Biological Recording in 2022

Discovering our Natural Heritage

Outer Hebrides Biological Recording

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Cover photograph, *Phlogophora meticulosa* - Angle Shades, 23rd October 2022

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Foreword

Lying off the north-west coast of Britain, the islands of the Outer Hebrides are exposed to the full force of Atlantic gales and northerly air flows from the arctic. Yet, the influence of the Gulf Stream keeps our maritime climate relatively mild for its geographic position. Our weather has shaped our landscapes and biodiversity and given our islands a distinctive natural character. The weather also influences the number and range of species we record each year. The summer of 2022 will be remembered as cool, extremely dreich and with a notable absence of sunshine. Anecdotally we commented on the paucity of insects and this was reflected in the number of records submitted. The wet weather also had a dampening effect on recording activity, limiting the number of days spent in the field and time when it was possible to operate moth and insect traps.

The weather is only one of the factors which affects the number and composition of the annual records. With such a small local recording community, we know that their recording effort and interests can have a significant effect on the statistics. Despite the difficult conditions, the resident recorders produced a diverse and interesting array of records and managed to find a number of new species. The presence of visiting specialist recorders usually has a major influence on the results. Although three visiting entomologists were present for only three weeks in the summer, they contributed a significant number of records and observed an impressive number of new species.

Until the formation of OHBR in 2012, almost all the information on the islands' biodiversity had been gathered by either visiting amateur naturalist or professional scientists engaged in academic research or conducting surveys for various government agencies. Their work has provided the backbone for our species lists and when a potential new species is found on the islands, it is their published scientific reports and papers which are often consulted. In some ways it is reassuring that we can often find a previous record of the species in question, even though there may be a significant period of time between the observations. It is equally true, that there are some species of the more infrequently studied groups e.g. fungi, which have not been recorded since the original record was made. This does not necessarily mean that these species are no longer present, but it emphasises the importance of continuing recording to establish our biodiversity baselines. Without this information we are unable to monitor changes and understand the effects of climate change and habitat loss.

The work of generations of enthusiastic, dedicated and skilled amateur naturalists has given us an important legacy, and it is important that we continue to add to this treasury of knowledge. Every time you send us a record you are adding to this wonderful information repository. Individually each observation may appear insignificant, but together they provide the evidence-base that we can use to safeguard our natural environment.

To the team of OHBR volunteers who have turned OHBR from an idea to a successful voluntary organisation and everyone who submits records – thank you. We would also like to thank Robin Sutton for compiling the 2022 report and helping to illustrate how important your records are.

Christine Johnson

Sunrise over Loch Bee, completing the 2022 Annual Report in January 2023 starts the beginning of the next cycle of observation and recording. I hope you get to see a range of wildlife to amaze, enthrall and intrigue you in 2023, we look forward to seeing your records.

Introduction

Biological Recording in the Outer Hebrides

Biological recording in the Outer Hebrides is organised by a small group of local amateur naturalists. The main task of Outer Hebrides Biological Recording (OHBR) is to develop and maintain a database of information about the animals, plants, fungi, and micro-organisms which are found in the islands and to map their distribution. This information is made publicly available on the National Biodiversity Network Atlas Scotland[1] and on the OHBR wildlife website hub[2]. By making the information we hold available to everyone; we hope that decisions that may affect the biodiversity and quality of our natural environment are made with the best available knowledge. OHBR may be small, but by working together with a range of academic and conservation bodies, professional biologists and other amateur naturalists, we can make a difference.

We encourage individuals and communities to enjoy and engage with nature, to appreciate their natural environment and to learn about the island's wonderful and diverse wildlife. You don't have to be a scientist or an expert to take part in biological recording. Observations of common and easily recognisable species are as important as records of the more difficult groups, a single record can be as important as hundreds, and the wildlife in your garden can be as fascinating as the flora and fauna of a remote off-shore island.

Information about biological recording, how to submit records and participate in surveys is available on the OHBR website[3]. There are copies of our Wildlife of the Outer Hebrides leaflets, species checklists and previous issues of *Working Together - Discovering Our Natural Heritage, Biological Recording in the Outer Hebrides* to download[4] and a list of on-line resources to help with species identification[6]. You can share your observations and also ask for help with identification on our social medial group page[5].
Our friends at Outer Hebrides Birds[7] aim to bring together people with an interest in birds and birding in the Outer Hebrides. The County Bird Recorder is responsible for collating records of birds and information on where to submit records is available on their website[8].

Links

1. National Biodiversity Network Atlas Scotland – https://scotland.nbnatlas.org
2. OHBR hub of wildlife websites - https://www.hebridensis.org/
3. OHBR Website - https://www.ohbr.org.uk
4. OHBR Publications - https://www.ohbr.org.uk/publications.php
5. OHBR Facebook page - https://www.facebook.com/groups/286293481746505/
6. OHBR Resources - https://www.ohbr.org.uk/identification.php
7. Outer Hebrides Birds website - https://www.outerhebridesbirds.org.uk
8. Outer Hebrides Birds recording - https://www.outerhebridesbirds.org.uk/index

Stinky Bay, Benbecula with the hills of South Uist in background 10th December 2022

Summary of records

Summary

Species	Records
Dark Arches	73
Large Yellow Underwing	68
Bright-line Brown-eye	57
Flame Shoulder	56
Magpie Moth	53
True Lover's Knot	52
Small Wainscot	51
Smoky Wainscot	51
Gold Spot	50
Green-veined White	48
Flame Carpet	47
Garden Tiger	44
Ear Moth agg.	43
Moss Carder Bee	43
Hebrew Character	43
Square-spot Rustic	42
White-tailed Bumblebee agg.	41
Ingrailed Clay	41
Drinker	41
Common Rustic agg.	41
Red Admiral	41
Antler Moth	39
Dotted Clay	39
Burnished Brass	38
Dark-barred Twin-spot Carpet	37
Clouded-bordered Brindle	34
Meadow Brown	34
Hoary Belle	33
Rosy Rustic	33
Wakely's Dowd	32
Ling Pug	32
Limnephilus marmoratus	32
Knot Grass	31
Autumnal Rustic	31

Records were received from 101 people who submitted 8,847 records of over 1,800 taxa (mostly full species but a few sub-species, varieties and so on). Over twenty of the species found were new ones for the Outer Hebrides. Most species weren't recorded very often; 1,379 (76%) were recorded five or fewer times of which 676 were seen just once.

Island	Records	Species
Lewis	1659	640
Great Bernera	306	181
Lewis/Harris	111	111
Harris	810	500
Scalpay	24	24
Taransay	1	1
Pabbay	377	172
North Uist	686	373
Berneray	192	118
Hirta	1	1
Grimsay	2	2
Benbecula	314	258
South Uist	4142	765
Eriskay	149	101
Barra	8	4
Mingulay	65	46
Total	**8847**	**1809**

Thirty-four species were recorded more than 30 times and 28 of these most frequently recorded species were moths. Only six non-moth species (shown in red left) make it to the top 34, Green-veined White (48 records), Red Admiral (41), Moss Carder Bee (43), White-tailed Bumblebee (41), Meadow Brown butterfly (34) and a caddisfly, *Limnephilus marmoratus* (32). Moth recorders always submit huge number of records each year as their records come mostly from light traps. In terms of records and species **South Uist** comes out as the "**best recorded island**", partly because three of the most prolific moth-trappers live there. The award for the "**most charismatic species**" is shared between **Moss Carder Bee**, **Otter**, **Meadow Brown** butterfly and **Common Blue** butterfly; all were recorded from eight of the sixteen islands looked at (the boundary between Harris and Lewis can be hard to spot on the ground so Lewis/Harris is used as an additional recording area).

Taxonomic group	Total records	Recorders
Arthropoda	5344	63
Vertebrates	157	44
Flowering plants & ferns	521	21
Fungi	82	16
Other Invertebrates	59	14
Algae (inc. seaweeds)	1175	5
Mosses & liverworts	1509	4

The third most prolific recorder looked almost exclusively at mosses and liverworts and the fourth is an algae specialist. They tend to work by doing very detailed surveys at a range of locations across the islands. It is specialised recording; only four people sent in records of mosses and liverworts and five submitted algae records.

Many of the more generalist recorders will send in sightings of mammals and other vertebrates (44 recorders). In 2022 the top two most frequently recorded species were Common Frog (28 records) and Hedgehog (26 records). As we've already seen butterflies and bumblebees tend to be well recorded as do dragonflies, many of our more general naturalists send in records of these species. A group of local naturalists carried out survey work on Pappay in June and generated good records of various arthropods, algae, and flowering plants and ferns. Two of our specialists spent time recording on Great Bernera; a visiting entomologist recorded lots of insect of various taxonomic groups there in August and an island-based bryologist looked at mosses and liverworts there in April.

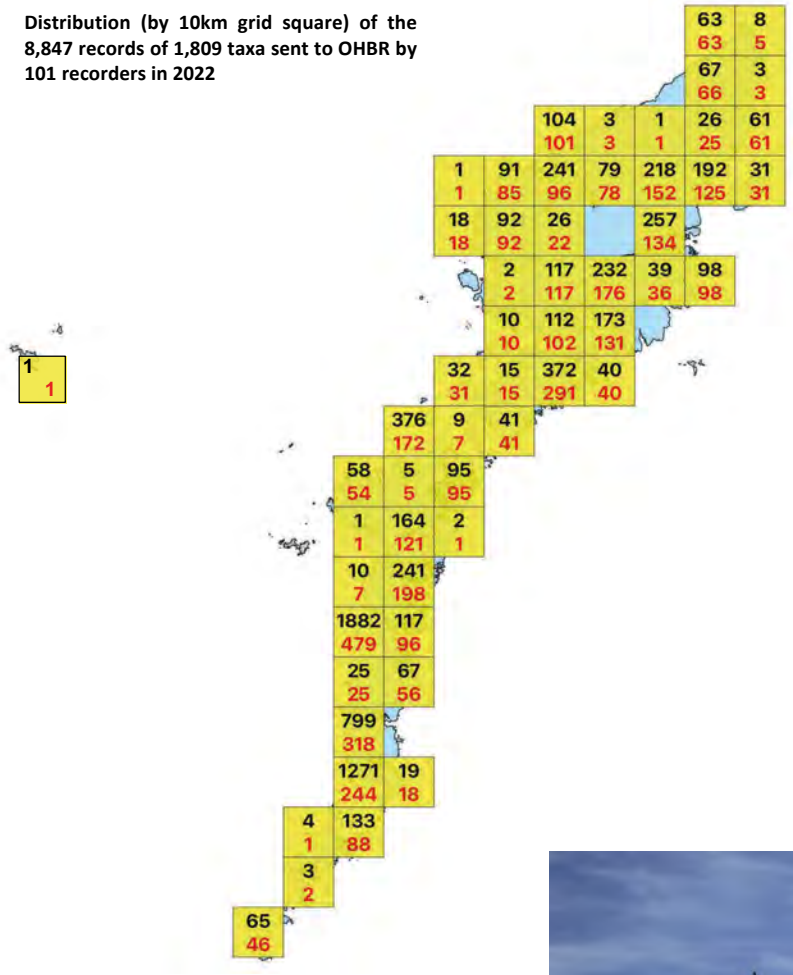
Recording of some groups of organisms will always depend on experts. Either visitors, coming to look at their interest group in our unique environment, or our own resident experts who between them cover many of the taxonomic groups. On the other-hand there are some groups where everyone can contribute. There is still an awful lot we don't know about the distribution and status of common and charismatic species. Lots of people can supply valuable records of mammals, amphibians, butterflies, bees, dragonflies and flowering plants. Their status will change with changing ways of managing and using land and, inevitably, there will be changes induced by global warming that need to be documented.

Summary of records

Records came from 54 of the 88 10km grid squares that cover the Outer Hebrides. Our maps exclude squares covering North Rona, Sula Sgeir and the Flannan Isles which are very remote and rarely visited by naturalists.

We include the St Kilda archipelago on some maps as these are regularly visited nowadays and have short term resident and/or seasonal inhabitants and we sometimes receive records from there. There was a single record from St. Kilda in 2022 and none from the Monach Isles or Shiants in 2022. Most of the other un-recorded squares are very remote, difficult to access or contain just a few very small offshore islands or tiny parts of the main islands.

Distribution (by 10km grid square) of the 8,847 records of 1,809 taxa sent to OHBR by 101 recorders in 2022



Where there is a close match between the number of records and the number of species for a particular hectad it is a sign that an experienced recorder, or group of recorders, has been "square bashing"; trying to fill in a gap in the known distribution of a taxonomic group. Hectads which show a big difference between records and species are often those where records of the same thing have been taken over an extended time period. Moth trap locations will show this pattern as will squares where a number of different recorders are active, perhaps where an important or interesting habitat is present.

Butt of Lewis Lighthouse - engineer David Stevenson, first lit 1882

The maps generally show both the total number of records by 10km square and also the number of species (richness) found in each of those squares.

Key

1882	Number of records
479	Number of species

Some squares have very high numbers of both records and species whilst others may have just a single record of one species. Distribution atlases for various taxonomic groups often map at a 10km square scale (a hectad).

Barra Head lighthouse (on Berneray, as Barra Head is perhaps more properly known) was designed by the great lighthouse engineer Robert Stevenson and its light was first shown in 1833. It defines the southern most point of the Outer Hebrides.

Summary of records

			[1]VC110	2021
Vertebrates	**Class**	**Common Names**	**No. of Species**	**No. of Species (records)**
	Aves*	Birds*	409	3 (8)*
	Actinopterygii	Bony Fish	64	2 (7)
	Mammalia	Mammals	36	21 (107)
	Ascidiacea & Thaliacea	Sea Squirts, Salps etc	34	-
	Elasmobranchii	Sharks, Rays & Skates	6	4 (7)
	Reptilia	Reptiles	5	1 (2)
	Amphibia	Frogs, Toads & Newts	3	2 (31)
	Cephalaspidomorphi	Jawless Fish (Lampreys)	1	-
		Total	**578**	**33 (157)**

* Records of bird sightings – not collated by OHBR but through the Outer Hebrides Birds website and the BTO local recorder. The records noted here came through the OHBR Spring Survey and are reported here for completeness.

Invertebrates	**Class**	**Common Names**	**No. of Species**	**No. of Species (records)**
	Arthropoda	Insects (except Lepidoptera)	1650	523 (1749)
		Lepidoptera	553	331 (3527)
		Other Arthropods e.g. Crustaceans, Spiders, Millipedes etc.	221	44 (68)
	Mollusca	Snails, Slugs, Bivalves, Octopuses etc.	412	26 (42)
	Annelida	True Worms	160	-
	Cnidaria	Corals, Jellyfish, Hydra etc.	89	5 (8)
	Porifera	Sponges	50	-
	Bryozoa	Sea Mats (Moss Animalcules)	47	-
	Echinodermata	Sea Urchins, Starfish, Brittlestars, Sea Potatoes etc.	41	2 (3)
	Nemertea	Ribbon Worms	5	-
	Platyhelminthes	Flatworms	3	-
	Sipuncula	Peanut (or Star) Worms	3	-
	Brachiopoda	Lamp Shells	2	-
	Ctenophora	Comb Jellies e.g. Sea Gooseberry	2	-
	Others	Small marine or freshwater animals eg Cephalorhyncha, Echiura, Phoronida, Gastrotricha, Myzozoa	11	6 (6)
		Total	**3172**	**937 (5403)**

Plants	**Division**	**Common Names**	**No. of Species**	**No. of Species (records)**
	Magnoliopsida	Flowering Plants	950	134 (491)
	Bryophyta*	Mosses	348	200 (1086)
	Marchantiophyta*	Liverworts	169	93 (423)
	Rhodophyta	Red Algae	149	2 (2)
	Chlorophyta	Green Algae	72	5 (5)
	Charophyta	Stoneworts and Desmids	Awaiting revision	330 (1160)
	Pteridophyta	Ferns & Horsetails	45	11 (23)
	Pinopsida	Conifers	23	1 (1)
	Lycopodiopsida	Clubmosses & Quillworts	9	1 (6)
	Anthocerotophyta*	Hornworts	2	-
		Total	**1767**	**777 (3197)**

* No. of species from British Bryological Society's Interim Census Catalogue 2018 by T.L. Blockeel and N.G. Hodgetts

Fungi	**Phylum**	**Common Names**	**No. of Species**	**No. of Species (records)**
	Ascomycota	Non-lichen forming Sac fungi e.g Orange Peel Fungus	354	9 (18)
		Lichen forming Ascomycota	627	7 (11)
	Basidiomycota	Larger mushroom type species, and Rusts	563	36 (47)
		Lichen forming Basidiomycota e.g. *Lichenomphalia* spp.	5	-
	Chytridiomycota	Chytrids (fungi with flagellate spores)	5	-
	Zygomycota	Moulds	8	-
	Oomycota*	Filamentous protists (Downy Mildews)	16	1 (2)
	Myxomycota*	Slimemoulds	8	3 (3)
		Total	**1586**	**56 (81)**

*Oomycota (Kingdom Chromista) and Myxomycota (K. Protozoa) are traditionally studied by mycologists hence their inclusion here.

Others	**Kingdom/Sub Kingdom**	**Common Names**	**No. of Species**	**No. of Species (records)**
	Bacteria	Includes Blue-green Bacteria	24	-
	Chromista	Brown Seaweeds, Diatoms etc.	118	5 (8)
	Protozoa		22	1 (1)
		Total	**164**	**6 (9)**

[1] Unless stated otherwise, No. of species for VC110 are from current OHBR checklists or NBN Atlas Scotland checklists as of 1/2/22. For some groups the later are "best guess estimates" as up to date data from some recording schemes can be slow to reach NBN.

Insects

It is estimated that there is something in the region of 24,000 species of insect in Britain. So far, approximately 9% of the UK insect species have been recorded from the Outer Hebrides. Of the 2,000 or so species featuring in the VC110 records, 853 (c.40%) of them were recorded in 2022. There appears to be a rising trend in the number and percentage of VC110 species recorded each year.

		Britain	VC110		Number of species recorded						
Order	**Common Name**	**Species[1]**	**Species[2]**	**%[3]**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**%[4]**
Diptera	Flies	7,000	835	11.9	74	69	55	71	92	**223**	**26.7**
Hymenoptera	Bees, Wasps etc.	7,000	123	1.8	26	22	28	29	34	**43**	**35.0**
Coleoptera	Beetles	4,000	474	11.9	18	19	32	68	76	**176**	**37.1**
Lepidoptera	Butterflies & Moths	2,570	553	21.5	312	333	343	319	342	**331**	**59.9**
Hemiptera	Bugs	1,830	75	4.1	11	6	10	16	21	**35**	**46.7**
Phthiraptera	Biting lice & Sucking lice	540	1								
Collembola[5]	Springtails	250	10	4.0					2	**3**	**30.0**
Trichoptera	Caddisflies	198	78	39.4		14	22	25	24	**25**	**32.1**
Thysanoptera	Thrips	179									
Psocoptera	Barkflies	100	3	3.0			1		3	**3**	**100**
Neuroptera	Lacewinges & Ant Lions	69	5	7.2			1	1	2		
Siphonaptera	Fleas	62	16	25.8				1	2		
Ephemeroptera	Mayflies	51	11	21.6		1	2	2	1	**3**	**27.3**
Odonata	Dragonflies	49	11	22.4	9	9	8	8	8	**8**	**72.7**
Plecoptera	Stoneflies	34	11	32.4			1	1	2	**1**	**9.1**
Orthoptera	Grasshoppers & Crickets	33	3	9.1	1	2	1	1	2		
Protura[5]	Simpletails	15									
Diplura[5]	2-pronged bristle-tails	11									
Dictyoptera	Cockroaches, Termites etc.	11									
Strepsiptera	Stylops	10									
Archaeognatha	Bristle-tails	7	2	28.6	1	1	1		1	**1**	**50.0**
Dermaptera	Earwigs	7	1	14.3	1	1	1	1	1	**1**	**100.0**
Mecoptera	Scorpionflies	4									
Rhaphidioptera	Snakeflies	4									
Megaloptera	Alderflies	3	1	33.3				1	1		
Zygentoma (Thysanura)	Silverfish & Firebrats	2									
Total		**24,039**	**2,213**	**9.2**	**453**	**477**	**506**	**544**	**614**	**854**	**38.6**

[1] *The Royal Entomological Society Book of British Insects*, Peter C Barnard, 2011, Willey-Blackwell

[2] From current OHBR or NBN Atlas Scotland checklists as of 1st February 2022

[3] As percentage of total British species, [4] As percentage of VC110 (Outer Hebrides) species, [5] No longer considered as Insects

Insects – Lepidoptera

	2017			2018			2019			2020			2021			2022		
Group	**Recs.**	**%**	**Spp.**	**Recs.**	**%**	**Spp.**	**Recs.**	**%**	**Spp.**	**Recs.**	**%**	**Spp.**	**Recs.**	**%**	**Spp.**	**Recs.**	**%**	**Spp.**
Lepidoptera	3768	77%	312	3473	85%	333	3461	82%	343	3221	77%	319	3369	75%	342	3527	63.4%	331
Moths	3546		299	3287		320	3274		330	3116		306	3215		329	3343		319
Butterflies	222		13	186		13	187		13	105		13	154		13	184		12
Other insects	864	18%	141	533	13%	144	703	17%	163	806	19%	225	960	21%	270	1749	31.4%	523
All Insects	**4632**		**453**	**4006**		**477**	**4164**		**506**	**4027**		**544**	**4329**		**612**	**5276**		**854**
Other inverts.	**287**	6%	**89**	**77**	2%	**53**	**75**	2%	**53**	**131**	3%	**70**	**177**	4%	**83**	**288**	5.2%	**120**
All Inverts.	**4919**		**542**	**4083**		**530**	**4239**		**559**	**4158**		**614**	**4506**		**695**	**5564**		**974**

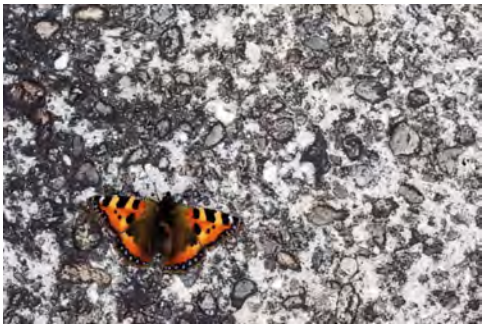
2022 in figures

- 5,564 records of 974 species of invertebrate were recorded in 2022, the highest number of records of invertebrates received since 2017
- Lepidoptera records (3527) made up 63% of the total invertebrate records, this percentage has been dropping in recent years as interest in other groups of invertebrates has increased
- In 2021 just under half (49%) of all invertebrate species recorded were of Lepidoptera, 342 species out of a total of 695 invertebrates
- In 2022 this dropped to 39%, 331 species out of a total 854 invertebrate species
- For the first time since 2017 the number of "other insect" species (523) exceeded that of Lepidoptera (331)
- Forty-four recorders in total contributed Lepidoptera records in 2022, butterfly records came from 22 people and moth records from 36

Butterflies

Family	Species	Common Name	Records
Lycaenidae	*Polyommatus icarus*	Common Blue	21
Nymphalidae	*Vanessa atalanta*	Red Admiral	40
	Maniola jurtina	Meadow Brown	34
	Aglais urticae	Small Tortoiseshell	18
	Speyeria aglaja	Dark Green Fritillary	9
	Coenonympha pamphilus	Small Heath	4
	Vanessa cardui	Painted Lady	4
	Aglais io	Peacock	1
	Coenonympha tullia	Large Heath	1
Pieridae	*Pieris napi*	Green-veined White	48
	Pieris brassicae	Large White	3
	Pieris brassica/rapae		1
Total			**184**

Coenonympha pamphilus - Small Heath, a poor year with just 4 records



A good year for Small Tortoiseshell (*Aglais urticae*) with 18 records, the highest number since 2017

Another poor year for Painted Lady (*Vanessa cardui*) with just 4 records the lowest number since 2017

Insects - Lepidoptera

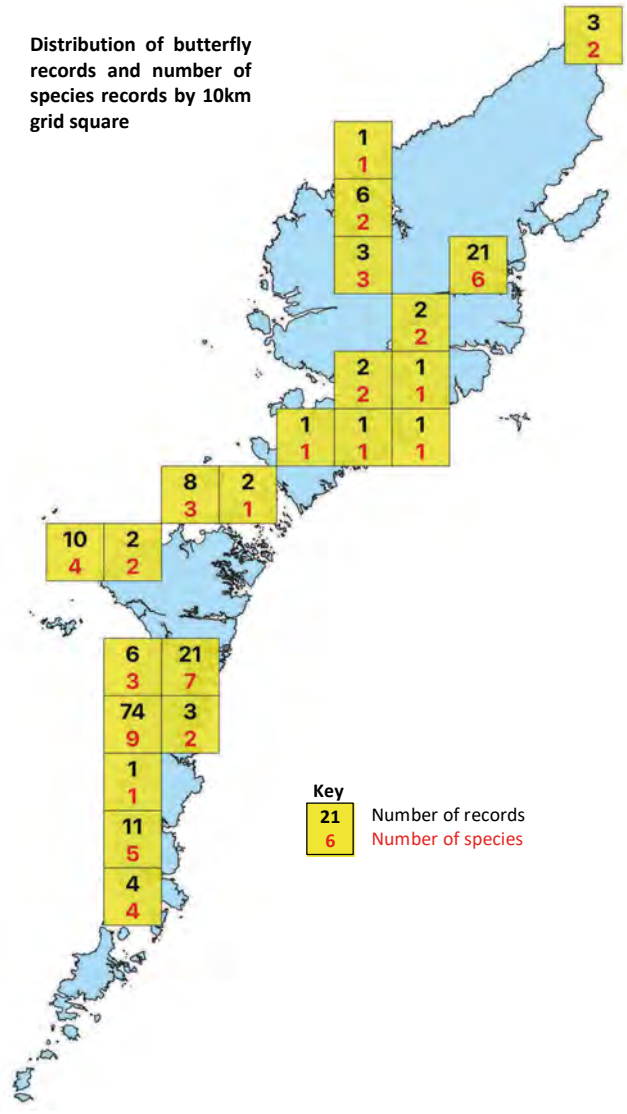
A generally poor year for butterfly recording. Whilst the total number of records (185) was an improvement on the previous two years it still fell well short of the numbers shown in the 2017 report. It was also the first year we can't report that thirteen species of butterfly had been recorded, we only managed eleven (plus one record that was identified as *Pieris* sp. *brassicae/rapae*). There were no records of Grayling (*Hipparchia semele*) or of any of the other rarely recorded and potentially recent colonists; Speckled Wood (*Pararge aegeria*) and Orange-tip (*Anthocharis cardamines*).

