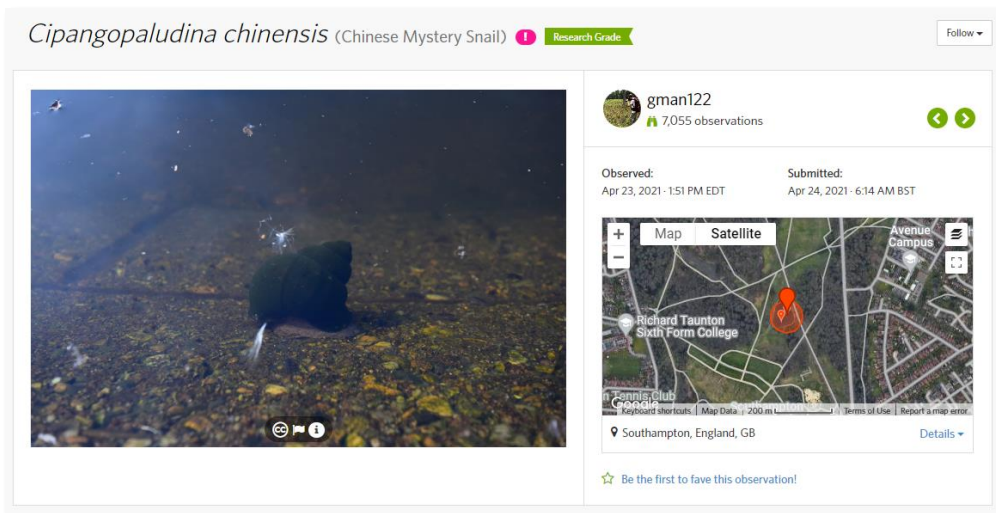
5 mm



Dan Minchin



Evan Jones, 2018



gman122, 2021 (iNaturalist)

### *Cipangopaludina chinensis* (Chinese Mystery Snail)

- Spreading in N. America and Europe, cold-tolerant
- First British record 2018 (Pevensy Levels NNR, East Sussex)
- Detected again 2021 & 2022 (Southampton, Hants.)
- GB NNSS Risk Assessment (Willing & Jones, 2022) and eradication measures underway at Pevensy
- eDNA methods developed (Rees et al., 2023 PLOS One)





*Selenochlamys ysbryda* (Ghost Slug)