The mid-season species, Small Heath (*Coenonympha pamphilus*) and Common Blue (*Polyommatus icarus*) seemed particularly scare and a predicted invasion of Painted Lady (*Vanessa cardui*) failed to materialise even though good numbers were being seen in southern Britain.

		Number of records					
Species	**NBN[1]**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**
Green-veined White	1643	54	27	31	11	41	48
Meadow Brown	1536	41	47	27	18	20	34
Common Blue	1042	30	36	15	17	14	21
Red Admiral	801	31	24	27	27	38	40
Painted Lady	602	20	20	62	9	4	4
Small Tortoiseshell	545	11	5	6	6	16	18
Large Heath	421	6	4			2	1
Dark Green Fritillary	383	9	6	2	5	6	9
Small Heath	347	13	11	6	5	2	4
Large White	241	1	3	4	1	2	3
Grayling	173	3	1	1	2	2	
Peacock	86	2	1	2	2	5	1
Small White	41			3	1		
Speckled Wood	37	1			1	2	
Ringlet	16						
Clouded Yellow	16						
Orange-tip	7		1	1			
Pieris sp.							1
Total	**7937**	**222**	**186**	**187**	**105**	**154**	**184**

[1]as of 18/1/2022

Distribution of butterfly records and number of species records by 10km grid square



Predictably Red Admiral (*Vanessa atalanta*) and Green-veined White (*Pieris napi*) were the two most frequently recorded species.

Species	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**
Green-veined White		10	13	5	7	12	1
Red Admiral		5	4	8	8	4	11

They show very different life cycles and habits. Green-veined White is a resident species which has two generations here per year. There is an early spring one and caterpillars from that generation give rise to a second flush of adults in late summer. Red Admiral recolonises our islands each year. Early sightings are of ones which bred, probably, somewhere in southern Europe or North Africa and arrived here in April/May. These give rise to a home-grown generation of adults later in the summer and these may be joined by further migrants from further south in the UK or contintal Europe.

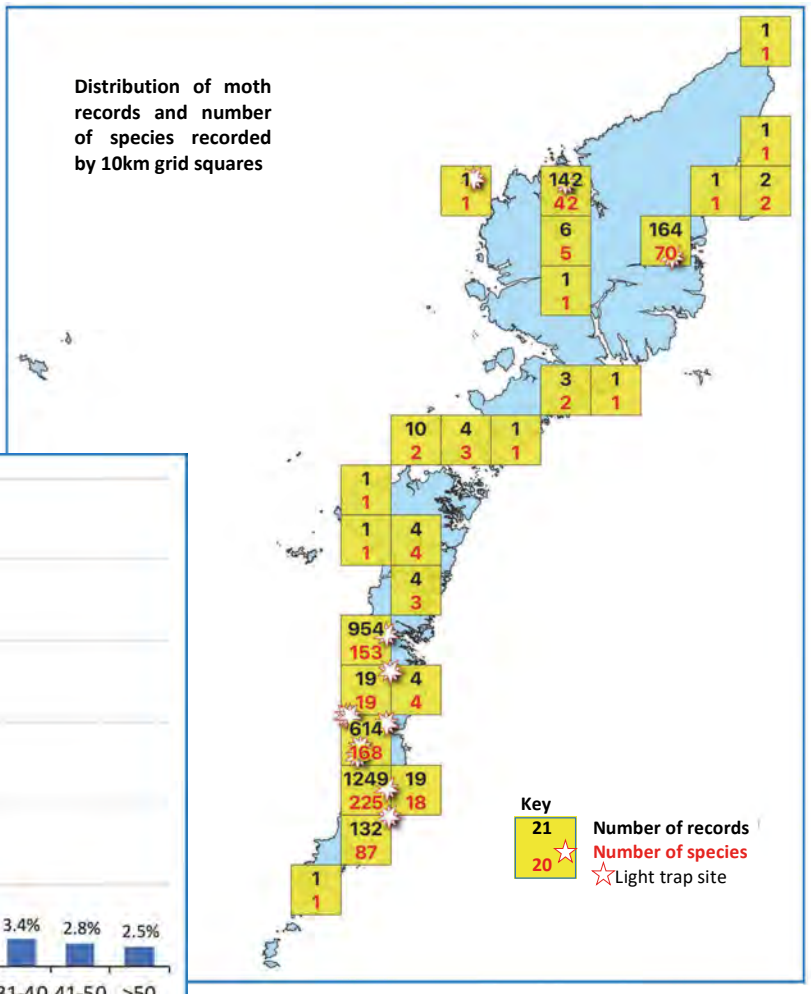
Vanessa atalanta - Red Admiral, many of the ones seen here, especially early in the year, may have migrated from as far away as North Africa

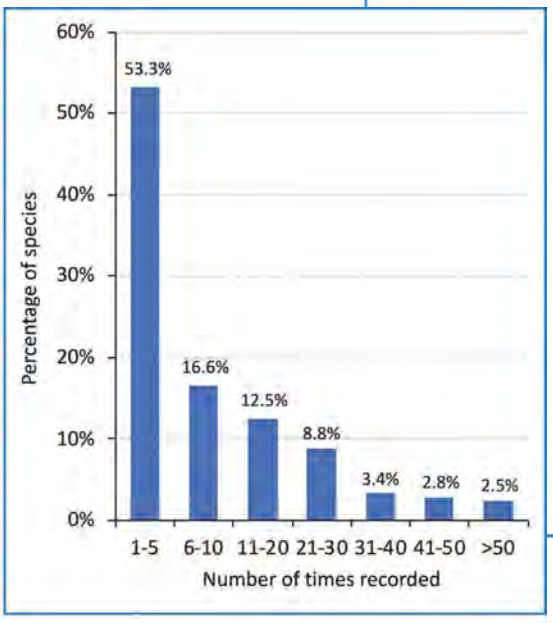
Moths

On the ground it felt like a disappointing season, it started late after cold weather early on. Much of the summer was cold and wet and trapping in autumn was curtailed quickly by high winds and rain. Nevertheless, the number of species of moths recorded and the total number of records sent in by OHBR recorders was broadly similar to previous years. As usual most records came from light traps of various sorts used at trapping locations, mostly on South Uist.

Method	Records
Robinson MV Trap (125W)	2494
Actinic trap	445
Trapped at light	106
Netted	44
Field observation	254
Total	**3343**

Most moth species weren't found very often, over half (53%) were found five or fewer times. Of these nearly 20% were recorded just once. There were eight species found more than fifty times. These species almost always feature as most frequently recorded species and quickly become familiar to moth trappers.





Species	Common Name	Records
Apamea monoglypha	Dark Arches	73
Noctua pronuba	Large Yellow Underwing	68
Lacanobia oleracea	Bright-line Brown-eye	57
Ochropleura plecta	Flame Shoulder	56
Abraxas grossulariata	Magpie Moth	53
Lycophotia porphyrea	True Lover's Knot	52
Mythimna impura	Smoky Wainscot	51
Denticucullus pygmina	Small Wainscot	51

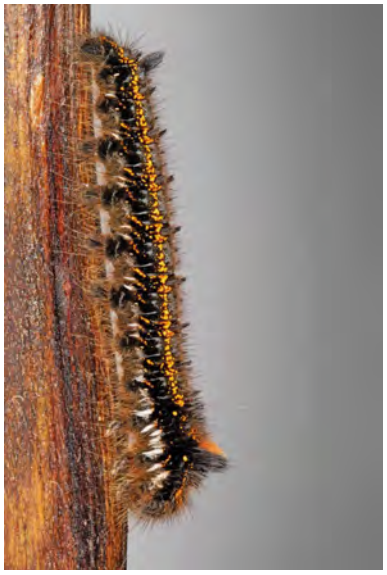
Abraxas grossulariata – Magpie Moth, also flies by day which helps to explain why it is so frequently recorded

Moths not or rarely found in light traps

Moth traps are efficient at catching moths and give a very good picture of the moth fauna of the area around the trap location. Not every species of moth is attracted to light though. The distinctive adults of *Zygaena filipendulae* (Six-spot Burnet) are rarely found in moth traps, but they are day flying and often seen in rough grassland and dunes. Others such as *Macrothylacia rubi* (Fox Moth), *Lasiocampa quercus* (Oak Eggar), *Saturnia pavonia* (Emperor Moth) and *Euthrix potatoria* (Drinker) do come to light but are as likely to be recorded after spotting their distinctive caterpillars in the field as they are to be found at a light trap.

Two other species in the table below that are as likely to be seen through direct observation as caught in a light trap are *Hofmannophila pseudospretella* (Brown House-moth) and *Endrosis sarcitrella* (White-shouldered House-moth). Both are strongly associated with human habitation and are frequently found indoors.

Species	Common Name	Field Obs.	Netted	Moth Trap
Species only found through direct observation or netting in 2022				
Zygaena filipendulae	Six-spot Burnet	10		
Lycia zonaria	Belted Beauty	9		
Anthophila fabriciana	Common Nettle-tap	7		
Camptogramma bilineata	Yellow Shell	6		
Phragmatobia fuliginosa	Ruby Tiger	5		
Anarta myrtilli	Beautiful Yellow Underwing	4		
Ematurga atomaria	Common Heath	4		
Acronicta menyanthidis	Light Knot Grass	2		
Glyphipterix simpliciella	Cocksfoot Moth	2		
Operophtera brumata	Winter Moth	2		
Rheumaptera hastata	Argent & Sable	2		
Dichrorampha alpestrana	Spike-marked Drill	1	3	
Acronicta psi	Grey Dagger	1		
Epinotia	Epinotia	1		
Epiphyas postvittana	Light Brown Apple Moth	1		
Macroglossum stellatarum	Humming-bird Hawk-moth	1		
Stenoptilia bipunctidactyla	Twin-spot Plume	1		
Stigmella aurella	Golden Pigmy	1		
Stigmella microtheriella	Nut-tree Pigmy	1		
Swammerdamia caesiella	Birch Ermel	1		
Argyresthia retinella	Netted Argent		2	
Glyphipterix schoenicolella	Bog-rush Fanner		2	
Argyresthia brockeella	Gold-ribbon Argent		1	
Argyresthia pygmaeella	Sallow Argent		1	
Clepsis senecionana	Obscure Twist		1	
Glyphipterix thrasonella	Speckled Fanner		1	
Incurvaria praelatella	Strawberry Bright		1	
Leucoptera spartifoliella	Broom Bent-wing		1	
Micropterix aruncella	White-barred Gold		1	
Philedonides lunana	Heath Twist		1	
Species as likely to be found by direct observation as caught in moth trap				
Macrothylacia rubi	Fox Moth	5		1
Hofmannophila pseudospretella	Brown House-moth	5		2
Lasiocampa quercus	Oak Eggar	5		3
Saturnia pavonia	Emperor Moth	6		7
Arctia caja	Garden Tiger	8		36
Endrosis sarcitrella	White-shouldered House-moth	10		15
Euthrix potatoria	Drinker	16		26
Abraxas grossulariata	Magpie Moth	18	1	34



Euthrix potatoria - Drinker

Saturnia pavonia – Emperor Moth

Zygaena filipendulae - Six-spot Burnet

Insects - Lepidoptera

Macro-moths

Family	Recorders	Records	Species	Most frequently recorded in family	Common Name	Records
Noctuidae	16	1575	91	*Apamea monoglypha*	Dark Arches	73
Geometridae	16	738	74	*Abraxas grossulariata*	Magpie Moth	53
Erebidae	11	167	9	*Arctia caja*	Garden Tiger	44
Notodontidae	6	49	6	*Notodonta ziczac*	Pebble Prominent	29
Sphingidae	6	34	4	*Laothoe populi*	Poplar Hawk-moth	22
Lasiocampidae	10	56	3	*Euthrix potatoria*	Drinker	42
Drepanidae	2	6	3	*Tethea or*	Poplar Lutestring	3
Hepialidae	4	17	2	*Korscheltellus fusconebulosa*	Map-winged Swift	16
Saturniidae	9	13	1	*Saturnia pavonia*	Emperor Moth	13
Zygaenidae	5	10	1	*Zygaena filipendulae*	Six-spot Burnet	10
Total Macro-moths		**2665**	**194**			

Most frequently recorded macro-moths

Species	Common Name	Records
Apamea monoglypha	Dark Arches	73
Noctua pronuba	Large Yellow Underwing	68
Lacanobia oleracea	Bright-line Brown-eye	57
Ochropleura plecta	Flame Shoulder	56
Abraxas grossulariata	Magpie Moth	53
Lycophotia porphyrea	True Lover's Knot	52
Denticucullus pygmina	Small Wainscot	51
Mythimna impura	Smoky Wainscot	51
Plusia festucae	Gold Spot	50
Xanthorhoe designata	Flame Carpet	47
Arctia caja	Garden Tiger	44
Amphipoea oculea agg.	Ear Moth agg.	43
Orthosia gothica	Hebrew Character	43
Euthrix potatoria	Drinker	42
Xestia xanthographa	Square-spot Rustic	42
Diarsia mendica	Ingrailed Clay	41
Mesapamea secalis agg.	Common Rustic agg.	41
Cerapteryx graminis	Antler Moth	39
Xestia baja	Dotted Clay	39
Diachrysia chrysitis	Burnished Brass	38
Xanthorhoe ferrugata	Dark-barred Twin-spot Carpet	37
Apamea crenata	Clouded-bordered Brindle	34
Hydraecia micacea	Rosy Rustic	33
Eupithecia absinthiata	Ling Pug	32
Acronicta rumicis	Knot Grass	31
Eugnorisma glareosa	Autumnal Rustic	31
Apamea remissa	Dusky Brocade	29
Notodonta ziczac	Pebble Prominent	29
Rivula sericealis	Straw Dot	29
Spilosoma lutea	Buff Ermine	29
Abrostola tripartita	Spectacle	28
Autographa pulchrina	Beautiful Golden Y	28
Cerastis rubricosa	Red Chestnut	28
Cosmorhoe ocellata	Purple Bar	28
Eupithecia nanata	Narrow-winged Pug	28
Noctua janthe	Lesser Broad-bordered Yellow Underwing	28
Spilosoma lubricipeda	White Ermine	28
Xanthorhoe montanata	Silver-ground Carpet	27
Diarsia rubi	Small Square-spot	25
Eulithis testata	Chevron	25
Euxoa tritici	White-line Dart	25

2,665 records of 194 species of macro-moth were recorded in 2022. Fifty-three of these were recorded more than 20 times. There were representatives of ten moth families with the two big macro families dominating the data; 1,575 records of 91 species of Noctuidae and 738 records of 74 species of Geometridae.

Korscheltellus fusconebulosa- Map-winged Swift

Notodonta ziczac - Pebble Prominent

Laothoe populi - Poplar Hawk-moth

Insects - Lepidoptera

Micro-moths

Family	Recorders	Records	Species	Most frequently recorded in family	Common Name	Records
Tortricidae	6	267	49	*Eucosma cana*	Hoary Belle	33
Crambidae	6	211	23	*Catoptria margaritella*	Silver-stripe Grass-veneer	22
Depressariidae	4	26	8	*Agonopterix cnicella*	Sea-holly Flat-body	10
Coleophoridae	1	10	5	*Coleophora alticolella*	Common Rush Case-bearer	3
Gracillariidae	2	13	4	*Gracillaria syringella*	Common Slender	4
Pyralidae	2	10	4	*Matilella fusca*	Brown Knot-horn	5
Pterophoridae	3	9	4	*Platyptilia isodactylus*	Hoary Plume	4
Argyresthiidae	1	6	4	*Argyresthia retinella*	Netted Argent	2
Oecophoridae	6	34	3	*Endrosis sarcitrella*	White-shouldered House-moth	25
Elachistidae	1	7	3	*Elachista canapennella*	Little Dwarf	4
Glyphipterigidae	2	5	3	*Glyphipterix schoenicolella*	Bog-rush Fanner	2
Blastobasidae	3	42	2	*Blastobasis lacticolella*	Wakely's Dowd	32
Gelechiidae	2	11	2	*Neofaculta ericetella*	Heather Groundling	7
Tineidae	3	9	2	*Monopis weaverella*	Carrion Moth	8
Nepticulidae	1	2	2	*Stigmella microtheriella*	Nut-tree Pigmy	1
Choreutidae	3	7	1	*Anthophila fabriciana*	Common Nettle-tap	7
Plutellidae	2	2	1	*Plutella xylostella*	Diamond-back Moth	2
Epermeniidae	1	1	1	*Epermenia chaerophyllella*	Garden Lance-wing	1
Incurvariidae	1	1	1	*Incurvaria praelatella*	Strawberry Bright	1
Lyonetiidae	1	1	1	*Leucoptera spartifoliella*	Broom Bent-wing	1
Micropterigidae	1	1	1	*Micropterix aruncella*	White-barred Gold	1
Yponomeutidae	1	1	1	*Swammerdamia caesiella*	Birch Ermel	1
Total		**676**	**125**			

Most frequently recorded micro-moths

Species	Common Name	Records
Eucosma cana	Hoary Belle	33
Blastobasis lacticolella	Wakely's Dowd	32
Eucosma campoliliana	Marbled Bell	26
Endrosis sarcitrella	White-shouldered House-moth	25
Catoptria margaritella	Silver-stripe Grass-veneer	22
Udea lutealis	Pale Straw Pearl	21
Celypha lacunana	Common Marble	19
Crambus pascuella	Inlaid Grass-veneer	19
Chrysoteuchia culmella	Garden Grass-veneer	15
Acleris aspersana	Ginger Button	13
Eudonia angustea	Narrow-winged Grey	13
Epinotia immundana	Common Birch Bell	12
Anania fuscalis	Cinerous Pearl	11
Eana osseana	Dotted Shade	11
Eana penziana	Large Mottled Shade	11
Eudonia pallida	Marsh Grey	11
Evergestis pallidata	Chequered Pearl	11
Acleris effractana	Acleris effractana	10
Agonopterix cnicella	Sea-holly Flat-body	10
Agriphila straminella	Straw Grass-veneer	10
Blastobasis adustella	Furness Dowd	10
Eudonia mercurella	Small Grey	10
Eudonia truncicolella	Ground-moss Grey	10

Identifying micro-moths is more demanding than it is for macro-moths. Many require examination of genitalia before an identification can be confirmed. The dissection skills needed take time to acquire and most moth trappers only slowly move onto the micros. Some of the larger ones can be done by sight and, with experience, the common do become familiar. In 2022 there were 676 records of 125 species of micro-moth Twenty-three were recorded ten or more times.

Gracillaria syringella - Common Slender

Matilella fusca - Brown Knot-horn

Platyptilia isodactylus - Hoary Plume

Insects - Lepidoptera

Of the five major orders of insects; Diptera (flies), Hymenoptera (bees, wasps etc.), Coleoptera (beetles), Lepidoptera (butterflies & moths) and Hemiptera (bugs) the Lepdioptera are the best recorded in VC110. Annually about 60% of the 550 or so species known from here are recorded (at the other end of the scale only about 13% of the Diptera are noted).

Despite being a well recorded taxonomic group, most years some new species are recorded in the islands for the first time. In 2022 we had our first records of Yellow Horned (*Achlya flavicornis*), with one at Keose, Lewis on 20th March and a second at North Loch Eynort, South Uist on 24th March. Later in the year on 26th July there was a first record of Swallow-tailed Moth (*Ourapteryx sambucaria*) at South Glendale, South Uist.

Finding a hawk-moth in the light trap is always quite exciting, they're big and very attractive. We are familiar with Elephant Hawk-moth and Poplar Hawk-moth, reasonable numbers of both are seen most years. In July though there was an even more exciting sighting of a Humming-bird Hawk-moth (*Macroglossum stellatarum*) on Grimsay and then on 13th August a Convolvulus Hawk-moth (*Agrius convolvuli*) was seen at South Glendale. Two more were seen at the same place on 28th August and 13th September with another sighted at Askernish, South Uist on 28th August and finally, on 18th September, one at Eochar, South Uist.

Records of Hawk-moths – family Sphingidae

Common name	pre 2012	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Total
Death's-head Hawk-moth	2												2
Convolvulus Hawk-moth	3				1				8	1		5	18
Oleander Hawk-moth				1									1
Elephant Hawk-moth	6	12	3	9	9	1	5	12	18	9	6	6	96
Bedstraw Hawk-moth	1	1									1		3
Poplar Hawk-moth	34	31	14	26	17	21	32	23	26	15	31	22	292
Humming-bird Hawk-moth	5	1			1	3		1	2			1	14
Total	**51**	**45**	**17**	**36**	**28**	**25**	**37**	**36**	**54**	**25**	**38**		**426**

The size of Convolvulus Hawk-moths is impressive. The most frequently recorded moth in 2022 was the Dark Arches (Apamea monoglypha) which is probably familiar to most of us. Its forewing length is around 19-26mm. The Convolvulus Hawk-moth comes in at 50-55mm, so about twice as long, the montage here shows both species roughly to scale. Persistent southerly winds in late August and early September bought in hundreds of Convolulus Hawk-moths to the UK with records all over the country. 2019 was the only other really good year for this moth up here. The Humming-bird Hawk-moth seems to be slightly more regular with odd sightings of one or two at regular intervals.

Apamea monoglypha - Dark Arches (L) & *Agrius convolvuli* - Convolvulus Hawk-moth (R)

To complete the summary of Sphingidae records for the Outher Hebrides, there are old records of Death's-head Hawkmoths (*Acherontia atropos*) from 1940 and 1950, occasional records of Bedstraw Hawk-moth (*Hyles gallii*), the last in 2021, and a single record of an Oleander Hawk-moth (*Daphnis nerii*) from a visitor to St Kilda in 2015.

Insects other than Lepidoptera

Recording summary

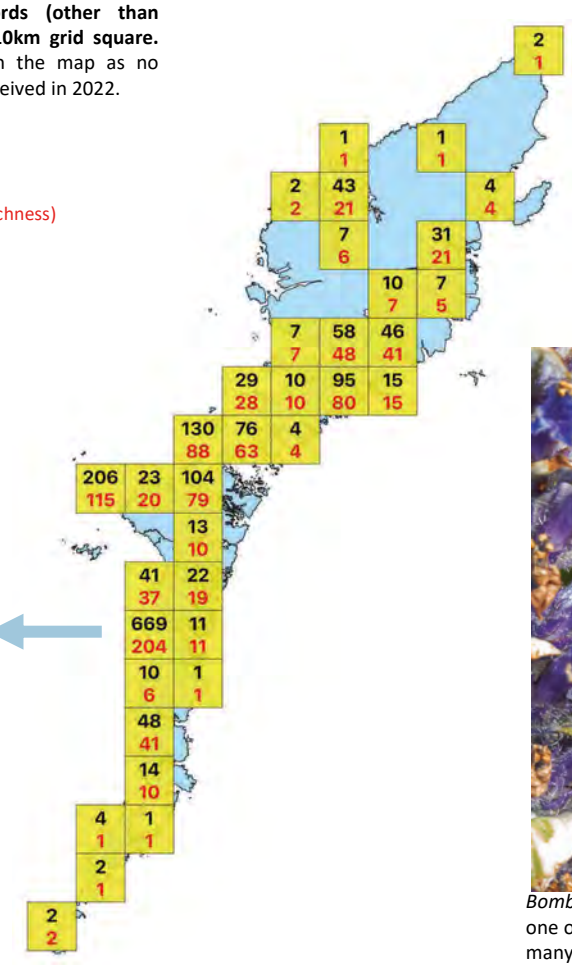
Insects (other than Lepidoptera) records by island												
Island	**2017**	**%**	**2018**	**%**	**2019**	**%**	**2020**	**%**	**2021**	**%**	**2022**	**%**
Lewis, Harris etc.	**179**	**20.1**	**99**	**17.6**	**80**	**11.4**	**37**	**4.1**	**114**	**12.0**	**400**	**22.9**
Lewis	141		24		54		34		97		73	
Great Bernera					2						34	
Harris	38		75		20		3		17		251	
Scalpay					4						15	
Pabbay											27	
North Uist etc.	**66**	**7.4**	**103**	**18.3**	**85**	**12.1**	**23**	**2.9**	**57**	**6.0**	**528**	**30.2**
Berneray	1		8		4		4		1		179	
North Uist	65		78		77		19		56		349	
Grimsay			17		4							
Benbecula	**77**	**8.6**	**56**	**9.9**	**3**	**0.4**	**7**	**0.9**	**24**	**2.5**	**72**	**4.1**
South Uist etc.	**506**	**56.7**	**284**	**50.4**	**483**	**68.7**	**734**	**91.5**	**734**	**77.1**	**740**	**42.3**
South Uist	485		277		481		732		729		732	
Eriskay	21		7		2		2		5		8	
Barra etc.	**64**	**7.2**	**22**	**3.9**	**52**	**7.4**	**5**	**0.6**	**23**	**2.4**	**9**	**0.5**
Barra	63		18		42		5		23		7	
Vatersay	1		2		10							
Mingulay			2								2	
Total	**892**		**564**		**703**		**806**		**952**		**1749**	

Thirty-nine people submitted 1,749 records of insects other than Lepidoptera in 2022 compared to 85 in 2021 (51 of those were participants in a one-off Earwig survey organized through the Curracag and OHBR Facebook pages). The total number of records received was the highest since 2017 when publication of annual reports started. Records were received from 36 (41%) of the 87 10km squares that cover the Outer Hebrides.

Number of Insect records (other than Lepidoptera) from each 10km grid square. St Kilda is not shown on the map as no records of insects were received in 2022.

Key

13 Number of records
11 Number of species (richness)



10km square NF74	
Type of insect	**Species**
True Fly	85
Beetle	47
Bee, wasp etc.	29
Caddisfly	23
True Bug	7
Dragon/Damselfly	5
Springtail	2
Bark Fly	3
Earwig	1
Mayfly	1
Stonefly	1
Total	**204**

Bombus muscorum – Moss Carder Bee one of our iconic species on the tick list of many visiting naturalists

Insects other than Lepidoptera

Species	Type	Records
Bombus muscorum	Moss Carder Bee	43
Bombus lucorum agg.	White-tailed Bumblebee agg.	41
Limnephilus marmoratus	a caddisfly	32
Coelopa frigida	a kelp fly	27
Plectrocnemia conspersa	a caddisfly	25
Scathophaga stercoraria	a dungfly	25
Bombus distinguendus	Great Yellow Bumblebee	23
Limnephilus sparsus	a caddisfly	22
Bombus pascuorum	Common Carder Bee	22
Limnephilus affinis	a caddisfly	20
Acrossus rufipes	a dung beetle	19
Calliphora vicina	Common Bluebottle	16
Myrmica ruginodis	a red ant	15
Sylvicola punctatus	a window gnat	14
Nicrophorus investigator	a carrion beetle	14
Bombus hortorum	Small Garden Bumble Bee	14
Forficula auricularia	Common Earwig	14
Bombus jonellus	Heath Bumblebee	14
Platycheirus manicatus	a hoverfly	12
Oecetis ochracea	a caddisfly	12
Sympetrum danae	Black Darter	12
Sympetrum striolatum	Common Darter	11
Philaenus spumarius	Cuckoo-Spit Insect	11
Helina evecta	a muscid fly	11
Bombus magnus	Northern White-tailed Bumblebee	11
Ischnura elegans	Blue-tailed Damselfly	11

523 species of insect, excluding Lepidoptera (butterflies & moths) were recorded in 2022. Most species weren't recorded very often. 231 (44%) of species were recorded just once and only 26 (5%) more than ten times.

No. of times recorded	Number of species
1	231
2	97
3	60
4	34
5	24
6	12
7	12
8	12
9	5
10	10
>10	26
Total	**523**

Moss Carder Bee (*Bombus muscorum*) was the species most frequently recorded with 43 records. Most of the remaining species were either charismatic species, such as bumblebees (six species) or damselflies/ dragonflies (three species), or things like caddisflies and beetles which were caught during regular entomological surveys. Two species were just interesting things that people noticed, the Cuckoo-spit Insect (*Philaenus spumarius*) and the near ubiquitous Yellow Dung Fly (*Scathophaga stercoraria*).

Sympetrum danae - Black Darter, newly emerging

Bombus lucorum agg. - White-tailed Bumblebee

Coelopa frigida - a kelp fly

Insects other than Lepidoptera

Order Hymenoptera – Bees, wasps, ants etc.

Recording synopsis

7000 British species, 123 VC110 species, 1.8% of British list. **2022**, 252 records of 43 species, 35.0% of VC List

Family	Species (* *indicates not on* NBN)	Common Name	Records
Braconidae	*Aleiodes pictus**		1
	*Clinocentrus**		1
	Homolobus infumator		1
	Macrocentrus nitidus		1
	*Syntretus splendidus**		1
	Zele albiditarsus		2
Chrysididae	*Chrysis*	Ruby-tailed Wasp	1
Eulophidae	*Chrysocharis*		1
Ichneumonidae	*Banchus volutatorius*		1
	Enicospilus ramidulus		2
	Ichneumon oblongus		1
	*Limerodops elongatus**		1
	*Netelia testacea**		1
	Netelia vinulae		1
	Ophion inclinans		3
	Ophion obscuratus agg.	.	5
	Ophion perkinsi agg. *		1
	*Ophion variegatus**		1
Total			**26**

Some progress was made in 2022 in terms of developing identificaton skills necessary for specimens of **Braconidae**, **Ichneumonidae** and a couple of other Hympenoptera families. Six of us managed to submit 26 records of 16 specimens identified down to species or species aggregate level. A further two specimens have, as of January 2023, only been identified so far to the family level.

Netelia testacea – an ichneumon

Banchus volutatorius – an ichneumon

Syntretus splendidus – a braconid

Limerodops elongatus – an ichneumon

Zele albiditarsus – a braconid

Ichneumon oblongus– an ichneumon

Clinocentrus sp. – a braconid

Insects other than Lepidoptera

The Ichneumonidae and Braconidae remain poorly studied in the Outer Hebrides. Three of the braconids and four ichneumons found in 2022 are not on the NBN database for VC110. There are doubtless other new species for the islands still to be found. A number of other specimens were examined but identifications remain tentative at best.

Bees, wasps, ants etc

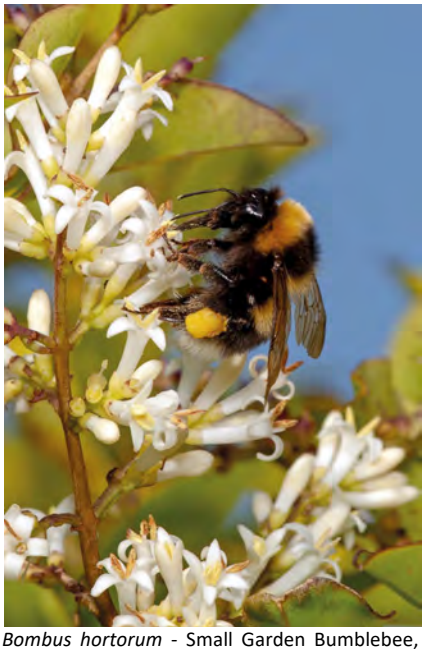
The situation with other Hymenoptera is rather better defined though *Andrena coitana* (Small Flecked Mining Bee) is new to VC110 and a specimen which may be *Lasius flavus* (Yellow Meadow Ant) has been taken by a visitor for confirmation on the mainland.

Family	Species	Common Name	Records
Solitary bees			
Andrenidae	*Andrena coitana**	Small Flecked Mining Bee	2
	Andrena ruficrus	Northern Mining Bee	1
Colletidae	*Colletes floralis*	Northern Colletes	7
Social bees			
Apidae	*Apis mellifera*	Western Honey Bee	1
	Bombus distinguendus	Great Yellow Bumblebee	22
	Bombus hortorum	Small Garden Bumble Bee	14
	Bombus jonellus	Heath Bumblebee	14
	Bombus lucorum agg.	White-tailed Bumblebee	37
	Bombus magnus	Northern White-tailed Bumblebee	11
	Bombus muscorum	Moss Carder Bee	43
	Bombus pascuorum	Common Carder Bee	22
	Bombus terrestris	Buff-tailed Bumblebee	4
Potter wasps & Social wasps			
Vespidae	*Ancistrocerus oviventris*	a potter wasp	4
	Ancistrocerus scoticus	a potter wasp	2
	Dolichovespula saxonica	Saxon Wasp	2
	Dolichovespula sylvestris	Tree Wasp	4
	Vespula rufa	Red Wasp	4
Ants			
Formicidae	*Lasius flavus**	Yellow Meadow Ant	1
	Myrmica ruginodis	a red ant	15
Total			**210**

*Not on NBN and awaiting confirmation

Bombus jonellus - Heath Bumblebee, April 25th

Bombus muscorum - Moss Carder Bee, 3rd May



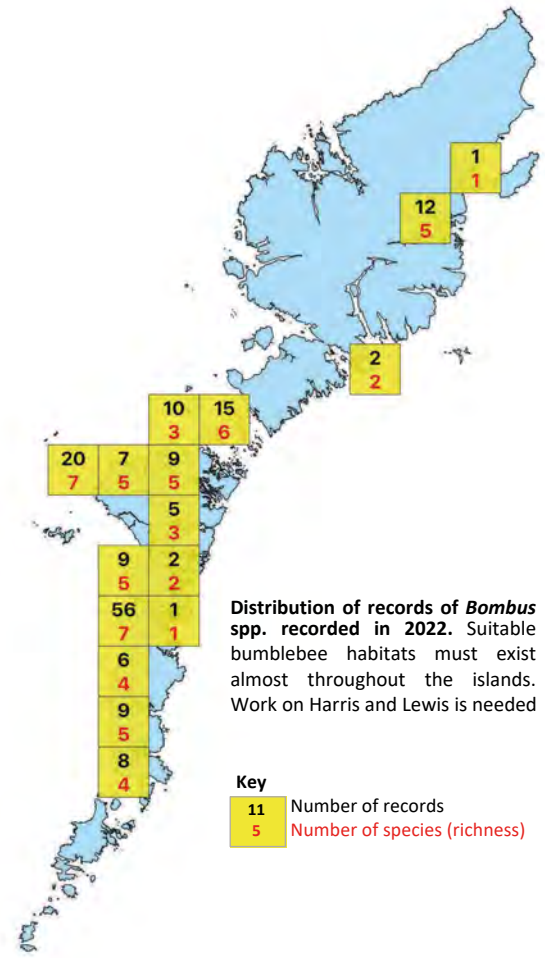
Bombus hortorum - Small Garden Bumblebee, 24th August

Trying to ensure good sources of nectar and pollen in a garden early in the year is important for bumblebees. Dandelion can be very important as it flowers early and continues for much of the summer. Many see them simply as weeds but it is well worth letting them flower and even to run to seed, later in the summer Goldfinch, Linnet and Twite may be seen picking off the developing seeds.

Insects other than Lepidoptera

Bombus distinguendus - Great Yellow Bumblebee, 22nd July

Bombus pascuorum - Common Carder Bee (L) and *Bombus muscorum* - Moss Carder Bee (R), 7th May



Distribution of records of *Bombus* spp. recorded in 2022. Suitable bumblebee habitats must exist almost throughout the islands. Work on Harris and Lewis is needed

Key

11 Number of records
5 Number of species (richness)

Other Hymenoptera - gallery

Myrmica ruginodis - a red ant queen

Ancistrocerus scoticus - a potter wasp

Dolichovespula sylvestris - Tree Wasp

Insects other than Lepidoptera

Sawflies

Waterston (1981)[3] lists 26 species of sawfly for the Outer Hebrides. Sixteen of those "Waterston" species (✓ in red below) have no subsequent records on NBN but an additional 15 species have been recorded since then. As of January 2023 then, NBN has 137 records of 25 species of sawfly.

Family	Species	Waterston 1981	1988	1992	2006	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Total
Cimbicidae	*Trichiosoma laterale*	✓																		
	Trichiosoma sorbi	✓																		
Tenthredinidae	*Cladius pectinicornis*	✓																		
	Dolerus aeneus	✓										1		1				1		**3**
	Dolerus aericeps	✓														2	1	1	1	**4**
	Euura atra	✓								1										**1**
	Euura bridgmanii	✓												1		1		1		**3**
	Euura clitellata	✓																		
	Euura collactanea	✓						1		6	1		3	5	1	3		1	2	**21**
	Euura leucostica	✓																		
	Euura lichtwardti	✓																		
	Euura nigricornis	✓																		
	Euura obductus	✓																		
	Euura oblita	✓																		
	Euura pavida	✓									2	1								**3**
	Euura pedunculi	✓								6	6	6	1	14	13	1		4	5	**51**
	Euura proxima	✓																		
	Euura ribesii	✓													1		1			**2**
	Nematus latipes	✓																		
	Nematus septentrionalis	✓																		
	Pristiphora staudingeri	✓																		
	Rhogogaster viridis	✓																		
	Tenthredo atra	✓				1		1				1							1	**3**
	Tenthredo brevicornis	✓				1	4	1		1		1	1							**9**
	Tenthredo schaefferi	✓																		
	Tenthredopsis nassata	✓																		
Tenthredinidae	*Tenthredopsis coquebertii*		1													2			1	**3**
Tenthredinidae	*Euura weiffenbachii*			1						1	2	1	1		1					**7**
Tenthredinidae	*Tenthredo moniliata*				1															**1**
Argidae	*Arge rustica*						1													**1**
Tenthredinidae	*Tenthredo arcuata*						2				1	1								**4**
Siricidae	*Urocerus gigas*							2	1								3	1		**7**
Tenthredinidae	*Rhogogaster scalaris*								1											**1**
Tenthredinidae	*Hemichroa crocea*										1			1	1					**3**
Tenthredinidae	*Tenthredo ferruginea*										1									**1**
Tenthredinidae	*Platycampus luridiventris*												1					1		**2**
Tenthredinidae	*Dolerus varispinus*													1						**1**
Tenthredinidae	*Euura auritae*													1	1					**2**
Tenthredinidae	*Dineura testaceipes*																2			**2**
Cimbicidae	*Cimbex femoratus*																	1		**1**
Tenthredinidae	*Strongylogaster multifasciata*																	1		**1**

In 2022, 11 records of five species of sawfly were collected by OHBR contributors, in addition there was a single record of a specimen of *Euura* that couldn't be identified further.

Family	Species	Records
Tenthredinidae	*Dolerus aericeps*	1
	Euura	1
	Euura collactanea	2
	Euura pedunculi	5
	Tenthredo atra	1
	Tenthredopsis coquebertii	1
Total		11

Over 90% of the records of Sawflies on NBN since 2012 come into the system through OHBR. A number of sawfly species are gall formers and are often host-specific which can make identification easier; it's worth looking out for them.

Insects other than Lepidoptera

Dolerus aericeps – a sawfly, larvae feed on horsetails, *Equisetum* sp. One of the Waterston species confirmed on Outer Hebrides in 2019

Dolerus sp. (possibly *D. aericeps*) – caterpillar found on *Equisetuem* sp. (Horsetail)

Dolerus aeneus – a sawfly

Tenthredopsis coquebertii – a sawfly

Dineura testaceipes – a sawfly, first recorded from VC110 in 2021 it was only the third record for Scotland

Euura sp. – a sawfly

Insects other than Lepidoptera

Order Trichoptera – Caddisflies or sedges

Recording synopsis

198 British species, 78 VC110 species, 39.3% of British list. **2022**, 205 records of 25 species, 32.1% of VC List

As in previous years almost all the caddisfly records come from bycatch of a moth trap run at a site on South Uist. One of the highlights in 2022, the first record of *Limnephilus auricula* since 1900, came from another light trap run at a site on Lewis. A second specimen of the same species was found in the South Uist trap in August. There was a second record of *Limnephilus pati* – a species that caused nationwide excitement as it was thought to be extinct in Great Britain. Two more examples of *Polycentropus irroratus,* found in the moth trap on South Uist, were just the 5th and 6th from the Outer Hebrides.

Species	NBN records	2018	2019	2020	2021	2022	Comments
Limnephilus marmoratus	212	5	30	37	32	32	
Plectrocnemia conspersa	158	2	24	25	26	25	
Limnephilus sparsus	131	1	14	17	12	22	
Limnephilus affinis	109	5	18	18	13	20	
Limnephilus lunatus	84	3	13	15	13	8	
Stenophylax permistus	72	1	6	11	9	8	
Limnephilus elegans	69		12*	15	11	9	*First since 1901
Polycentropus flavomaculatus	56		3	7	1	3	
Tinodes waeneri	59	3	7	5	7	8	
Phryganea grandis	51	1	7	8	8	10	
Oecetis ochracea	48	2	7	3	6	12	
Lepidostoma hirtum	38	1	2	3	1	2	
Limnephilus hirsutus	38	2	5	4	3	7	
Agrypnia varia	40		2	4	8	9	
Halesus radiatus	31	1	3	2	1	1	
Limnephilus griseus	30		1				
Athripsodes cinereus	27		3	3	1	4	
Mystacides azurea	24	1	2	1	1	3	
Oecetis furva	21		1*	5	2	7	*First since 1971
Ceraclea fulva	19	1	2	3	2	6	
Limnephilus luridus	18		3*	3	2		*First since 1962
**Triaenodes bicolor*	16			2	1		*Only recorded as larva
Limnephilus vittatus	11		1	2	1	1	
Athripsodes aterrimus	5			1*			*Only 4th record
Oecetis lacustris	5			1*	2		*Last recorded Stornoway 1960
Polycentropus irroratus	4				1	2	
Limnephilus auricula	6					2[1]	First records since 1900
Limnephilus pati	2			1*		1	*1st in Scotland
Sericostoma personatum	21					1	Larva in water sample
Number of species		**14**	**22**	**25**	**24**	**24**	
Number of records		**29**	**166**	**196**	**166***	**205***	*Includes 2 records of *Limnephilus* sp.

[1] first one from Point on Lewis, 16th April, second from South Uist 23rd August, both from light traps

Limnephilus pati, South Uist, June 2022 – the 2nd seen in Scotland

Limnephilus auricula, South Uist, August 2022

Insects other than Lepidoptera

Caddisfly flight periods

Genus Limnephilus – the caddisfly species recorded in the light trap on South Uist show different life cycle strategies. Some species of caddisflies are known to show a summer diapause, adults emerge in spring but then enter a resting period over the summer before becoming active again later in the year to mate and lay eggs. *Limnephilus affinis* seems to show that type of life cycle. Moderate numbers are found in late May and early June but the peak activity period is in August.

In contrast, *Limnephilus elegans* is an early species with maximum numbers in mid-May to mid-June. Adults, at least those found in the South Uist monitoring site don't reappear later in the year. *Limnephilus lunatus* shows the opposite pattern, adults are absent in the early part of the year and are only generally found in late August and early September. The species account in the Trichoptera Ireland web pages[1] states that "Adults of *Limnephilus lunatus* can be found on the wing in Ireland from April to November, with a probable summer diapause". The situation, at the South Uist monitoring site at least, seems to differ from that.

Limnephilus sparsus and *Limnephilus marmoratus* seem to have longer flight periods. *L. sparsus* numbers are high in late May and early June but some are found right through to September. *L. marmoratus* has an even longer flight period from the first which have been found in mid May through to the last ones in October. Both species are said to show a summer diapause.