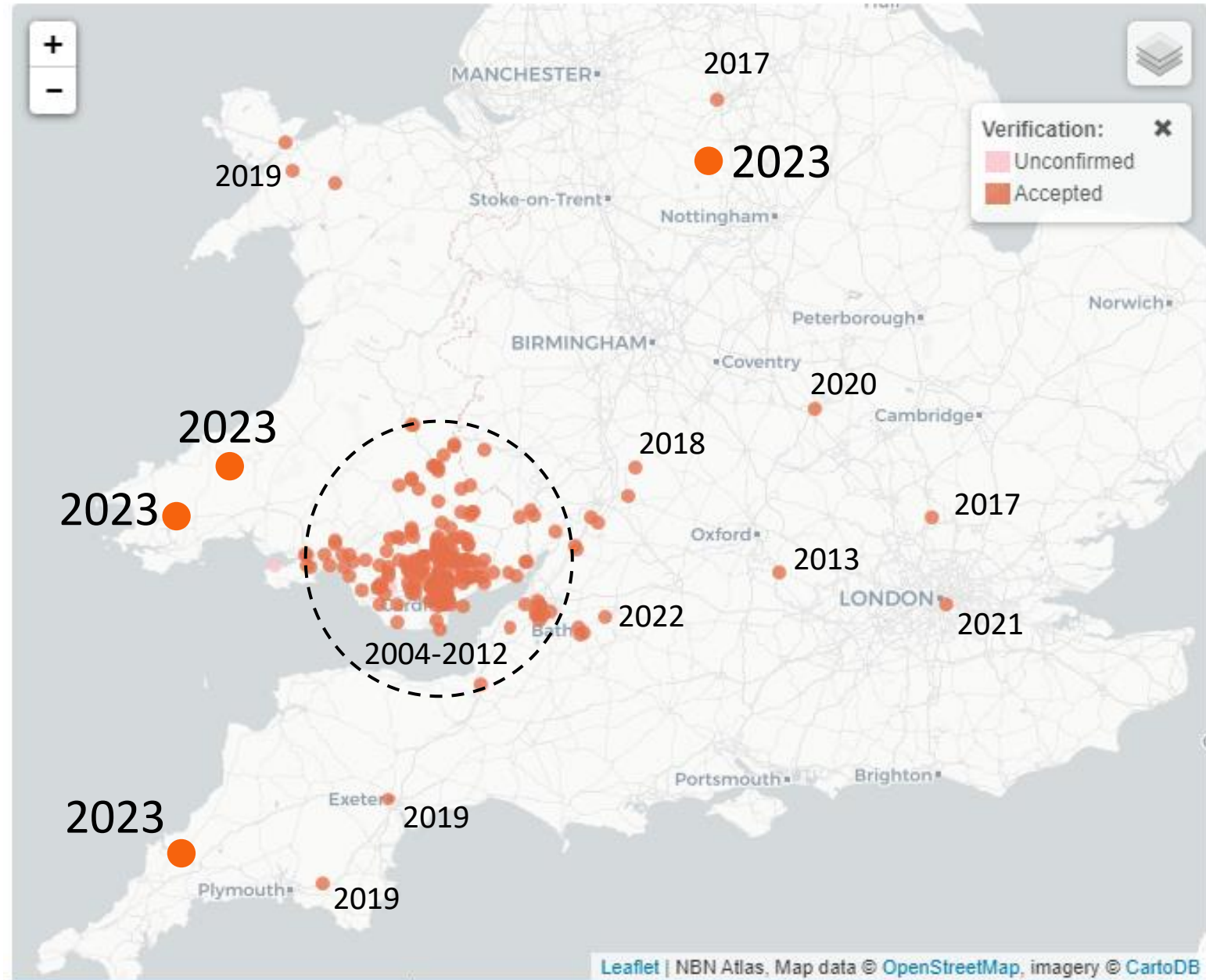
Tracy Organ

## *Selenochlamys ybsryda* (Ghost Slug)

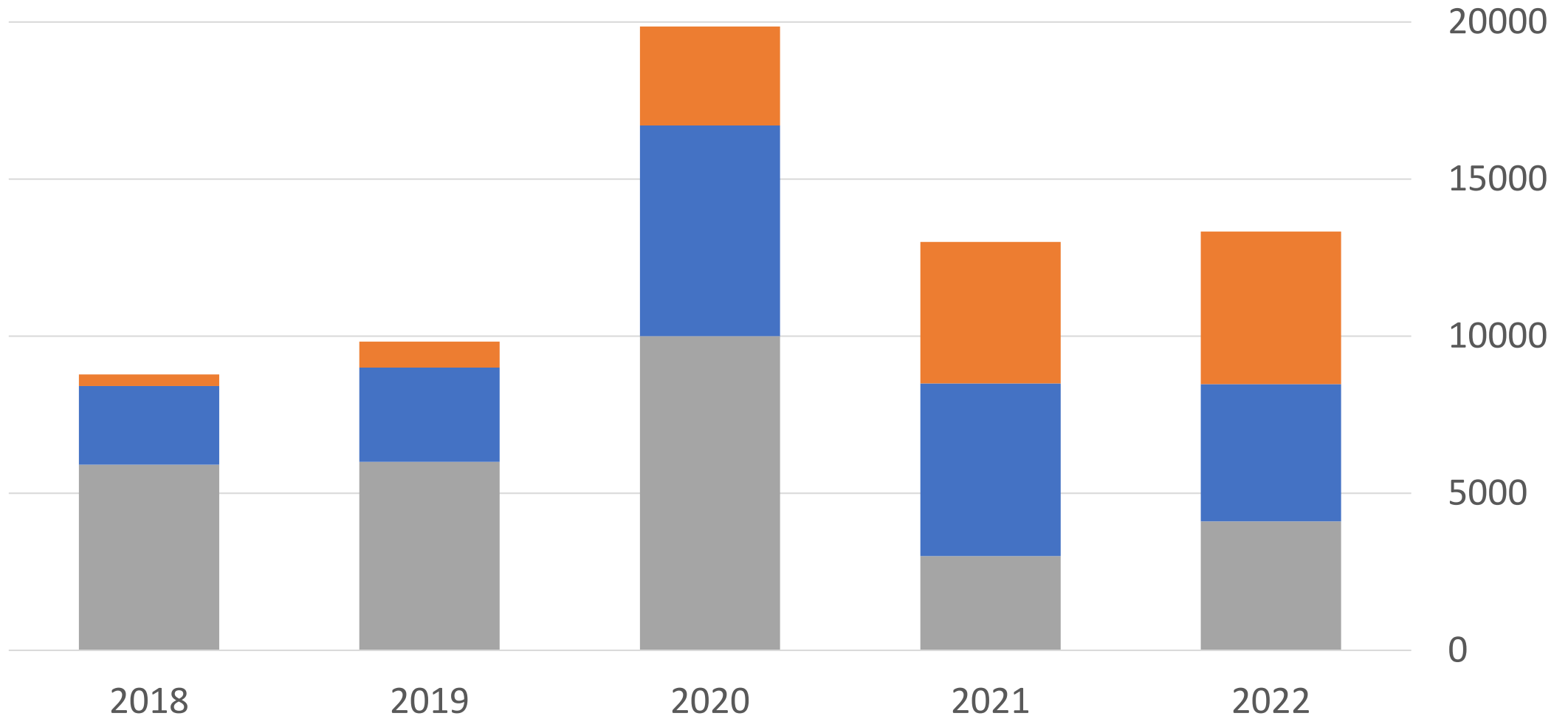
- Introduction, likely from Crimea, in early 2000s
- A domestic, but elusive, soil species which is very distinctive: ideal for volunteer recording
- Spreading with garden plants and compost, also down river valleys
- 4 new VCs so far in 2023
- Witnessing real-time spread (reports from Scotland, Ireland, USA(!) etc. all misidentified so far)

429 records (429 in total)

This map contains both point- and grid-based occurrences at different resolutions



# Increasing proportion of records submitted via the apps



Direct submission



# Both good platforms for outreach projects

**Yellow cellar slug (*Limacus flavus*)**  
 Clear yellow slime  
 Long yellow stripe running along centre of tail  
 Green-yellow bodies  
 Blue-grey tentacles

**Green cellar slug (*Limacus maculatus*)**  
 Clear yellow slime  
 Yellow stripe not present or very short

**Leopard slug (*Limax maximus*)**  
 Clear slime  
 Tail often heavily striped  
 Brown-grey body  
 Red-brown tentacles

Recorder Name: Rowson, Ben  
 Date: dd/mm/yyyy  
 Time spent searching (minutes):