Counts of adult caddisfly by week	April				May					June				July					August					September				October				
Species	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**31**	**32**	**33**	**34**	**35**	**36**	**37**	**38**	**39**	**40**	**41**	**42**	**43**	**44**
Limnephilus affinis				1	4	6	13	8	11	9	4	2	1	2		1	5	5	28	21	26	25	6	6	3	1					
Limnephilus elegans			2		1	15	30	33	190	68	16	3																			
Limnephilus sparsus							2	7	95	343	22	17	16	1	9	5	28	8	3	7	8	4	1								
Limnephilus luridus								2	1	2	7		1	1																	
Limnephilus marmoratus								1	4	30	22	59	82	92	79	58	120	156	81	89	39	60	59	35	52	23	1	4	1	4	
Limnephilus hirsutus										1	1	1	4	1	1	2	3	1	1	1	1				1						
Limnephilus pati														1			1														
Limnephilus griseus																		1													
Limnephilus lunatus																		5	42	397	497	528	166	86	31	9		2			
Limnephilus vittatus																				1			1		3	1					
Limnephilus auricula																						1									

[1] https://trichopteraireland.wordpress.com/2017/11/04/species-profile-limnephilus-lunatus/

Insects other than Lepidoptera

Other Caddis genera – most species seem to fly later than the early *Limnephilus* species with only *Stenophylax permistus* showing any evidence of a summer diapause. *Plectrocnemia conspersa* has one of the longest flight periods of any of the caddisflies looked at, only *L. affinis* and *L. marmoratus* are on the wing for similar lengths of time. Moth trapping ceases due to poor weather by mid October in most years and it is possible that *P. conspersa* is active even later in the year.

Some species, such as *Polycentropus irroratus* and *Athripsodes aterrimus* have been recorded too infrequently for their flight periods to be considered reliable. Hopefully, over time, more reliable data for species like these can be collected.

Counts of adult caddisfly by week	April				May					June				July					August					September				October				
Species	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**31**	**32**	**33**	**34**	**35**	**36**	**37**	**38**	**39**	**40**	**41**	**42**	**43**	**44**
Stenophylax permistus					1	1		2									1	7	21	24	13	6	5	1							
Plectrocnemia conspersa						8	30	33	221	366	56	35	16	34	15	3	12	5	1	13	4	2	8	5	7	1	1				2
Halesus radiatus								1													2	1	5								
Polycentropus flavomaculatus									2		1					1	4		2	5	2										
Polycentropus irroratus									1								1							1							
Phryganea grandis										2		3	8	22	48	5	18	2		2											
Athripsodes aterrimus													1																		
Mystacides azurea													1				1	7		3	2										
Oecetis ochracea													14	5	4	10	13	28	7	2	1										
Tinodes waeneri													1				2	3	8	15	25	8	5	11	2	2					
Agrypnia varia														1	6	4	15	8	5	4	2	1			2						
Lepidostoma hirtum														1	2		3		1	2	1										
Athripsodes cinereus																1	4	5	2	3	3	1		1							
Ceraclea fulva																1	1		3	1	6	1	3	3							
Oecetis lacustris																1		2	3												
Oecetis furva																	2	2	6	12	2										

Order Diptera – True Flies

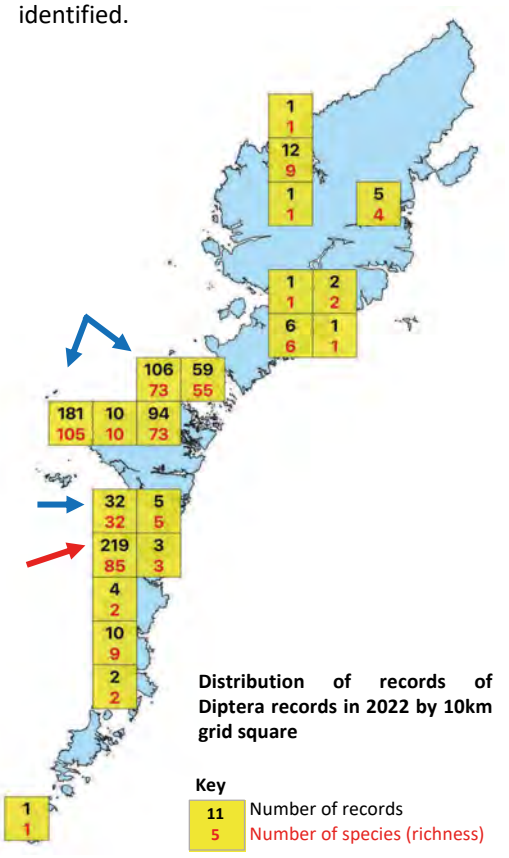
Recording synopsis

7000 British species, 835 VC110 species, 11.9% of British list. **2022**, 755 records of 223 species, 26.7% of VC List

Family	Type	Species	Records	Recorders
Syrphidae	Hoverflies	34	147	10
Muscidae	House flies	33	125	4
Anthomyiidae		22	62	2
Dolichopodidae	Long-legged flies	14	26	3
Tipulidae	Long-palped craneflies	11	31	7
Calliphoridae	Blow flies	10	44	4
Scathophagidae	Dungflies	8	56	4
Cecidomyiidae	Gall-midges	7	12	1
Hybotidae	Dance-flies	5	13	1
Tachinidae	Parasite-flies	5	12	3
Heleomyzidae		4	8	2
Tephritidae	Picture-winged flies	4	9	2
Anisopodidae	Window-gnats	3	18	2
Bibionidae	St Mark's flies	3	12	2
Chloropidae	Grass flies	3	5	1
Empididae	Dance flies	3	10	3
Ephydridae	Shoreflies	3	4	2
Lauxaniidae		3	6	3
Limoniidae	Short-palped craneflies	3	7	2
Sepsidae	Ensign flies	3	7	2
Sphaeroceridae	Lesser-dungflies	3	9	2
Stratiomyidae	Soldier flies	3	8	3
Agromyzidae	Leaf-miner flies	2	3	2
Chamaemyiidae	Aphid flies	2	6	1
Chironomidae	Non-biting midges	2	4	3
Coelopidae	Kelp flies	2	29	2
Opomyzidae		2	6	2
Pediciidae	Hairy-eyed craneflies	2	4	3
Psilidae	Rust flies	2	2	2
Rhagionidae	Snipeflies	2	13	4
Sciomyzidae	Snail-killing flies	2	10	2
Tabanidae	Horseflies	2	5	3
Trichoceridae	Winter gnats	2	7	1
Canacidae	Beach flies	1	1	1
Ceratopogonidae	Miting-midges	1	1	1
Fanniidae	Lesser House-flies	1	1	1
Helcomyzidae	a beach fly	1	2	1
Heterocheilidae		1	10	2
Hippoboscidae	Birdlice-flies	1	1	1
Lonchopteridae	Pointed-wing flies	1	4	2
Pipunculidae	Big-headed flies	1	1	1
Polleniidae	Cluster flies	1	2	1
Ptychopteridae	Phnatom craneflies	1	2	1
Sarcophagidae	Flesh flies	1	1	1
Sciaridae	Black fungus-gnats	1	2	1
Therevidae	Stilleto flies	1	6	1
Ulidiidae	Wing-waving flies	1	1	1
	Total	**223**	**755**	

Ninety percent of the diptera records came from two people; one a visiting entomologist sent in 63% of the records and a resident naturalist, who has started to take more of an interest in the group, 27% of them. The remaining records came from fifteen other recorders who submitted one to thirteen records each.

Most records from local recorders were of groups such as the Hoverflies (Syrphidae), and Craneflies (Tipulidae) which contain large or colourful species some of which are readily identified.



Most of the diptera records from local recorders are from grid square NF74 (red arrow). The much more experienced visiting entomologists' records come from those squares which show greater recording efficiency on North Uist and Benbecula (blue arrows). Many of the local records come from one of the moth-trap sites. The diptera recorded are partly bycatch from the trap, some records from interception traps and quite a lot of records of distractions found during the never-ending battle to stop the enchroachment of horsetail and ground elder into the vegetable patch. As a result, there are a lot of records of the same species from the same site but on different dates. Records are taken throughout most of the year and reflect the seasonality of species and will record some

species likely to be missed during short visits in the summer period. The two types of recording are providing complementary information about the diptera fauna.

Flight seasons for *Tipula* spp.

A nice example of where data collected throughout a whole year are useful can be seen with the craneflies in the genus *Tipula*. Looking at data (below) collected by OHBR recorders resident on the islands, a distinct seasonality of occurrences for different species can be seen.

	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Tipula lateralis			1				1					**1**
Tipula rufina			10	1			4					**15**
Tipula oleracea			3	10	4	1	4	3	1			**26**
Tipula luna				4	4							**8**
Tipula paludosa				4	1	7	35	10				**57**
Tipula lunata					1							**1**
Tipula varipennis					3							**3**
Tipula confusa							1	10				**11**
Tipula pagana								1	5	4		**10**
Tipula luteipennis									3			**3**

Short visits by off-island naturalists would probably miss *Tipula rufina*, may not pick up *Tipula oleracea* and *Tipula luna*. They would be likely to see *Tipula paludosa*, *Tipula lunata* and *Tipula varipennis*. At the other end of the year, visiting naturalists are much less likely to come after the end of August and so may miss *Tipula confusa*, *Tipula pagana* and *Tipula luteipennis.* Examining all the NBN data for these last three species shows that this is actually the case; 60% of *T. confusa* records and all of the *T. pagana* and *T. luteipennis* records come from resident recorders.

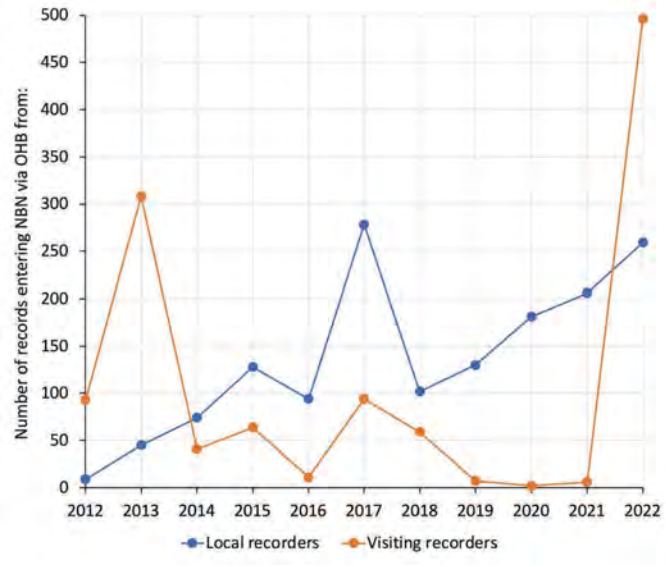
Tipula pagana – female on left, male on right. A late season species where all NBN records originate from naturalists resident in the Outer Hebrides. The species is unusual in that the females are flightless, having very short wings.

Tipula luteipennis - female on left, male on right, another late season species less likely to be recorded by visiting entomologists.

Insects other than Lepidoptera

In the ten years between it's inception in 2012 and 2022, 90% of the records on NBN have been submitted via OHBR. Those records are either from local residents or visitors from off-island.

Data rights holder	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Total	%
Outer Hebrides Biological Recording	102	353	115	192	105	372	161	137	183	212	755	**2687**	88.9%
Highland Biological Recording Group		99	21									**120**	4.0%
Biological Records Centre (including schemes below)	6	3	1	0	3	2	8	10	51	22	7	**113**	3.7%
UK Cranefly Recording Scheme						2	4	5	47	4		**62**	-
Soldierflies and Allies Recording Scheme	6	3	1		2		2	1		4	3	**22**	-
Kelp Fly Recording Scheme										4	1	**5**	-
Heleomyzid Recording Scheme									1	2		**3**	-
Calliphoridae Recording Scheme					1					1		**2**	-
Hippoboscidae and Nycteribiidae Recording Scheme								1		1		**2**	-
NatureScot				3	50							**53**	1.8%
Cumbria Biodiversity Data Centre		46										**46**	1.5%
Unassigned		2										**2**	0.1%
Total	**108**	**503**	**137**	**195**	**158**	**374**	**169**	**147**	**234**	**234**	**762**	**3021**	



Since 2012, local recorders have provided a good source of diptera records for NBN. But in some years, 2013, 2017 and particularly 2022, visiting entomologists have made a very strong contribution too. In earlier years virtually all records for the Outer Hebrides would have come from visiting naturalists.

In 2022 we were lucky to have a number of experienced entomologists visiting the islands. One recorded mainly Coleoptera (Beetles) but another was a plant-gall specialist who was responsible for all twelve of the Cecidomyiidae (Gall-midge) records.

Another visiting entomologist was particularly important in recording families such as Muscidae (House flies), Anthomyidae, Calliphoridae (Blow flies) and Dolichopodidae (Long-legged flies) and the others shown in blue opposite. These can be quite difficult groups for a relative beginner to identify but I'm sure, in time, the number of locally generated records will continue to increase.

Local recorders did rather better for the species families shown in red opposite; Tipulidae (Craneflies), Anisopodidae (Window-gnats), Trichoceridae (Winter-gnats), Rahgionidae (Snipeflies) and Bibionidae (St. Mark's flies). These families have a number of early (in the year) and late flying species which may have been missed as our visiting experts came for a couple of weeks in July and August. Both local and visiting recorders did well with the Syrphidae (Hoverflies), Scathophagidae (Dungflies) and Coelopidae (Kelp flies).

Recorder type: Family	Visitor Records (species)	Local (species)	Total
Muscidae	**114** (30)	**11** (7)	125
Syrphidae	**87** (37)	**60** (25)	147
Anthomyiidae	**60** (22)	**2** (2)	62
Calliphoridae	**33** (10)	**11** (3)	44
Dolichopodidae	**25** (13)	**1** (1)	26
Hybotidae	**13** (5)		13
Cecidomyiidae	**12** (8)		12
Tachinidae	**11** (4)	**1** (1)	12
Tipulidae	2 (2)	**29** (10)	31
Anisopodidae		**18** (3)	18
Trichoceridae		**7** (2)	7
Rhagionidae	**2** (1)	**11** (2)	13
Bibionidae	**4** (1)	**8** (3)	12
Scathophagidae	**28** (5)	**28** (6)	56
Coelopidae	**12** (2)	**17** (2)	29
Other families	**93** (53)	**55** (29)	148
Total records	**496** (193)	**259** (96)	**755**

Insects other than Lepidoptera

A number species of diptera were recorded in 2022 which don't feature on the OHBR Diptera Checklist[2]. In addition there was a "big-head fly" (Family Pipunculidae) which wasn't idetified any further than Genus. The Larvae of these unusual looking flies are internal parasitoids of various leafhoppers and planthoppers (Order Hemiptera). Knowing the name of an organism gives access to layers and layers of information which would be hard to access otherwise.

Pipunculidae possibly *Cephalops* sp. – no species of Pipunculidae have been recorded from the Outer Hebrides. A number of these tiny flies were seen in a garden at Eochar in bright sunshine in July 2022. Identification beyond genus wasn't achieved.

Family	Species
New species	
Tephritidae	*Campiglossa plantaginis*
Muscidae	*Villeneuvia aestuum*
	Spilogona setigera
	Helina quadrinotata
Hybotidae	*Chersodromia alata*
Heleomyzidae	*Tephrochlaena oraria*
Empididae	*Hilara pseudocornicula*
Dolichopodidae	*Dolichopus clavipes*
Canacidae	*Tethina grisea*
Cecidomyiidae	*Contarinia loti*
Anthomyiidae	*Delia planipalpis*
Pipunculidae	*Cephalops* sp.
Status confirmed	
Tachinidae	*Winthemia quadripustulata*
Anthomyiidae	*Delia lavata*

There were also two species which appear on the checklist but there was some doubt about their true status:

> "*Winthemia quadripustulata* - (Waterston 1981), recorded as *Winthemia (Exorista) apicalis* (Dale 1892) Vallay, North Uist."
>
> *"Delia lavata* - it is not possible to distinguish between a small resident breeding population or wind-blown strays from continental Europe**.**"

Both have now been confirmed, *Winthemia quadripustulata* was positively identified at Balranald, and *Delia lavata* was found in dunes at Balranald, Berneray and Grenitote confirming the presence of a breeding population in the Outer Hebrides.

Gallery – some nice finds of 2022

Hyadina guttata – Ephydridae, 10th August 2022

Trypeta zoe – Tephritidae, 31st July 2022

[2] https://www.ohbr.org.uk/documents/checklists/diptera%20checklist.pdf

Insects other than Lepidoptera

Chrysotoxum bicinctum – Syrphidae, 21st July 2021, only two previous records both from 2014

Bibio pomonae – Bibionidae, 31st August 2022

Syrphus torvus – Syrphidae, 31st July 2022, only two previous records on NBN but older records known from literature

Norellisoma spinimanum – Scathophagidae, 6th May 2022, only previous NBN record from 1995 taken from literature

Eristalis nemorum – Syrphidae, 27th June 2022

Scathophaga suilla – Scathophagidae, 12th August 2022, published records from 1994, 2008 and on NBN from 2013

Calliphora vicina – Calliphoridae, 5th October 2022

Heteromyza commixta – Heleomyzidae , 22nd June 20

Insects other than Lepidoptera

Panzeria anthophila – Tachinidae, 26th August 2022

Chrysopilus cristatus – Stratiomyidae, 4th July 2022

Sylvicola zetterstedti – Anisopodidae, 23rd October 2022, no previous NBN records but in literature and on OHBR checklist

Empis livida – Empidae, 21st June 2022

Dolichopus urbanus – Dolichopodidae – 21st June 2022

Order Coleoptera – Beetles

Recording synopsis

4000 British species, 474 VC110 species, 11.9% of British list. **2022**, 369 records of 176 species, 37.1% of VC List

Family	Type	Species	Records	Recorders
Staphylinidae	Rove beetles	63	103	7
Carabidae	Ground beetles	33	67	13
Scarabaeidae	Chafers & dung-beetles	9	37	2
Silphidae	Carrion beetles	6	36	10
Hydrophilidae	Water scavenger beetles	8	16	1
Curculionidae	Weevils	7	15	3
Dytiscidae	Diving beetles	11	14	6
Cantharidae	Soldier beetles	2	11	4
Scirtidae	Marsh beetles	4	11	4
Chrysomelidae	Leaf beetles	7	10	3
Gyrinidae	Whirligig beetles	2	6	3
Coccinellidae	Ladybirds	1	5	5
Meloidae	Oil beetles	1	5	2
Nitidulidae	Pollen beetles	2	5	2
Apionidae	Apionid weevils	3	4	2
Cryptophagidae	Silken fungus beetles	3	4	1
Elateridae	Click beetles	2	4	2
Geotrupidae	Dor beetles	3	4	3
Hydraenidae	Moss beetles	2	3	2
Haliplidae	Crawling water beetles	1	2	1
Ptinidae	Spiderweb beetles	2	2	2
Dascillidae	Orchid beetles	1	1	1
Dryopidae	Long-toed water beetles	1	1	1
Helophoridae	Grooved water scavengers	1	1	1
Leiodidae	Fungus beetles	1	1	1
Total		**176**	**368**	

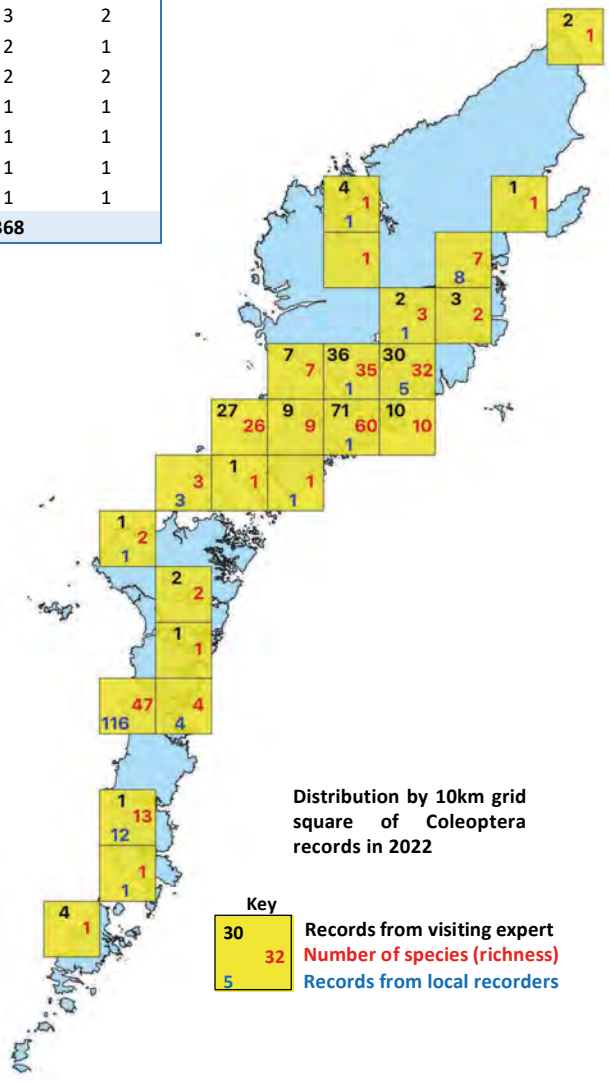
Over half of the Coleoptera records in 2022 came from a single visiting entomologist who spent a few days in late July on Harris and Scalpay. In total they generated 190 records of 123 species. Most of the **Staphylinidae** (rove beetle) records came from this person.

Staphylinid (Rove beetle) records		
	Records	Species
Visiting recorder	88	57
Local recorders	15	8

The rove beetle records sent in by local recorders were mostly of the larger species such as *Creophilus maxillosus* and *Staphylinus erythropterus.*

Creophilus maxillosus – Carrion Beetle

Staphylinus erythropterus



Distribution by 10km grid square of Coleoptera records in 2022

Key

30
32
5

Records from visiting expert
Number of species (richness)
Records from local recorders

Carabidae – The carabids are often large and relatively easy to identify and local recorders cope better with these than they do with more difficult groups such as the Staphylinidae. As a family this was the most frequently recorded in 2022, thirteen recorders sent in 67 records of 33 carabid species. local recorders provided 36 records of 14 species, compared to 31 of 21 species from the visiting coleopterist.

Pterostichus niger – the most frequently recorded carabid in 2002 (8 records).

Carabus granulatus – 4 records in 2022

Carbus glabratus - 6 records in 2022

Scarabaeidae – two small dung beetles *Acrossus rufipes* (19 records) and *Bodilopsis rufa* (10 records) frequently turn up in mothtraps in summer. The only other member of the family to be recorded more than once in 2022 was *Serica brunnea* (Brown Chafer).

Serica brunnea - Brown Chafer

Silphidae – ten recorders provided 36 records of six species. The three *Nicrophorus* species regularly turn up in moth traps and can be readily identified by elytra patterning and colour of the terminal antennal club. The real prize for coleopterists visiting the Outer Hebrides is *Silpha tyrolensis*. Of the 207 records of this species on NBN, 177 come from the Outer Hebrides.

Species	Records
Nicrophorus investigator	14
Nicrophorus humator	8
Phosphuga atrata	7
Silpha tyrolensis	3
Thanatophilus rugosus	3
Nicrophorus vespilloides	1
Total	**36**

Nicrophorus vespilloides –separated from the more frequent *N. investigator* by all black segments in the anntenal club

Silpha tyrolensis – largely restricted to machair on the west coast of the Uists

A miscellany of beetles of damp/wet places

Family/Species	Records
Dryopidae - Long-toed water beetles	
Dryops luridus	1
Dytiscidae – Diving beetles	
Agabus	1
Agabus bipustulatus	3
Dytiscidae	1
Dytiscus marginalis	1
Dytiscus semisulcatus	1
Hydroporus	2
Hydroporus gyllenhalii	1
Hydroporus memnonius	1
Hydroporus obscurus	1
Hydroporus palustris	1
Hydroporus pubescens	1
Gyrinidae – Whirligig beetles	
Gyrinus minutus	4
Gyrinus substriatus	2
Haliplidae - Crawling water beetles	
Haliplus fulvus	2
Helophoridae - Grooved water scavengers	
Helophorus	1
Hydraenidae - Moss beetles	
Limnebius truncatellus	2
Ochthebius punctatus	1
Scirtidae - Marsh beetles	
Contacyphon	1
Contacyphon hilaris	5
Contacyphon kongsbergensis	1
Contacyphon padi	4
Total	**53**

Dryops luridus – a Long-toed Water Beetle

Hydroporus pubescens – a Diving Beetle

Gyrinus minutus – a Whirligig Beetle

Haliplus fulvus – a Crawling Water Beetle

Helophorus sp. – a Grooved Water Scavenger Beetle

Limnebius truncatellus – a Moss Beetle

Contacyphon padi – a Marsh Beetle

Insects other than Lepidoptera

Order Odonata – Dragonflies & Damselflies

Recording synopsis

49 British species, 11 VC110 species, 24.5% of British list. **2022**, 56 records of 8 species, 72.7% of VC List

Species	Common Name	2017	2018	2019	2020	2021	2022
Aeshna juncea	Common Hawker	11	11	10	3	9	4
Enallagma cyathigerum	Common Blue Damselfly	23	18	13	5	6	5
Ischnura elegans	Blue-tailed Damselfly	22	13	12	9	11	11
Pyrrhosoma nymphula	Large Red Damselfly	35	25	8	10	16	10
Lestes sponsa	Emerald Damselfly	11	5	7	2	6	2
Libellula quadrimaculata	Four-spotted Chaser	17	18	8	3	6	1
Sympetrum sp.	Darter Dragonfly					4	1
Sympetrum danae	Black Darter	9	8	10	6	8	12
Sympetrum striolatum	Common Darter	20	11	17	11	9	10
Total		**148**	**109**	**85**	**49**	**72**	**56**

All eight of the regularly seen species were recorded again in 2022. The number of records was lower than in 2022. Two dragonfly larvae found as bycatch in an algae sample could only be identified to genus (*Sympetrum* sp.)

			Individuals	
Family	**Species**	**Common Name/type**	**Adults**	**Larvae**
Aeshnidae	*Aeshna juncea*	Common Hawker	1	
Coenagrionidae	*Enallagma cyathigerum*	Common Blue Damselfly	8	
	Ischnura elegans	Blue-tailed Damselfly		5
	Pyrrhosoma nymphula	Large Red Damselfly	14	
Lestidae	*Lestes sponsa*	Emerald Damselfly		
Libellulidae	*Libellula quadrimaculata*	Four-spotted Chaser		
	Sympetrum sp.	Darter Dragonfly		1
	Sympetrum danae	Black Darter	11	
	Sympetrum striolatum	Common Darter	1	2
Total			**35**	**8**

Most dragonfly and damselfly records each year are of adults. Recorders often fail to note the life-cycle stage, but there are always a number of larvae reported, mainly as bycatch during regular algae sampling at various locations. There are often cast skins as well as living larvae in these samples. The extendable "mask" that makes these larvae formidable predators can easily be seen on these empty larval exoskeletons.

Pyrrhosoma nymphula - Large Red Damselfly, larval mask

Sympetrum danae – Black Darter, recently emerged

Insects other than Lepidoptera

Enallagma cyathigerum - Common Blue Damselfly, note pattern on caudal lamellae ("tails")

Enallagma cyathigerum - Common Blue Damselfly (F), note spine, on the underside of S8, the only blue damselfly to have this

Enallagma cyathigerum - Common Blue Damselfly, note "mask"

Ischnura elegans - Blue-tailed Damselfly

Sympetrum danae - Black Darter, legs all black

Sympetrum striolatum - Common Darter, note yellow leg stripe

Sympetrum danae - Black Darter (F) note the prominent spine like vulvar scale on the underside of the eighth abdominal segment (S8)

Sympetrum striolatum - Common Darter, dark forms of this species used to be known as the Highland Darter but are now considered as a variation of the Common Darter

Order Hemimptera – True Bugs

Recording synopsis

1830 British species, 75 VC110 species, 4.0% of British list. **2022**, 72 records of 35 species, 46.7% of VC List

Summary of Hemiptera records on NBN

The Hemiptera, with the exception of those families of aquatic bugs (Corixidae, Notonectidae, Gerridae and Veliidae) have been one of those orders of insects that, to some extent, have been under-reported on NBN. Prior to 2012, when OHBR began recording and submitting data to NBN, there were 362 records of 36 species recorded on NBN for VC110. The majority of those records (362) were of aquatic bugs with just nine records of terrestrial bugs.

The number of species recorded from here showed a similar bias towards aquatic species, 31 aquatic ones compared to 5 terrestrial ones. Recording of aquatic bugs had slowed to a trickle by 2012 and although OHBR has started to record them again in small numbers the number of aquatic bug species has hardly risen at all; it now stands at 33.

Hemiptera (NBN records)	pre 2012	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Number of records entered onto NBN database by year												
Records (aquatic families)	362		1	3	4	2	3	2	5	12	28	16
Records (terrestrial families)	9	1	44	10	11	13	30	20	30	14	26	56
Cumulative number of species on NBN database												
Species (aquatic families)	31	31	31	32	33	33	33	33	33	33	33	33
Species (terrestrial families)	5	6	24	25	26	26	32	35	38	42	46	54*

For terrestrial species it is very different. There have been 255 records of terrestrial Hemiptera added to the data base since 2012 compared to just 76 for aquatic species. Whilst the number of aquatic hemiptera recorded here has remained static at just over 30, the number of known terrestrial species has gone from five to 54.

Data on the species in many of the insect orders found in the Outer Hebrides is incomplete, but there is a considerable amount of information that can be found elsewhere e.g. museum collections, scientific papers and reports. The OHBR team are working to up-date the species lists and making this information available on NBN and in published checklists. The national Caddisfly Recording Scheme organiser has done a similar gleaning excersise for Trichoptera across the UK and the NBN database is now a much more useful source of information.

There is a need for someone to do a similar job on the Hemiptera. The classic work on invertebrates of the Outer Hebrides (Waterson 1981)[3] lists three of the (by NBN data) "new" species found here in 2022 amongst the 154 species known for the Outer Hebrides.

Stenodema (Brachystira) calcarata, the two nymphs on the left have yet to develop the three conspicuous spines on the trailing edge of the hind leg that allow this species to be easily recognised (R).

Insects other than Lepidoptera

OHBR records of Hemiptera in 2022

			Sample Recorders		
Family	**Species**	**Common Name**	**OHBR**	**Visitors**	**Total**
Homoptera					
Aphididae	*Brachycolus cerastii*	an aphid		2	2
Psyllidae	*Livia juncorum*	a psyllid		3	3
Aphrophoridae	*Neophilaenus lineatus*	a frog hopper		5	5
	Philaenus spumarius	Cuckoo-Spit Insect	2	9	11
Cicadellidae	*Deltocephalus pulicaris*	a leafhopper		1	1
	Evacanthus interruptus	a leafhopper	1		1
	Forcipata citrinella[1]	a leafhopper		1	1
Cixiidae	*Cixius simplex*	a lacehopper		2	2
Delphacidae	*Javesella forcipata*[1]	a planthopper		1	1
Heteroptera - terrestrial					
Lygaeidae	*Drymus (Sylvadrymus) sylvaticus*	a groundbug	2		2
	Scolopostethus decoratus	a groundbug		1	1
	Scolopostethus thomsoni	a groundbug	3		3
Miridae	*Closterotomus norwegicus*	Potato Capsid	2	2	4
	Leptopterna dolabrata	Meadow Plant Bug	1		1
	Leptopterna ferrugata	a plantbug		4	4
	Mecomma (Mecomma) ambulans	a plantbug		1	1
	Orthops (Orthops) campestris	a plantbug	1		1
	Pachytomella parallela	a plantbug		3	3
	Pithanus maerkelii	a plantbug		2	2
	Plagiognathus (Plagiognathus) chrysanthemi	a plantbug		1	1
	Stenodema (Brachystira) calcarata	a plantbug	2		2
	Stenodema (Stenodema) holsata[1]	a plantbug		1	1
	Trigonotylus ruficornis	a plantbug		1	1
Heteroptera - shoreline					
Saldidae	*Salda littoralis*	a shorebug		1	1
	Saldula palustris	a shorebug		1	1
Heteroptera - aquatic					
Corixidae	*Corixidae*	a lesser water-boatman	1		1
	Hesperocorixa castanea	a lesser water-boatman	5		5
	Hesperocorixa sahlbergi	a lesser water-boatman	1		1
	Sigara (Sigara) dorsalis	a lesser water-boatman	1		1
	Sigara (Subsigara) scotti	a lesser water-boatman	3		3
Gerridae	*Gerris (Gerris) odontogaster*	Toothed Pondskater	1		1
	Gerris (Gerris) thoracicus	a pondskater	1		1
Notonectidae	*Notonecta*	a greater water-boatman	1		1
	Notonecta (Notonecta) obliqua	a greater water-boatman	1		1
Veliidae	*Velia (Plesiovelia) caprai*	Water Cricket	1		1
Total			**30**	**42**	**72**

Evacanthus interruptus – a leafhopper, infected by an *Entomophthora* fungus

Five local recorders and two visiting entomologists sent in 72 records of 33 species of Hemiptera in 2022. Sixteen of the records were of aquatic bugs; waterboatmen, pond skaters and water crickets. All of these came from local people but most of the the terrestrial bug records came from the two visiting entomologists. Seven of these species (shown in red above) are not on the NBN database but three are recorded in Waterston (1981)[3].

[3] Waterston, A.R. (1981) Present knowledge of the non-marine invertebrate fauna of the Outer Hebrides. *Proceedings of the Royal Society of Edinburgh*, 79B: 215-321.

Insects other than Lepidoptera

Minor Orders

Class	Order	Family	Species	Common name/type	Total
Insecta	Archaeognatha	Machilidae	*Petrobius maritimus*	Sea Bristletail	2
	Dermaptera	Forficulidae	*Forficula auricularia*	Common Earwig	13
	Ephemeroptera	Baetidae	*Cloeon simile*	a mayfly	2
		Caenidae	*Caenis luctuosa*	Angler's Curse	3
		Leptophlebiidae	*Leptophlebia vespertina*	a mayfly	4
	Megaloptera			Alderflies	-
	Neuroptera			Lacewings	-
	Orthoptera			Grasshoppers etc.	-
	Plecoptera	Nemouridae	*Nemoura cinerea*	a stonefly	7
	Psocoptera	Ectopsocidae	*Ectopsocus petersi*	a barkfly	1
		Paracaeciliidae	*Chilenocaecilius ornatipennis*	a barkfly	1
		Trogiidae	*Cerobasis guestfalica*	a barkfly	2
	Siphonaptera			Fleas	-
Collembola	Collembola	Neanuridae	*Anurida maritima*	a springtail	1
	Entomobryomorpha	Tomoceridae	*Pogonognathellus longicornis*	a springtail	1
	Symphypleona	Sminthuridae	*Sminthurus viridis*	a springtail	1
Total					**38**

Thirty-eight species of insects (including Collembola even though they are now considered a separate Class of Arthropod) were recorded in 2022 by eight recorders. No records of Orthoptera, Neuroptera, Megaloptera or Siphonaptera were received.

Order Dermaptera – Earwigs & Cockroaches

Recording synopsis

7 British species, 1 VC110 species, 14.3% of British list. **2022**, 14 records of 1 species, 100% of VC List

Forficula auricularia – Common Earwig

As always, the Common Earwig was the most frequently recorded of all insects belonging to the minor orders. But, after it's heady fame of 2021, where it topped the "most frequently recorded organism" league table, in 2022 it came in a distant joint 137th. Finishing alongside the delightfully named Flat-topped Bog-moss and Bog-moss Flapwort but also alongside the better known Emperor Moth and Yellow Iris on 13 records.

Order Ephemeroptera – Mayflies

Recording synopsis

51 British species, 11 VC110 species, 19.6% of British list. **2022**, 9 records of 3 species, 27.3% of VC List

Caenis luctuosa – Angler's Curse, 100s in moth trap 8th June

The only mayfly recorded at an adult stage was the Angler's Curse (*Caenis luctuosa*) which appeared at one of the moth trap locations in a number of mass emergence episodes in June. The total numbers must be in the many 1000s as outside walls under lighted windows or outside lights are often covered in mayflies. The other two species recorded, *Cloeon simile* and *Leptophlebia vespertina,* were both found as larvae amongst other bycatch during algae sampling at a number of locations.

Cloeon simile – a mayfly larva

Leptophlebia vespertina – a forked-gill mayfly larva

Order Plecoptera – Stoneflies

Recording synopsis

34 British species, 11 VC110 species, 26.5% of British list. **2022**, 7 records of 1 species, 9.1% of VC List

Just one species, *Nemoura cinerea,* recorded in 2022. It can be found in moth traps and on outside walls where it perhaps was attracted to lighted windows or exterior lights. The very granular appearance of the pronotum (often thought of as the thorax) is a good field clue as to its identification.

Nemoura cinerea – a stonefly, adult (L) and larva (R), the larva is commonly found in slow flowing water, ditches and at margins of small ponds and other bodies of water

Order Psocoptera - Barkflies

Recording synopsis

100 British species, 4 VC110 species, 3% of British list. **2022**, 4 records of 3 species, 75% of VC List

Prior to 2019 there were no records of any Psocoptera from the Outer Hebrides, we are now up to four species with the addition of *Ectopsocus petersi* to the list.

Ectopsocus petersi – a barkfly, new to VC110

Cerobasis guestfalica – a barkfly

Insects other than Lepidoptera

Order Archaeognatha – Bristletails

Recording synopsis

7 British species, 2 VC110 species, 28.6% of British list. **2022**, 2 records in 2022 of 1 species, 50% of VC List

Two records in 2022 of *Petrobius maritimus* (Sea Bristletail), one from Benbecula the other was found on Mingulay. It can be found away from the sea despite both its scientific and common names suggesting otherwise. There is a single record of *Petrobius brevistylis* from St. Kilda (2010) so specimens should be checked carefully to see if there are indeed *Petrobius maritimus.*

Petrobius maritimus – Sea Bristletail, a key confirmatory character is the, hard to see, dark line between the eye and the op of the mandibles, arrowed on right.

Class Collembola – Springtails

Recording synopsis

250 British species, 10 VC110 species, 28.6% of British list. **2022**, 3 records of 3 species in 2022, 1 new to NBN, 30.0% of VC List

Pogonognathellus longicornis – a springtail

Pogonognathellus longicornis – a springtail

Single records of three species in 2022; *Anurida maritima*, *Pogonognathellus longicornis* and *Sminthurus viridis.* The last of these species has no previous records on NBN. The other two have previous records with *Anurida maritima* being our most frequently recorded species and is often found in huge rafts of 1000s on the seashore.

Collembola are another of the under-recorded groups that require some work. There are just 54 previous records of nine species for the Outer Hebrides on NBN; Waterston (1981) lists 45 species.

Of the nine species previously on NBN, seven (shown in red) haven't been recorded since 1933.

VC110 Species (NBN data)	Records
Anurida maritima	33
Pogonognathellus longicornis	4
Tomocerus minor	4
Hypogastrura viatica	3
Folsomia fimetaria	2
Folsomia quadrioculata	2
Lepidocyrtus cyaneus	2
Pseudachorutella asigillata	2
Pseudosinella alba	2
Sminthurus viridis	**1 - New**
Total	**55**

Invertebrates other than Insects

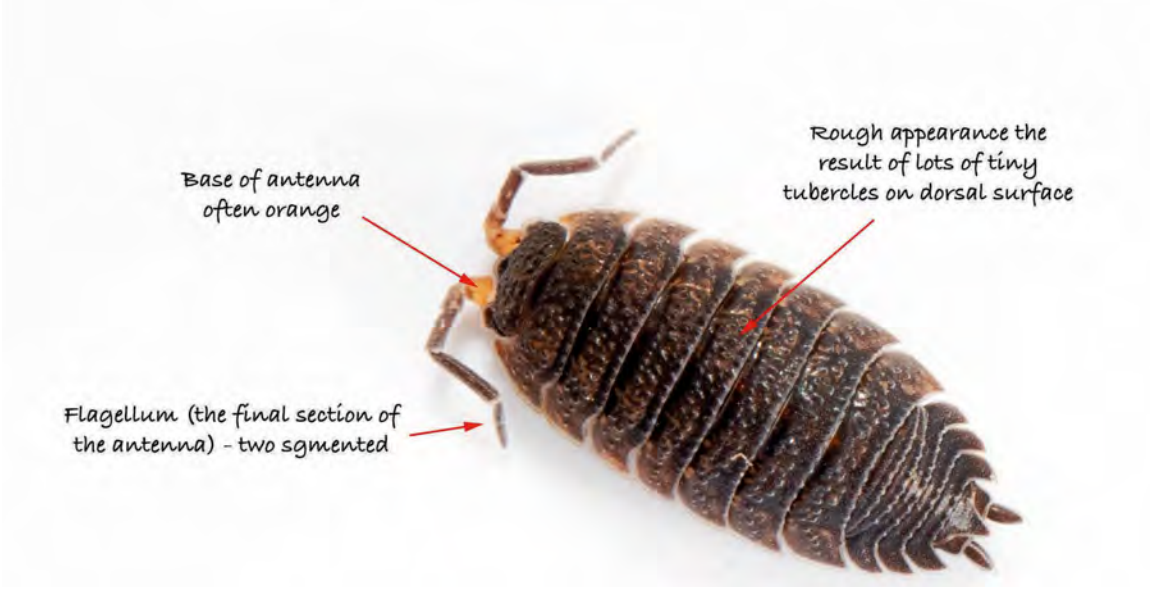
Twenty recorders submitted 127 records of 83 different species in 2022, fewer recorders produced the same numbe of species as in 2021. The total number of records well below the 287 found in 2017 though the number of species found is almost up to 2017 levels. Twelve people submitted records of species of terrestrial invertebrates (other than insects), thirteen sent in records of marine species (down from 21 in 2021) and just four sent in records of freshwater species.

Phylum	Common Name	Number of records						Number of species					
		2017	2018	2019	2020	2021	2022	2017	2018	2019	2020	2021	2022
Mollusca	Slugs, Snails, Limpets, Mussels etc.	139	31	27	34	67	42	43	28	20	22	34	26
Arthropoda	Spiders, Mites, Woodlice, Millipedes, Crabs etc.	74	24	19	68	63	68	22	16	15	32	28	44
Cnidaria	Corals, Jellyfish, Hydra etc.	48	18	15	14	15	8	10	5	7	6	4	5
Echinodermata	Sea Urchins, Starfish, Brittlestars, Sea etc.	14	1	3	3	3	3	5	1	3	2	2	2
Amoebozoa	Amoeba	3			1	10	1	1			1	5	
Cercoza	Testate amoeba						1						1
Annelida	Marine Polychaete and other worms	3	1		1	2		3	1		1	2	
Ctenophora	Comb Jellies e.g. Sea Gooseberry	2		1	2		1	1		1	1		1
Porifera	Sponges	2		2				2		2			
Bryozoa	Sea Mats, Moss Animalcules	1	1					1	1				
Chordata	Sea Squirts etc.	1	1	6	4			1	1	3	3		
Rotifera	Rotifers			2		8	3			2		5	3
Platyhelminthes	Flatworms				4	9					2	3	
Total		**287**	**77**	**75**	**131**	**177**	**127**	**89**	**53**	**53**	**70**	**83**	**83**

Other invertebrates - terrestrial species

Sixty-eight records of 40 species were sent in by recorders. This is a considerable increase compared to 2021 when there were 59 records but of only of 27 species. Three recorders, one resident and two visitors, sent in 75% of the records. One of the visiting naturalists sent in all the gall midge records, the other visitor submitted many of the spider records, once again indicating the value of visiting naturalists who have complementary skills to those of the resident recorders.

Twenty-four of the 40 species were recorded just once and only two woodlice, *Oniscus asellus* (Common Shiny Woodlouse) and *Porcellio scaber* (Common Rough Woodlouse), and a snail, *Cornu aspersum* (Common Garden Snail), were recorded four or more times.



Porcellio scaber- Common Rough Woodlouse

Other invertebrates

Records of terrestrial invertebrates in 2022

Phylum	Class	Order	Species	Common Name / type	Records
Arthropoda	Arachnida	Araneae	*Tegenaria domestica*	Common House Spider	2
			Textrix denticulata	a spider	2
			Amaurobius similis	a spider	2
			Araneus diadematus	Garden Spider	2
			Larinioides cornutus	a spider	1
			Clubiona phragmitis	a spider	1
			Clubiona trivialis	a spider	1
			Erigone longipalpis	a spider	1
			Erigone promiscua	a spider	1
			Halorates reprobus	a spider	2
			Oedothorax retusus	a spider	1
			Arctosa perita	a spider	1
			Pardosa pullata	a spider	1
			Pirata piraticus	a spider	1
			Pholcus phalangioides	Cobweb Spider	1
			Segestria senoculata	a spider	2
			Metellina merianae	a spider	3
			Metellina segmentata	a spider	2
			Tetragnatha extensa	a spider	1
		Ixodida	*Ixodes (Ixodes) ricinus*	Castor Bean Tick	1
		Opiliones	*Nemastoma bimaculatum*	a harvestman	1
			Mitopus morio	a harvestman	2
			Rilaena triangularis	a harvestman	1
		Trombidiformes	*Aceria euaspis*	a gall mite	1
			Aceria thomasi	a gall mite	3
			Cecidophyes rouhollahi	a gall mite	1
			Eriophyes pyri	a gall mite	1
			Phyllocoptes populi	a gall mite	2
			Trombidiidae (Family)	a red spider mite	1
	Chilopoda	Lithobiomorpha	*Lithobius (Lithobius) melanops*	a centipede	1
	Diplopoda	Polydesmida	*Polydesmus angustus*	Common Flat-backed Millipede	1
	Isopoda		*Oniscus asellus*	Common Shiny Woodlouse	4
			Philoscia muscorum	Common Striped Woodlouse	1
			Porcellio scaber	Common Rough Woodlouse	6
Mollusca	Gastropoda	Pulmonata	*Cornu aspersum*	Common Garden Snail	5
			Helicella itala	Heath Snail	3
			Ambigolimax valentianus	Iberian Threeband Slug	2
			Limacus maculatus	Green Cellar Slug	1
			Milax gagates	Smooth Jet Slug	1
			Oxychilus (Oxychilus) cellarius	Cellar Snail	1
				Total	68

Oniscus asellus – Common Shiny Woodlouse, note the three segmented flagellum

Other invertebrates

Clubiona phragmitis – just 2 pre 1980 records (St Kilda & Barra) before being found at Loch Carnan, South Uist in May 2022

Polydesmus angustus - Common Flat-backed Millipede, 16 records going back to 1971, all recent records are from S.Uist

Amaurobius similis – a few scattered records throughout VC110, the inset show the palp, key to the identification of many spiders

Oxychilus (Oxychilus) cellarius - Cellar Snail, 54 records from across VC110 including St. Kilda and Mingulay

Rilaena triangularis – 6 records on NBN but very under-recorded

Milax gagates - Smooth Jet Slug, 69 records across VC110, only three since 2012

Mitopus morio – 66 NBN records scattered throughout VC110

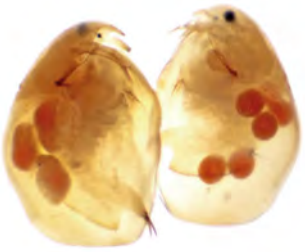
Ambigolimax valentianus - Iberian Threeband Slug, no previous VC110 records and only 4 in Scotland north of the Great Glen

Other invertebrates

Other invertebrates – freshwater species

Eight recorders sent in sightings of freshwater invertebrates (other than insects). In total there were sixteen records of eleven taxa. The records were largely of bycatch from routine sampling of algae.