**Cellar Slug Survey**  
(with RHS, 2020-2022)

**Slime Search**  
 FEB 11, 2022 - MAR 4, 2022

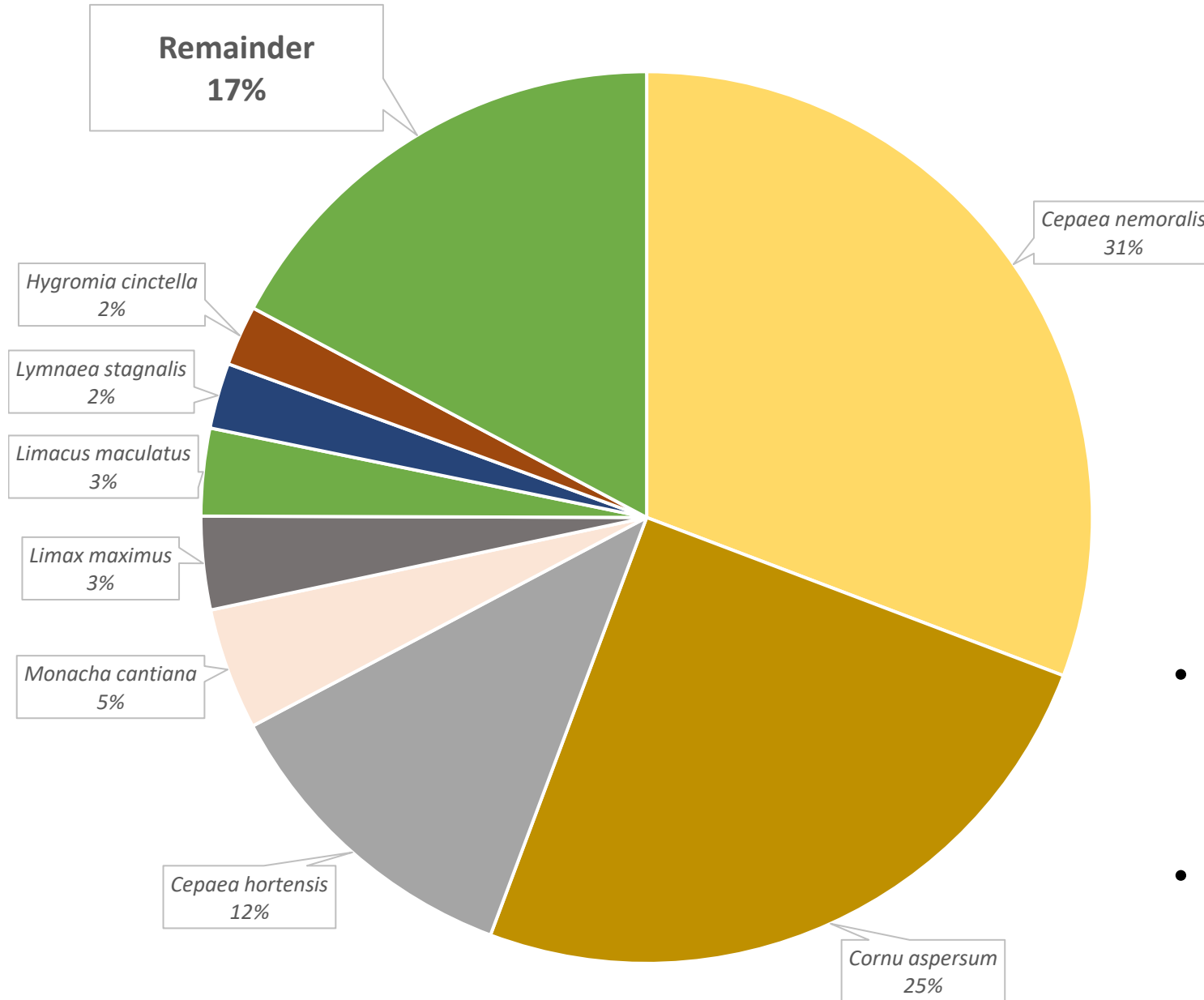
**424 OBSERVATIONS**

**781 IDENTIFICATIONS**

Stats: Research Grade, Needs ID, Casual  
 Stats: Improving, Supporting, Leading, Maverick

**Slime Search**  
(with NHMUK, 2022)

# 83% of iNaturalist records concern eight large, garden species



rowson\_ben

- But a few interesting records, particularly non-natives and adventives
- May need to limit the number we accept from iNaturalist in future





The  
Conchological  
Society  
of Great Britain & Ireland

<https://conchsoc.org/>

Thank you to all our recorders,  
past, present, and future