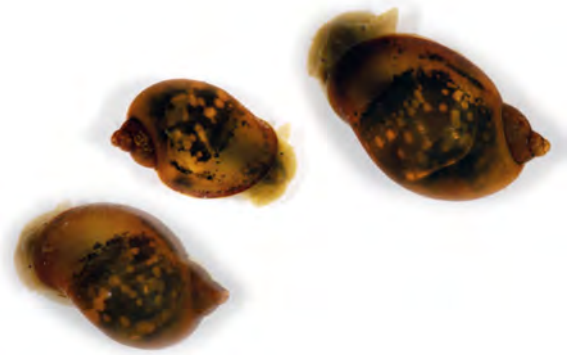
Phylum	Class	Order	Species	Common Name / type	Records
Arthropoda	Branchiopoda	Diplostraca	*Eurycercus (Eurycercus) lamellatus*	a water flea	1
			Alonopsis elongata	a waterflea	2
	Malacostraca	Amphipoda	*Gammarus duebeni*	a freshwater shrimp	1
	Maxillopoda	Harpacticoida	*Harpacticoida* incertae sedis	a copeopod	1
Mollusca	Gastropoda	Hygrophila	*Ampullaceana balthica*	Wandering Snail	5
		Littorinimorpha	*Potamopyrgus antipodarum*	Jenkins' Spire Snail	1
Amoebozoa	Tubulinea	Arcellinida	*Difflugia oblonga*	a testate amoeba	1
Cercozoa	Imbricatea	Euglyphida	*Euglypha strigosa*	a testate amoeba	1
Rotifera	Eurotatoria	Ploima	*Lecane hamata*	a rotifer	1
			Kellicottia longispina	a rotifer	1
			Microcodon	a rotifer	1
				Total	**16**



Eurycercus (Eurycercus) lamellatus – a freshwater crustacean.

Alonopsis elongatus – a waterflea, photo by Chris Johnson

Potamopyrgus antipodarum - Jenkins' Spire Snail



Ampullaceana balthica - Wandering Snail

Lecane hamata - a rotifer

Two testate amoeba: *Euglypha strigose* &

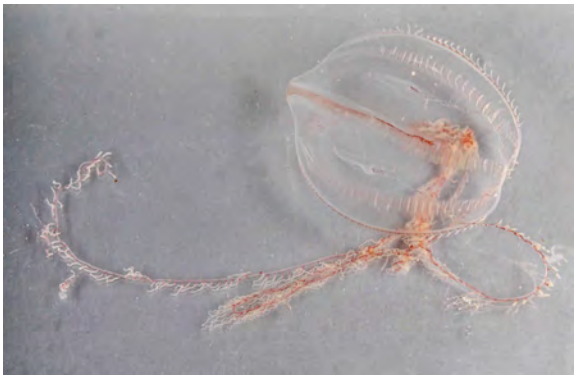
Nebela collaris, photos by Chris Johnson

Other invertebrates

Other invertebrates - marine species

Phylum	Class	Order	Species	Common Name / type	Records
Arthropoda	Malacostraca	Decapoda	*Corystes cassivelaunus*	Masked crab	1
			Pagurus bernhardus	Hermit Crab	1
			Pagurus prideaux	Pagurus prideaux	1
			Carcinus maenas	Green Shore Crab	2
	Maxillopoda	Lepadiformes	*Lepas (Anatifa) anatifera*	Common Goose Barnacle	2
		Sessilia	*Semibalanus balanoides*	Acorn Barnacle	1
Cnidaria	Anthozoa	Actiniaria	*Actinia equina*	Beadlet anemone	3
			Adamsia palliata	Cloak anemone	1
	Hydrozoa	Anthoathecata	*Velella velella*	By-the-wind-sailor	2
	Scyphozoa	Semaeostomeae	*Cyanea capillata*	Lion's Mane Jellyfish	1
			Chrysaora hysoscella	Compass jellyfish	1
Ctenophora	Tentaculata	Cydippida	*Pleurobrachia pileus*	Sea Gooseberry	1
Echinodermata	Asteroidea	Paxillosida	*Astropecten irregularis*	Sand Star	2
		Spinulosida	*Henricia oculata*	Bloody Henry Starfish	1
Mollusca	Bivalvia	Euheterodonta	*Ensis magnus*	a razor fish	1
		Pectinoida	*Talochlamys pusio*	Humpback Scallop	1
		Veneroida	*Cerastoderma edule*	Common Cockle	1
			Mactra stultorum	Rayed Trough Shell	1
			Macoma balthica	Baltic Tellin	1
			Macomangulus tenuis	Thin Tellin	1
			Chamelea striatula	Striped Venus	1
			Venerupis corrugata	Pullet Carpet Shell	1
	Gastropoda	Littorinimorpha	*Littorina littorea*	Common Periwinkle	2
			Littorina obtusata	Flat Periwinkle	3
			Littorina saxatilis/arcana	Rough Periwinkle	1
		Neogastropoda	*Nucella lapillus*	Dog Whelk	1
			Tritia reticulata	Netted Dog Whelk	1
		Nudibranchia	*Doris pseudoargus*	Sea Lemon	2
			Goniodoris nodosa	Goniodoris nodosa	1
		Patellogastropoda	*Patella vulgata*	Common Limpet	2
		Vetigastropoda	*Steromphala cineraria*	Grey Top Shell	1
			Steromphala umbilicalis	Flat Top Shell	1
				Total	**43**

Thirteen observers sent in 43 records of 32 species of marine invertebrates. There are fewer of those perennial sea-shore favourites, Goose Barnacles, By-the-wind Sailors and jellyfish of various sorts reported for 2022 but more shells of various types, 16 in total plus a couple of Nudibranchs (Sea Slugs). A single beach on Lewis on one day in October produced twelve of the sixteen shells, perhaps adopt a local beach and see how many different species you can find on it over 2023?



Pleurobrachia pileus - Sea Gooseberry, North Uist, August 2022

Chrysaora hysoscella - Compass jellyfish, North Uist, August 2022

Other invertebrates

Henricia oculate - Bloody Henry Starfish, South Uist, August 2022

Shell Challenge 2023 - We've all walked along a nice sandy beach picking up shells and naming those we can. But if you find one of those shelly treasure troves between the rocks at the end of the beach, where all the periwinkles get washed up and where you look for Cowries, there are some really nice finds to be made. Probably shells we are less familiar with; some are quite small and will need searching for. All the shells on the next two pages were found here during years of looking for shells – see what you can find and record for us.

Other invertebrates

Clockwise from top left: Banded Venus (*Clausinella fasciata*), Jingle Shell (*Anomia simplex*), Keyhole Limpet (*Diodora graeca*), Woody Canoe-bubble (*Scaphander lignarius*), Hungarian Bonnet Shell (*Capulus ungaricus*), Faroe Sunset Shell (*Gari fervensis*)

Other invertebrates

Clockwise from top left: Beerbarrel Shell (*Acteon tornatilis*), Wentletrap (*Epinotium clathrus*), Pelican's Foot (*Aphorrhais pespelecani*), Sting Winkle (*Ocenebra erinaceus*), Netted Dog Whelk (*Tritia reticulata*), Tower Shell (*Turritellinella tricarinata*)

Vertebrates

Vertebrates

The overall level of recording was broadly similar to that seen in 2020 and 2021. Once again, more individuals (39) contribute to recording vertebrates than to most other taxonomic groups. The total number of vertebrate records (141) was disappointingly low though. Of the 28 species of vertebrate recorded in 2022 thirteen were of marine animals, whales, dolphins, seals and fish – many of them sadly as casualties found on beaches. Two of the most frequently recorded species overall though were Common Frog (28 records) and Otter (26 records), "crossover species" associated with both terrestrial and aquatic habitats. Of the purely terrestrial species Hedgehog (20 records) was the most frequently seen.

Vertebrate records received						
	2017	**2018**	**2019**	**2020**	**2021**	**2022**
Records	160	158	171	137	153	141
Species	36	29	31	30	31	28
Recorders	46	34	49	38	39	39

Type of animal	Species	Common name	Road casualties, strandings or otherwise found dead	Droppings, footprints, runs or other signs	Trapped	General observation	Total
Fish							
Bony fish	*Gasterosteus aculeatus*	Three-spined Stickleback				2	2
Sharks, rays etc.	*Scyliorhinus canicula*	Lesser Spotted Dogfish		2		1	3
	Dipturus batis	Skate		1			1
	Dipturus intermedia	Flapper Skate	2				2
	Squalus acanthias	Spurdog	1				1
Amphibian							
Toad	*Bufo bufo*	Common Toad				3	3
Frog	*Rana temporaria*	Common Frog				28	28
Reptile							
Lizard	*Anguis fragilis*	Slow-worm				2	2
Mammal							
Deer	*Cervus elaphus*	Red Deer	2			4	6
Carnivore	*Lutra lutra*	Eurasian Otter	1	7		13	21
	Mustela putorius subsp. furo	Feral Ferret		1		1	2
	Halichoerus grypus	Grey Seal	2			1	3
	Phoca vitulina	Harbour Seal				1	1
Whales & dolphins	*Delphinus delphis*	Common Dolphin	1			6	7
	Grampus griseus	Risso's Dolphin				1	1
	Lagenorhynchus acutus	Atlantic White-sided Dolphin				2	2
	Lagenorhynchus albirostris	White-beaked Dolphin	1				1
	Stenella coeruleoalba	Striped Dolphin				2	2
	Tursiops truncatus	Bottle-Nosed Dolphin	1				1
	Phocoena phocoena	Common Porpoise				4	4
	Balaenoptera acutorostrata	Minke Whale				1	1
Insectivores	*Erinaceus europaeus*	West European Hedgehog	20		1	5	26
	Sorex minutus	Eurasian Pygmy Shrew	3			1	4
Rabbits & hares	*Lepus*	Hare				1	1
	Oryctolagus cuniculus	European Rabbit	1			9	10
Rodents	*Microtus agrestis*	Field Vole	2			4	6
	Apodemus sylvaticus	Wood Mouse			1		1
	Mus musculus	House Mouse				2	2
	Rattus norvegicus	Brown Rat	1		3	1	4
		Total	**38**	**11**	**5**	**95**	**149**

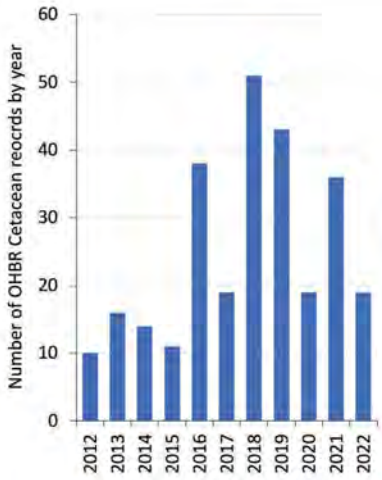
Vertebrates

Mammals – Cetaceans

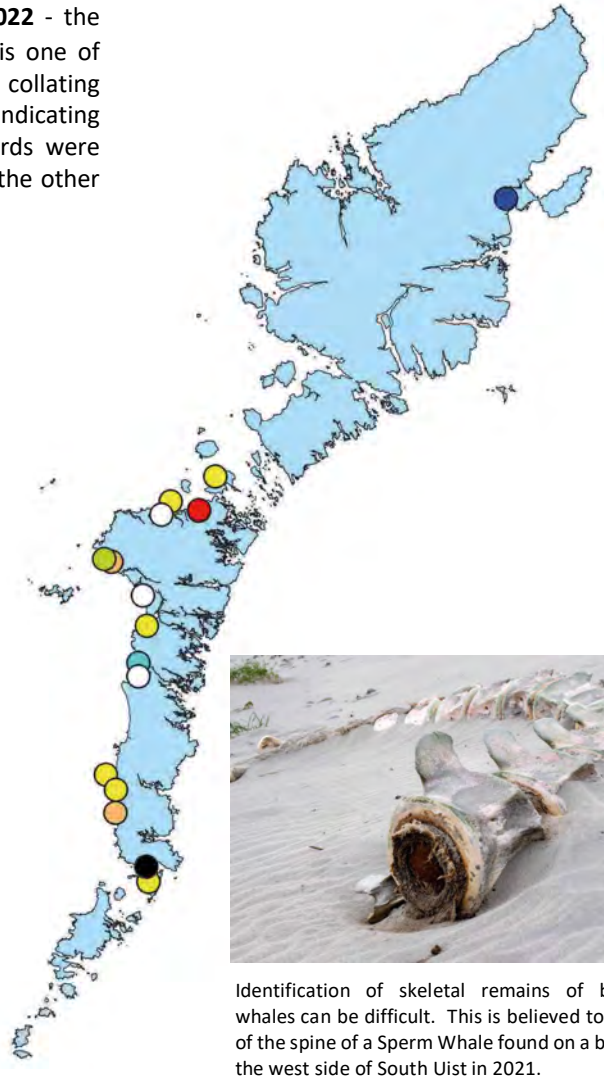
Particularly striking is the low number of records of the larger cetaceans (whales in common parlance) recorded in 2022; just a single sighting of a Minke Whale. In some respects, the low number of records might be considered good news as many, especially of the larger species, are usually recorded as beached carcases.

Key	Common Name	Location	Date	Comments
	Atlantic White-sided Dolphin	Clachan Sands, North Uist	07/02/2022	Almost certainly two independent reports
		Clachan Sands, North uist	08/02/2022	of the same animal
	Bottle-Nosed Dolphin	Borve, Benbecula	01/05/2022	Dead on the shore
	Common Dolphin	Rubha Ardvule, South Uist	09/02/2022	
		Kildonan, South Uist	01/03/2022	
		Eriskay	22/09/2022	
		Princes Strand, Eriskay	24/09/2022	
		Balivanich, Benbecula	02/02/2022	
		Grenitote, North Uist	28/07/2022	
		Traigh Iar, Berneray, Harris	14/02/2022	
	Common Porpoise	Balgarva, South Uist	29/10/2022	3 Feeding offshore at Balgarva
		Balgarva, South Uist	02/12/2022	3 Feeding offshore at Balgarva
		Baleshare, North Uist	06/07/2022	
		Malaclet, North Uist	05/01/2022	
	Minke Whale	Port Scolpaig, North Uist	12/06/2022	
	Risso's Dolphin	Eriskay causeway	15/08/2022	
	Striped Dolphin	Askernish, South Uist	07/01/2022	
		Paiblesgarry, North Uist	15/07/2022	
	White-beaked Dolphin	Stornoway, Lewis	12/09/2022	Adult female stranded and died

Location of OHBR Cetacean records for 2022 - the total of nineteen records of eight species is one of the lowest returns since OHBR began collating records. Two of the records had comments indicating they were of stranded animals, two records were noted as being alive offshore. It's possible the other records could have been in either category**.**



The number of cetacean records recorded by OHBR seems to be in decline after a peak in 2018-2019.

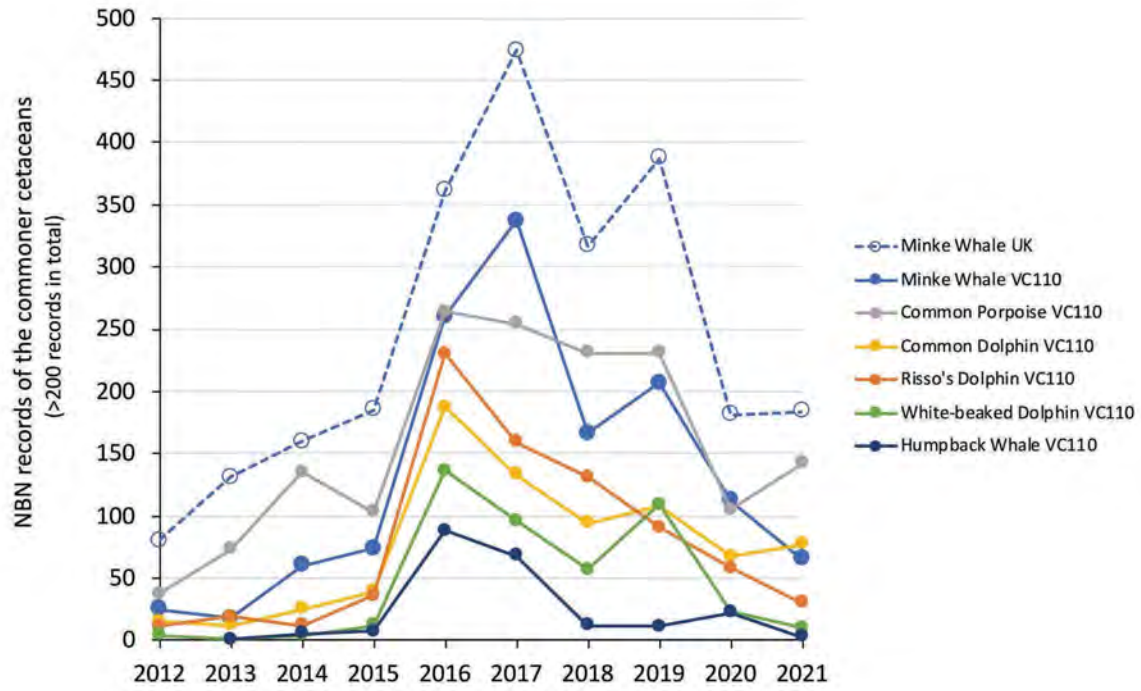


Identification of skeletal remains of beached whales can be difficult. This is believed to be part of the spine of a Sperm Whale found on a beach on the west side of South Uist in 2021.

As ever it is difficult to know whether a decline in the number of records is the result of real population change, a change in the pattern of how cetaceans are using the areas around our coasts or just reduced recorder activity. Checking the cetacean records for the Outer Hebrides on NBN shows a similar pattern of changing numbers of records by year as is seen for the OHBR records on the graph above. Peak recording of the commoner species appears to have been between 2016 and 2019. The number of records per year is now returning to levels seen pre-2016. There are few data on NBN for 2022 as yet so the graph below only includes records to the end of 2021.

Species	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Total
Common Dolphin		1	2	2	3	5	11	9	3	14	7	56
Common Porpoise	2	3	5	2	7	2	5	9	1	9	4	53
Minke Whale	1	2			5	2	10	11	1	5	1	46
Risso's Dolphin	2	1		2	5	2	4	1	1	3	1	24
Bottle-nosed Dolphin	4	6			1	2	1	2	2	1	1	20
Long-finned Pilot Whale		1	2	2	3	1	2	3	2	1		17
Cuvier's Beaked Whale			4			1	10		1			16
White-beaked Dolphin					4	1	5		2	1	1	14
Sperm Whale		1		1	1	1	1	2	3	1		12
Striped Dolphin		1	1	1	1		1	3	1		2	9
Orca (Killer Whale)	1			1				2		1		7
Humpback Whale					6							6
Atlantic White-sided Dolphin					2			1	1		2	4
Sowerby's Beaked Whale						2						2
Fin Whale									1			1
Northern Bottlenose Whale							1					1
Records	**10**	**16**	**14**	**11**	**38**	**19**	**51**	**43**	**19**	**36**	**19**	**288**
Species	**5**	**8**	**5**	**7**	**11**	**10**	**11**	**10**	**12**	**9**	**8**	**16**

One of the eagerly anticipated delights on a ferry crossing to or from the Outer Hebrides is the chance of seeing porpoises, dolphins or if really lucky one of the larger whales such as a Minke Whale. If the evidence of the records is correct it seems we are less likely to see them now. Ferry crossings can be a good source of cetacean records and I would encourage all of us to watch carefully and send in records of those you see.



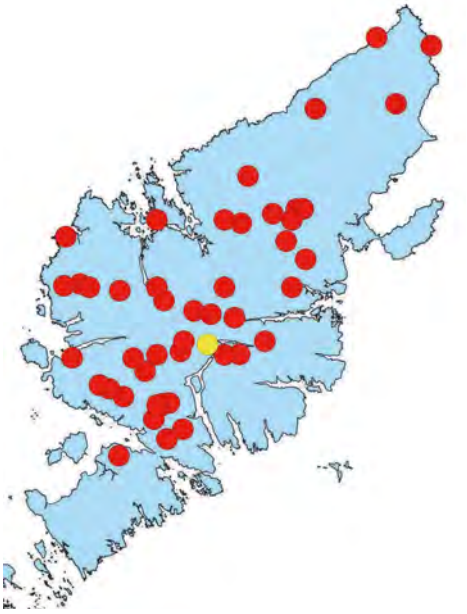
Other Mammals

Eighty-eight records of thirteen species of mammals (other than cetaceans) were received in 2022. This seems roughly in line with the level of recording in recent years but well below the peak of 168 records in 2014. It's hard to identify trends in populations from these data. It is likely that there is an element of observer fatigue which may account for a reluctance to note some of the more common species such as Rabbit and Brown Rat.

Common name	Scientific name	pre 2012	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Total
Otter	*Lutra lutra*	117	27	23	37	5	53	40	31	28	38	16	21	**415**
Hedgehog	*Erinaceus europaeus*	1	1	13	61	26	16	9	10	32	18	20	26	**207**
European Rabbit	*Oryctolagus cuniculus*	19	4	3	6	3	34	18	6	5	6	4	10	**108**
Red Deer	*Cervus elaphus*	2	1	7	28	5	8	12	16	2		1	6	**82**
Field Vole	*Microtus agrestis*		2	4	11	7	6	6	3	5	8	6	6	**58**
Grey Seal	*Halichoerus grypus*	6	3		3	2	6	10	2	8	2	9	3	**51**
Brown Rat	*Rattus norvegicus*	1	2	4	5	2	2	1	7	9	7	9	5	**49**
Pygmy Shrew	*Sorex minutus*	1	2	5	3	1		4		8	5	4	4	**33**
Feral Ferret	*Mustela putorius furo*	1	1	2	8	4	4	1	10				2	**31**
Mountain Hare	*Lepus timidus*	1	4	3	4	1	8	1	1	6				**29**
Harbour (Common) Seal	*Phoca vitulina*		1	1	1	6	1	2	2	5	1	1	1	**21**
Wood Mouse	*Apodemus sylvaticus*	2	1				1				2	1	1	**7**
Pipistrelle Bat species	*Pipistrellus*	1		2		1	1				1	1		**7**
House Mouse	*Mus musculus*	1			1								2	**4**
Noctule type bat	*Nyctalus*	1												**1**
Walrus	*Odobenus rosmarus*	1												**1**
Brown Hare	*Lepus europaeus*							1						**1**
Hare sp.	*Lepus sp.*												1	**1**
American Mink	*Neovison vison*							1						**1**
	Total	**155**	**49**	**67**	**168**	**63**	**140**	**106**	**88**	**108**	**88**	**72**	**88**	**1107**

Oryctolagus cuniculus - Rabbit

Whilst anecdotally Rabbit populations are on the increase there is still little evidence of it in the records received in 2022 with just ten observations sent in. Its now three years running without a sighting of Mountain Hare. A record of *Lepus* sp. on Lewis on 7th May 2022 was certainly well within the known range of the species but couldn't be confirmed.



Known distribution of *Lepus timidus* - Mountain Hare, from NBN records. The yellow dot is the location of a record of *Lepus* sp. from 7th May 2022.

Vertebrates

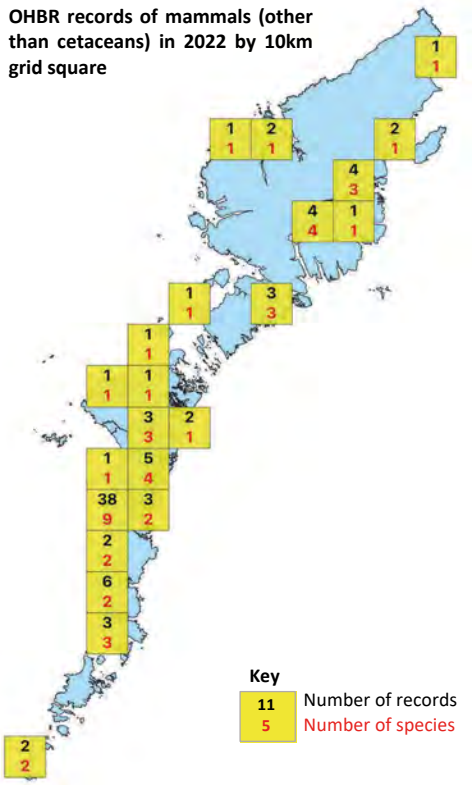
Cervus elaphus - Red Deer

Phoca vitulina – Harbour (or Common) Seal

Lutra lutra – Otter

Erinaceus europaeus – Hedgehog

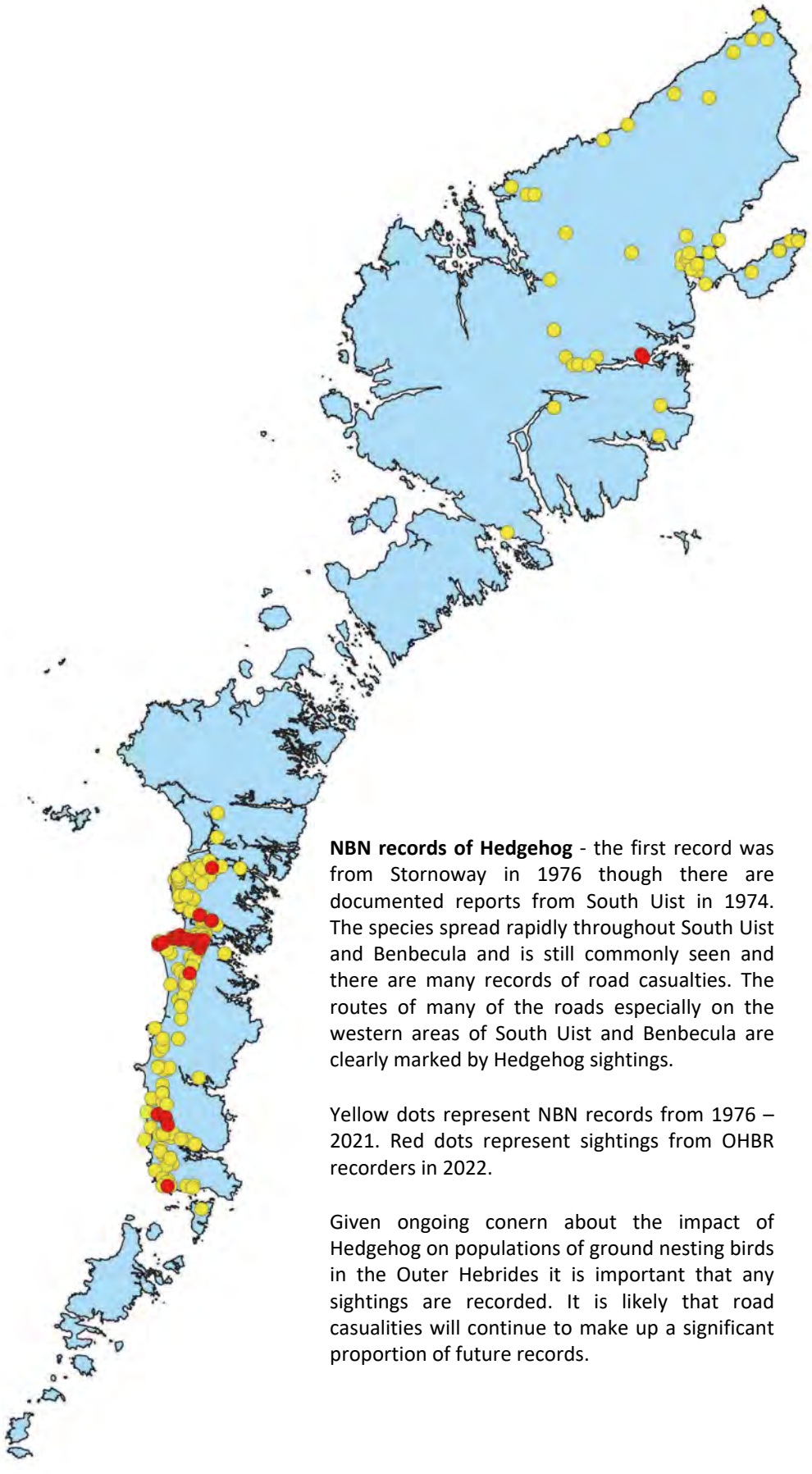
OHBR records of mammals (other than cetaceans) in 2022 by 10km grid square



Many of the mammals known to be present here are consistently under-represented in the records submitted each year. There seems to be little enthusiasm for making notes of sightings of Grey Seal, Common Seal and Red Deer and the smaller species such as Pygmy Shrew, Field Vole and Wood Mouse are never covered well, most Pygmy Shrew sightings being of dead animals.

The two most frequently recorded mammals are Otter and Hedgehog. Otter sightings come from throughout the Outer Hebrides. Most are seen around the coast but there are always a number of inland sightings as well. There must be many more individuals that are seen by residents, holiday makers and other visitors that never end up as records submitted to OHBR. The footprints of otters are often seen on sandy beaches and the five toes and large size of the paw allow reliable identification.

Hedgehog records are mostly from South Uist and Benbecula and are of road casualties. Twenty of the twenty-six 2022 records of Hedgehog were as road casualities. A recent record from North Uist in 2021 is worrying given the effort that has been made to keep that area free of Hedgehogs to protect ground nesting waders. Equally concerning were press reports of a dead Hedgehog on Barra in June 2022.



NBN records of Hedgehog - the first record was from Stornoway in 1976 though there are documented reports from South Uist in 1974. The species spread rapidly throughout South Uist and Benbecula and is still commonly seen and there are many records of road casualties. The routes of many of the roads especially on the western areas of South Uist and Benbecula are clearly marked by Hedgehog sightings.

Yellow dots represent NBN records from 1976 – 2021. Red dots represent sightings from OHBR recorders in 2022.

Given ongoing conern about the impact of Hedgehog on populations of ground nesting birds in the Outer Hebrides it is important that any sightings are recorded. It is likely that road casualities will continue to make up a significant proportion of future records.

Vertebrates

Amphibians – frogs, toad and newts

NBN has (as of 12th January 2023) 243 records of amphibians from the Outer Hebrides, 87% of these records are attributed to OHBR. The most recent record is from November 2021. They cover three species: Common Toad (*Bufo bufo*), Common Frog (*Rana temporaria*) and Palmate Newt (*Lissotriton helveticus*).

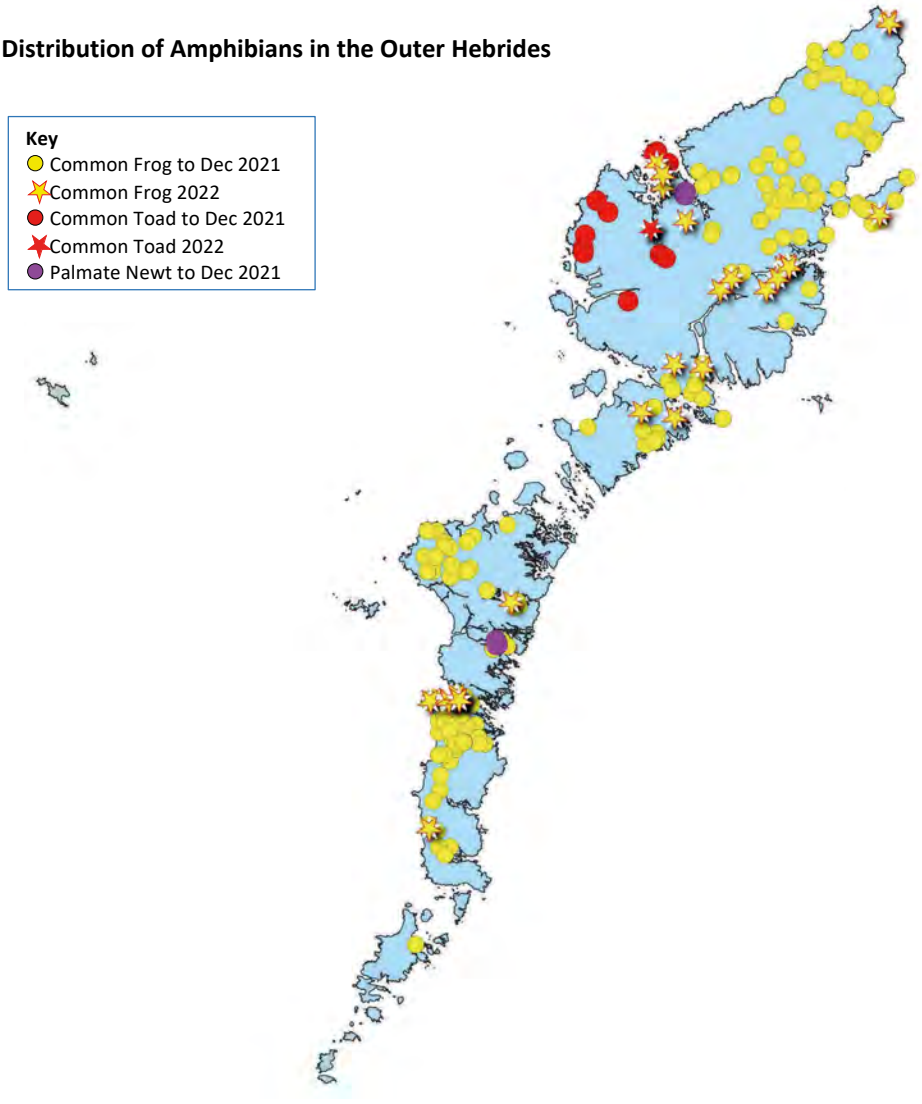
OHBR Records of Amphibians

Species	Scientific name	Pre 2012	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Total	First record
Common Frog	*Rana temporaria*	34	6	17	24	11	16	27	12	17	7	25	28	**224**	1960
Common Toad	*Bufo bufo*	5	2			1	1						3	**12**	2008
Palmate Newt	*Lissotriton helveticus*							3	1			1		**5**	2017

Records from before 2012 are ones extracted from published books, other literature and the personal records of a number of recorders.

All three species are thought to be the result of accidental or deliberate introductions. It's often said that some may have resulted from a curriculum change that required school pupils to look at metamorphosis. This led to teachers bringing frog spawn across from the mainland and the resultant froglets or tadpoles were then released into suitable places locally. The earliest date for Common Frog on NBN is pre-1960 and looks as if it was extracted from an atlas of amphibian distribution published in 1983 which shows both pre-1960 (Harris near Tarbert) and post-1960 (Lewis and Benbecula/North Uist) records.

Distribution of Amphibians in the Outer Hebrides



Rana temporaria – Common Frog

Common Frog is widely distributed throughout the Outer Hebrides. Twenty-eight records were received in 2022 scattered over most of the known range of the species, there were no records from Benbecula.

There is still just a single record from Barra, one seen at Arveenish in August 2020. Whilst records show no sign of any spread from this location it is a species that is worth looking out for on Barra.

Records of **Common Toad** are restricted to an area of south-west Lewis and north west Harris. Three records were received in 2022 from within the known range in south-west Lewis. Additional records of Common Toad from any locations would be welcomed.

Palmate Newt has been recorded at two locations, Grimsay and Great Bernera. There were no further records of this species in 2022. There remain, then, just three records from Grimsay in 2017 and single records from Great Bernera in 2018 and 2021. Records from either location in 2023 would be useful in confirming the continued presence of these populations

Bufo bufo – Common Toad

Reptiles - lizards & turtles

Species	Scientific name	pre 2012	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Total	First record
Leathery Turtle	*Dermochelys coriacea*	51			2	1		2			1	1		58	1936
Slow-worm	*Anguis fragilis*	17	1	3				4	4	2	13	4	1	52	1900
Loggerhead Turtle	*Caretta caretta*	10	1							1				12	1898
Kemp's Ridley	*Lepidochelys kempii*	1										2		3	2008
Common Lizard[1]	*Zootoca vivipara*	1												1	2000
Green Turtle	*Chelonia mydas*	0								1				1	2019
	Total	**80**	**2**	**3**	**2**	**1**	**0**	**6**	**4**	**4**	**14**	**7**	**1**	**127**	

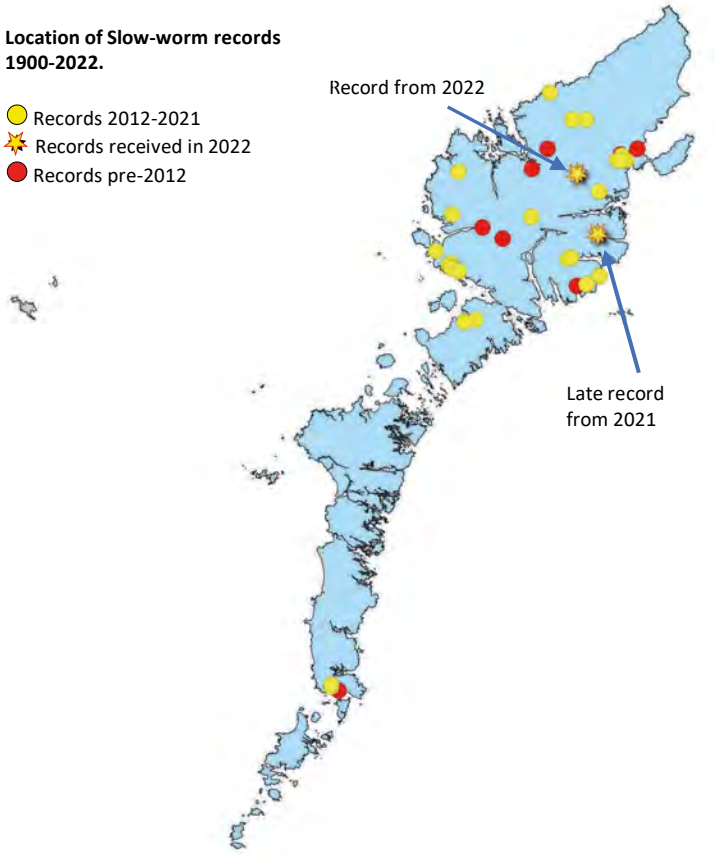
[1] The only record of Common Lizard is of a dead individual found at Range head, South Uist in 2000. It is thought to have come in on freight imported from the mainland.

The only records of reptiles received in 2022 were **Slow Worms**. One of these records was a late one from April 2021 seen at Glen Gravir, Lewis, and the other was from April 2022 at Achmore, Lewis.

Slow worms appear to be widely distributed in Harris and Lewis with a small isolated population at the bottom of South Uist and both records submitted in 2022 were from the main Harris/Lewis population.

The peak time for Slow-worm records is July/August though there are sightings from April through until October.

Location of Slow-worm records 1900-2022.



Slow-worm records by month	
Month	**Records**
April	5
May	5
June	2
July	9
August	7
September	4
October	3

Turtles, no records of turtles were received in 2022.

Those from other years fall into two groups: Leathery Turtle (including "turtles") which are found in summer and into early autumn.

Species	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Leathery Turtle						5	6	18	15	7			58
Turtles[1]					1	2	2	2	1	1			13
Loggerhead Turtle	1	4	1	1		2					2	1	12
Kemp's Ridley	1										2		3
Green Turtle												1	1
Total	**3**	**4**	**1**	**1**	**1**	**9**	**8**	**20**	**16**	**8**	**4**	**2**	**87**

[1] Approximately 15% of turtle records are not identified to species, but by month they were recorded, are most likely to have been Leathery Turtles

In contrast, Loggerhead, Kemp's Ridley and Green Turtles occur mostly in autumn and winter. The lack of any turtle sightings in 2022 echoes the lack of large cetacean records. Both groups are often recorded as stranded casualties. Maybe sea conditions; tides, currents and winds in 2022 were less condusive to strandings than in other years.

Vertebrates

Fish

2022 was a disappointing year for fish, just nine records of five species. There were two records of Three-spined Stickleback (*Gasterosteus aculeatus*), the only "bony fish" recorded. The other seven records were of cartilaginous fish (sharks, rays, skates etc.).

Common name	Scientific name	pre 2012	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Total
Class Actinopterygii (Bony Fish)														
Three-spined Sticjleback	*Gasterosteus aculeatus*		1			2	2	1		1	4	3	2	16
Grey Trigger-fish	*Balistes capriscus*	2						1			1	3		7
European Eel	*Anguilla anguilla*			1				1	3					5
Lumpsucker	*Cyclopterus lumpus*		1							1	3			5
Sun-fish	*Mola mola*	3										1		4
Butterfish	*Pholis gunnellus*	1							1					2
Fifteen-spined Stickleback	*Spinachia spinachia*		1							1				2
Garfish	*Belone belone*										1			1
Common Dragonet	*Callionymus lyra*							1						1
Herring	*Clupea harengus*			1										1
Dab	*Limanda limanda*				1									1
Atlantic Salmon	*Salmo salar*									1				1
Brown/Sea Trout	*Salmo trutta*							1						1
Mackerel	*Scomber scombrus*			1										1
Blue-fin Tuna	*Thunnus thynnus*									1				1
Total		**6**	**3**	**3**	**1**	**2**	**2**	**5**	**4**	**5**	**9**	**7**	**2**	**49**
Class Elasmobranchii (Cartilaginous Fish)														
Basking Shark	*Cetorhinus maximus*	16		2			1		8	9	2			38
Lesser Spotted Dogfish	*Scyliorhinus canicula*			3		1	2	2	1	3	7	2	3	24
Spurdog	*Squalus acanthias*	2											1	3
Skate	*Dipturus batis*			1								1	1	3
Flapper Skate	*Dipturus intermedia*												2	2
Blonde Ray	*Raja brachyura*							1						1
Cuckoo Ray	*Leucoraja naevus*							1						1
Nursehound	*Scyliorhinus stellaris*							1						1
Spotted Ray	*Raja montagui*							1						1
Tope	*Galeorhinus galeus*											1		1
Total		**16**		**6**		**1**	**3**	**6**	**9**	**12**	**9**	**4**	**7**	**75**

The familiar Mermaid's Purse, an egg case of *Scyliorhinus canicular* – Lesser Spotted Dogfish

Notable amongst the Elasmobranchii were the two records of Flapper Skate (*Dipturus intermedia*). This species has only recently (in the last ten years or so) been split from the other skate species *Dipturus batis*. The egg cases are dark and very much larger than the familiar Mermaid's Purse egg case of the Lesser Spotted Dogfish (*Scyliorhinus canicula*).

Fungi, Lichens and Slime Moulds

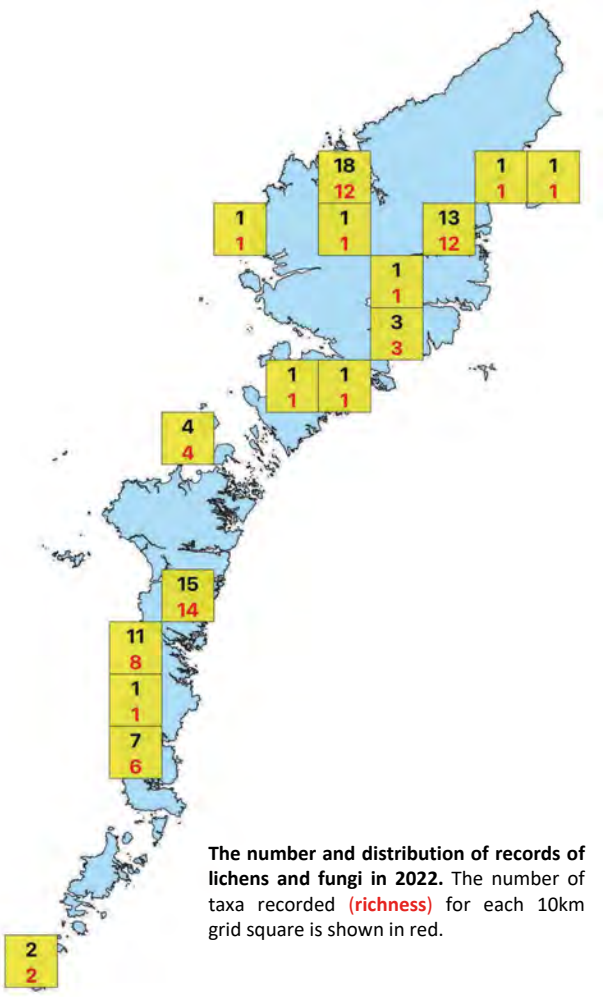
The 81 records submitted in 2022, mostly by local recorders, was much reduced in comparison to 2020 (1,170 records) and 2021 (1,146 records). In both of those years the overall number of records was boosted by the presence, for a few weeks each year, of specialist lichen recorders. The 81 records received in 2022 are widely but thinly scattered over much of the Outer Hebrides.

What is a fungus? - It's actually difficult to define what most of us think of as being a fungus. We're using the term here to include records of species within four phyla; Basidiomycota, Ascomycota, Oomycota and, as a nod to tradition, the Slimemoulds which are now regarded as Protozoa but which have long been studied by mycologists.

Phylum	Habit	Species	Records
Basidiomycota	Fungus	32	41
	Rust Fungus	4	6
Ascomycota	Lichen	9	14
	Fungus	4	9
	Mildew fungus	1	1
	Gall former fungus	1	4
	Fungi imperfecta	1	1
Oomycota	White Rust	1	2
Protozoa	Slimemould	3	3
Total		**56**	**81**

For some people fungus and toadstool are more or less synonomous and its within the Phylum Basidiomycota that you can find species that most would recognise as being toadstools.

Panaeolus papilionaceus - Petticoat Mottlegill, a typical toadstool, a stem, a cap on the top and gills underneath



The number and distribution of records of lichens and fungi in 2022. The number of taxa recorded (**richness**) for each 10km grid square is shown in red.

Within the Basidiomycota there are other growth forms, clubs, spindles, balls, crusts and more …..

Clavaria zollingeri – Violet Coral, the genus *Clavaria* contains spindle, club and finger shaped fungi, most are yellow or whitish

Fungi, lichens and slime moulds

Lycoperdon perlatum – Common Puffball (left), *Puccinia urticata* – Nettle Rust (middle) & *Hygrocybe punicea – Crimson Waxcap* (right) all members of the same phylum (Basidiomycota) but with very different growth forms

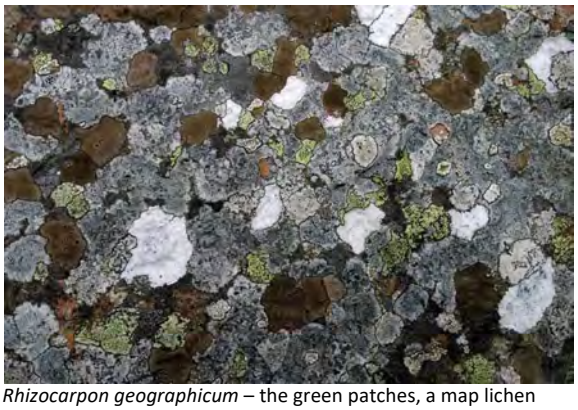
Phylum	Class	Order	Species	Common Name / type	Phylum
Basidiomycota	Agaricomycetes	Agaricales	*Agaricus campestris*	Field Mushroom	1
			Agrocybe praecox	Spring Fieldcap	2
			Arrhenia sphagnicola	Sphagnum Navel	1
			Bolbitius titubans	Yellow Fieldcap	3
			Bolbitius titubans var. olivaceus	Yellow Fieldcap	1
			Clavaria zollingeri	Violet Coral	1
			Coprinopsis nivea	Snowy Inkcap	2
			Coprinus comatus	Shaggy Inkcap	1
			Galerina	*Galerina*	1
			Gliophorus psittacinus	Parrot Waxcap	1
			Hygrocybe acutoconica	Persistant Waxcap	1
			Hygrocybe ceracea	Butter Waxcap	1
			Hygrocybe chlorophana	Golden Waxcap	1
			Hygrocybe coccinea	Scarlet Waxcap	2
			Hygrocybe conica	Blackening Waxcap	2
			Hygrocybe glutinipes	Glutinous Waxcap	1
			Hygrocybe pratensis var. pallida	Pale Waxcap	1
			Hygrocybe punicea	Crimson Waxcap	2
			Hygrocybe splendidissima	Splendid Waxcap	1
			Hygrocybe virginea	Snowy Waxcap	1
			Lepista nuda	Wood Blewit	1
			Lycoperdon nigrescens	Dusky Puffball	1
			Lycoperdon perlatum	Common Puffball	1
			Panaeolus papilionaceus	Petticoat Mottlegill	2
			Panaeolus semiovatus var. semiovatus	Egghead Mottlegill	1
			Psilocybe semilanceata	Magic Mushroom	1
			Stropharia semiglobata	Dung Roundhead	1
		Auriculariales	*Auricularia auricula-judae*	Jelly Ear	1
		Boletales	*Leccinum versipelle*	Orange Birch Bolete	1
			Scleroderma citrinum	Common Earthball	1
		Polyporales	*Daedaleopsis confragosa*	Blushing Bracket	2
			Ganoderma applanatum	Artist's Bracket	1
	Pucciniomycetes	Pucciniales	*Phragmidium violaceum*	Violet Bramble Rust	1
			Puccinia	Rust	1
			Puccinia urticata	Nettle Rust	3
			Puccinia urticata s. lat.	Nettle Rust	1
				Total	**47**

Fungi, lichens and slime moulds

Phylum Ascomycota

Eight of the twenty-nine species of Ascomycota recorded in 2022 are in the Class Lecanoromycetes which contains most of the lichenized fungi including two species recorded from Mingulay (*Peltigera* sp. and *Rhizocarpon geographicum*).

Peltigera sp. – a dog lichen



Rhizocarpon geographicum – the green patches, a map lichen

Phylum	Class	Order	Species	Common Name / type	Records
Ascomycota	Dothideomycetes	Pleosporales	*Tetraploa aristata*	Fungi imperfecta	1
	Lecanoromycetes	Peltigerales	*Lobaria pulmonaria*	Lungwort Lichen	3
			Peltigera	Dog Lichens	1
			Peltigera canina	a dog lichen	1
			Peltigera membranacea	a dog lichen	1
		Pertusariales	*Ochrolechia parella*	Crab's Eye Lichen	1
		Rhizocarpales	*Rhizocarpon geographicum*	Map Lichen	3
		Teloschistales	*Xanthoria parietina*	Common Orange Lichen	1
	Leotiomycetes	Erysiphales	*Neoerysiphe galeopsidis*	Mint Mildew	1
			Podosphaera epilobii	a gall former on Willowherb	4
		Rhytismatales	*Rhytisma acerinum*	Sycamore Tarspot	2
			Rhytisma salicinum	Willow Tarspot	1
	Pezizomycetes	Pezizales	*Peziza ammophila*	Dune Cup	1
	Sordariomycetes	Hypocreales	*Claviceps purpurea*	an ergot fungus on various grasses	5
	Taphrinomycetes	Taphrinales	*Taphrina alni*	Alder Tongue (a gall former)	2
			Taphrina potentillae	a gall former on Tormentil	1
				Total	**29**

Claviceps purpurea - Ergot

Rhytisma acerinum - Sycamore Tarspot

The other Ascomycota recorded included a range of tar spot fungi, a mildew and some that are gall formers on a variety of host plants and a more conventional cup fungus (*Peziza ammophila*).

Fungi, lichens and slime moulds

Other "fungi" phyla – the **Oomycota** were previously thought of as fungi but unlike them the cell wall is not composed of chitin but of celluloses and other polysaccharides. They are now classified as a separate phylum but they do have a fungus like filamentous growth form and, like most fungi, feed on decaying organic matter. Probably the best-known member of the group is *Phytophthora infestans* which causes Potato Blight. There are other genera of pest species in the group causing root rot of peas (*Aphanomyces*), a number of downy mildews (*Plasmopara*) and white rusts (*Albugo*).

Phylum	Class	Order	Species	Common Name / type	Records
Oomycota	Peronosporea	Albuginales	*Albugo lepigoni*	White Rust	2
Protozoa	Myxogastrea	Liceida	*Lycogala terrestre*	Wolf's Milk slime mould	1
		Physarida	*Badhamia lilacina*	a slime mould	1
			Fuligo septica	Dog Vomit slime mould	1
				Total	**5**

Slimemoulds have a complex lifecycle alternating between asexual and sexual stages. The part we see is usually the asexual stage and within this there are different steps and changes in appearance. There is a plasmodial stage when the slimemould exists as a mutli nucleate of undifferentiated cells. This stage is able to move in an ameboid mass looking for food and the organism increase in size and the area of substrate it covers. At some point the cells start to aggregate into an aethalium where the mass starts to break up into individual spores. The outer layer often darkens and hardens as the interior breaks down into dust like spores which disperse, germinate into individual gametes, and then mate. The resulting zygote forms the next plasmodial stage which wanders around looking for food and the whole cycle starts again.

Lycogala terrestre - Wolf's Milk slime mould, early aethalial stage

Lycogala terrestre - Wolf's Milk slime mould, late aethalial stage

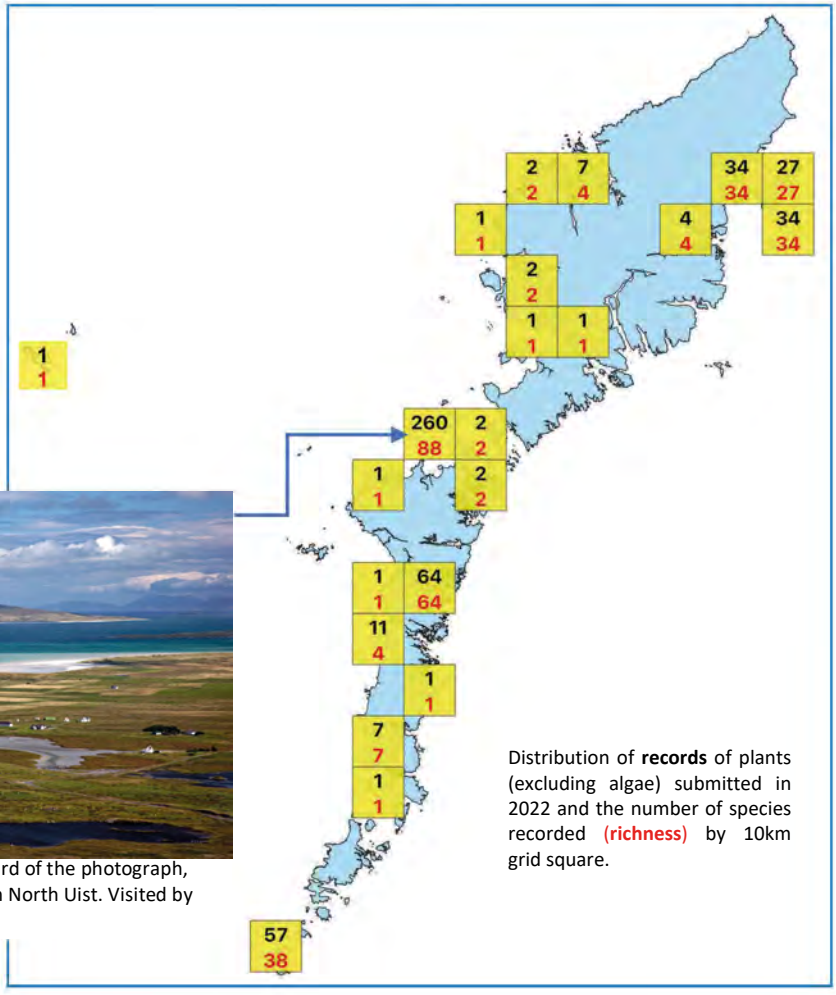
Fuligo septica - Dog Vomit slime mould, early aethalial stage

Fuligo septica - Dog Vomit slime mould, late aethalial stage

Plantae - Pteridiophyta and Tracheophyta

KINGDOM	Type of Plant	Species						Records					
Phylum		2017	2018	2019	2020	2021	2022	2017	2018	2019	2020	2021	2022
PLANTAE													
Pteridiophyta	Horsetails	4	3	3	2	3	2	65	14	20	4	7	9
	Ferns	21	16	15	1	12	9	145	67	59	1	32	14
Tracheophyta	Clubmosses & Quillworts	2	2	2	1	1	1	2	7	3	1	1	6
	Flowering Plants	304	342	298	141	230	134	3213	1789	1949	359	781	491
	Conifers	6	3	3	1	1	1	17	7	7	2	1	1
	Total	**337**	**366**	**321**	**146**	**247**	**147**	**3442**	**1884**	**2038**	**367**	**822**	**521**

Pabbay, the long island in the top third of the photograph, from the top of Crogearraidh Mor on North Uist. Visited by an OHBR team in June 2022.



Distribution of **records** of plants (excluding algae) submitted in 2022 and the number of species recorded (**richness**) by 10km grid square.

2022 in numbers

- Twenty-one recorders submitted sightings of higher plants in 2022
- After a better year in 2021 numbers of both records and recorded plant species dropped back closer tot he levels seen in 2020
- Level of recording was well below those of 2017 – 2019, years which were boosted by the visits of outside botanists doing extensive survey work
- The 147 species recorded in 2022 was about 43% of the average number recorded in 2017 – 2019 (341)
- In contrast, the total number of records submitted in 2022 (521) was just 21% of the average 2017 - 2019 (2454) number of records

PHYLUM Pteridophyta - Ferns, horsetails etc.

Scientific name	Common name	2022
Equisetum arvense	Field Horsetail	4
Equisetum fluviatile	Water Horsetail	
E. x litorale	Shore Horsetail	
Equisetum palustre	Marsh Horsetail	5
Equisetum pratense	Shady Horsetail	
Equisetum sylvaticum	Wood Horsetail	
Equisetum telmateia	Great Horsetail	
Equisetum variegatum	Variegated Horsetail	
Hymenophyllum wilsonii	Wilson's Filmy-fern	
Botrychium lunaria	Moonwort	1
Ophioglossum azoricum	Small Adder's-tongue	
Ophioglossum vulgatum	Adder's-tongue	1
Osmunda regalis	Royal Fern	1
Asplenium adiantum-nigrum	Black Spleenwort	
Asplenium marinum	Sea Spleenwort	
Asplenium ruta-muraria	Wall-rue	
Asplenium trichomanes	Maidenhair Spleenwort	1
Asplenium viride	Green Spleenwort	
Athyrium filix-femina	Lady-fern	2
Blechnum spicant	Hard-fern	2
Ceterach officinarum	Rustyback	
Cryptogramma crispa	Parsley Fern	
Cystopteris fragilis	Brittle Bladder-fern	
Dryopteris aemula	Hay-scented Buckler-fern	1
Dryopteris affinis	Scaly Male-fern	
Dryopteris affinis affinis	Buckler-Fern	
Dryopteris borreri	Borrer's Scaly Male Fern	
Dryopteris cambrensis	Narrow Scaly Male Fern	
Dryopteris carthusiana	Narrow Buckler-fern	
Dryopteris dilatata	Broad Buckler-fern	
Dryopteris expansa	Northern Buckler-fern	
Dryopteris filix-mas	Male-fern	
Dryopteris oreades	Mountain Male-fern	
Gymnocarpium dryopteris	Oak Fern	
Oreopteris limbosperma	Lemon-scented Fern	
Phegopteris connectilis	Beech Fern	
Phyllitis scolopendrium	Hart's-tongue	
Polypodium vulgare	Polypody	1
Polystichum aculeatum	Hard Shield-fern	
Polystichum setiferum	Soft Shield-fern	
Pteridium aquilinum	Bracken	4
Pilularia globulifera	Pillwort	
Total		23

Excluding hybrids there are 42 species of ferns, horsetails etc. listed on NBN for VC110. In 2022 just 23 records of 11 species were submitted. Identification for less specialist naturalists can be tricky but it is a group that needs further work.

Botrychium lunaria – Moonwort, recorded from Beinn Tairbeirt, South Uist 17th August 2022

Osmunda regalis - Royal Fern, one record from Roisinis, Benbecula 19th September 2022

Ophioglossum vulgatum - Adder's Tongue, one record from Pabbay 6th June 2022

PHYLUM Tracheophyta

Class Magnoliopsida (Flowering Plants), Summary

In 2022 there were 491 records of 134 taxa of flowering plants submitted to OHBR. This was the work of 21 individual recorders. Most of the recording in 2022 was concentrated in four locations; Pabbay (242 records), the Roisinis area of Benbecula (57 records), Mingulay (54 records) and the Point area near Stornoway on Lewis (92 records).

Island	2020	2021	2022
Lewis	16	208	103
Great Bernera			4
Harris	9	4	2
Taransay			1
Pabbay			242
North Uist	51	86	3
Berneray	2	5	2
St Kilda			1
Benbecula	164	104	63
South Uist	66	137	15
Eileanan Iasgaich		38	
Eriskay	46	1	1
Stack Islands		24	
Sound of Barra			
Fiaraidh		48	
Fuday		141	
Barra	3		
Vatersay	2		
Mingulay			54
Total	**359**	**796**	**491**

Eleven species were recorded ten times or more – species that represent the general character of much of the Outer Hebrides away from the machair strip on the west of the islands

Species	Common Name	Records
Iris pseudacorus	Yellow Iris	14
Cardamine pratensis	Cuckooflower	13
Bellis perennis	Daisy	11
Lotus corniculatus	Common Bird's-foot-trefoil	11
Pinguicula vulgaris	Common Butterwort	11
Plantago lanceolata	Ribwort Plantain	11
Urtica dioica	Common Nettle	11
Drosera rotundifolia	Round-leaved Sundew	10
Eriophorum angustifolium	Common Cottongrass	10
Potentilla erecta	Tormentil	10
Trifolium repens	White Clover	10

The plants recorded in 2022 belonged to forty-two families. The most frequently recorded families were the Asteraceae (daisies, thistles, dandelions), Plantaginaceae (plantains, speedwells etc.), Ranunculaceae (buttercups), Fabaceae (vetches, clovers etc.). The daisy family contains some very familiar species such as Daisy (*Bellis perennis*) and Dandelion (*Taraxacum* sp.). Whilst common their value shouldn't be underestimated. As early flowering plants they provide a vital source of nectar and pollen for newly emerging queen bumblebees.

Bombus jonellus (Heath Bumblebee) nectaring on Dandelion (*Taraxacum* sp.)

Family	Type of plant	Species	Records
Asteraceae	Daisies, Thistles etc.	17	59
Plantaginaceae	Plantains, Speedwells	9	35
Ranunculaceae	Buttercups	7	27
Fabaceae	Vetches, Clovers etc.	6	26
Orobanchaceae	Rattles, Eye-brights	6	22
Cyperaceae	Sedges	6	15
Rosaceae	Rose, Cinquefoils etc.	5	24
Polygonaceae	Docks & Sorrels	5	23
Poaceae	Grasses	5	10
Ericaceae	Heathers	4	20
Brassicaceae	Scurveygrass, Charlock	4	19
Lentibulariaceae	Butterworts etc.	4	16
Orchidaceae	Orchids	4	15
Lamiaceae	Selfheal, Thymes, Mints	3	12
Juncaceae	Rushes, Wood-rushes	3	10
Caryophyllaceae	Campions, Chickweeds	3	9
Geraniaceae	Herb Robert	3	8
Rubiaceae	Bedstraws	3	8
Violaceae	Violets, Pansies etc.	3	8
Caprifoliaceae	Devil's-bit Scabious	3	4
Droseraceae	Sundews	2	13
Polygalaceae	Milkworts	2	12
Crassulaceae	Stonecrops, Roseroot	2	10
Salicaceae	Willows	2	8
Potamogetonaceae	Pondweeds	2	7
Primulaceae	Primroses etc.	2	7
Hypericaceae	St Johns Worts	2	4
Campanulaceae	Harebell, Water Lobelia	2	3
Gunneraceae	Gunnera	2	2
Iridaceae	Irises	1	14
Urticaceae	Nettles	1	11
Plumbaginaceae	Thrift	1	7
Araliaceae	Ivy	1	5
Nartheciaceae	Bog Asphodel	1	5
Menyanthaceae	Bogbean	1	4
Apiaceae	Umbellifers	1	3
Asparagaceae	Spring Squil	1	1
Boraginaceae	Bugloss, Forget-me-nots	1	1
Haloragaceae	Water Milfoil	1	1
Juncaginaceae	Arrowgrasses	1	1
Myricaceae	Bog Myrtle	1	1
Onagraceae	Willowherbs	1	1
Total		**134**	**491**

Class Magnoliopsida

Family Asteraceae

Species	Common name	Records
Bellis perennis	Daisy	11
Cirsium arvense	Creeping Thistle	9
Antennaria dioica	Mountain Everlasting	5
Scorzoneroides autumnalis	Autumn Hawkbit	5
Achillea millefolium	Yarrow	4
Cirsium vulgare	Spear Thistle	4
Taraxacum officinale agg.	Dandelion	4
Jacobaea vulgaris	Common Ragwort	3
Sonchus asper	Prickly Sow-thistle	3
Centaurea nigra sens. lat.	Common Knapweed	2
Hypochaeris radicata	Cat's-ear	2
Tussilago farfara	Coltsfoot	2
Arctium minus	Lesser Burdock	1
Crepis capillaris	Smooth Hawk's-beard	1
Pilosella aurantiaca	Fox-and-cubs	1
Senecio vulgaris	Groundsel	1
Taraxacum	Dandelion	1
Total		**59**

Family Plantaginaceae

Species	Common name	Records
Callitriche	Water-Starwort	1
Callitriche stagnalis	Callitriche stagnalis	1
Digitalis purpurea	Foxglove	1
Hippuris vulgaris	Mare's-tail	5
Littorella uniflora	Shoreweed	1
Plantago coronopus	Buck's-horn Plantain	6
Plantago lanceolata	Ribwort Plantain	11
Plantago major	Greater Plantain	3
Plantago maritima	Sea Plantain	6
Total		**35**

Family Ranunculaceae

Species	Common name	Rec's
Caltha palustris	Marsh-marigold	4
Ficaria verna	Lesser Celandine	7
Ranunculus acris	Meadow Buttercup	4
Ranunculus baudotii	Brackish Water-crowfoot	1
Ranunculus flammula	Lesser Spearwort	4
Ranunculus repens	Creeping Buttercup	6
Ranunculus trichophyllus	Thread-leaved Water-crowfoot	1
Total		**27**

Family Fabaceae

Species	Common Name	Records
Lotus corniculatus	Common Bird's-foot-trefoil	11
Trifolium repens	White Clover	10
Trifolium pratense	Red Clover	2
Anthyllis vulneraria	Kidney Vetch	1
Lathyrus pratensis	Meadow Vetchling	1
Vicia cracca	Tufted Vetch	1
Total		**26**

Machair - the clovers, vetches and trefoils in the family Fabaceae are vital sources of nectar for machair insects such as the Great Yellow Bumblebee.

Lotus corniculatus - Common Bird's-foot-trefoil

Vicia cracca - Tufted Vetch

Anthyllis vulneraria – Kidney Vetch

Trifolium pratense – Red Clover

Plants in the family Fabaceae can fix atmospheric nitrogen through the action of nitrogen fixing bacteria in their root nodules. This means they are well adapted to living in soils lacking in organic matter and hence short of available nitrates. Other common machair plants have a different strategy.

Family Orobanchaceae

The family Orobanchidaceae are hemiparasites; they are able to tap into the roots of grasses, take some of their nutrients, and help reduce the dominance of grasses allowing other plants to flourish.

Species	Common Name	Records
Pedicularis sylvatica	Lousewort	7
Euphrasia officinalis agg.	Euphrasia officinalis agg.	6
Pedicularis palustris	Marsh Lousewort	5
Euphrasia	Eyebright	2
Euphrasia nemorosa	Common Eyebright	1
Rhinanthus minor	Yellow-rattle	1
	Total	**22**

Families Droseraceae & Lentibulariaceae

Family / *Species*	Common name	Records
Droseraceae		
Drosera anglica	Great Sundew	3
Drosera rotundifolia	Round-leaved Sundew	10
Lentibulariaceae		
Pinguicula lusitanica	Pale Butterwort	3
Pinguicula vulgaris	Common Butterwort	11
Utricularia intermedia	Intermediate Bladderwort	1
Utricularia minor	Lesser Bladderwort	1
Total		**29**

Species in these families are carnivorous and many are familiar species. Identification of Bladderworts is not easy and usually relies on the presence of flowers which are only sporadically produced. *Utricularia intermedia* is especially difficult as it is now thought to be a complex of three closely related species.

Utricularia sp. – Bladderwort, the plant is able to remove water from the bladders creating a vacuum trap, a water flea touches one of the trgger hairs, the mouth of the bladder opens and the vacuum sucks in the flea to be digested.

Rhinanthus minor - Yellow-rattle, a very common machair species, by reducing the vigour of grasses it helps maintain the wonderful floristic diversity of machair grasslands.

Pedicularis palustris - Marsh Lousewort, found in wetter soils than many of the others members of the Orobanchaceae.

Drosera intermedia - Oblong-leaved Sundew, often overlooked

Pinguicula lusitanica – Pale Butterwort

Drosera anglica – Great Sundew

Pinguicula vulgaris – Common Butterwort

Drosera rotundifolia – Round-leaved Sundew

Family Ericaceae

Species	Common name	Records
Calluna vulgaris	Heather	8
Empetrum nigrum	Crowberry agg.	4
Erica cinerea	Bell Heather	5
Erica tetralix	Cross-leaved Heath	3
Total		**20**

View to Hecla, Beinn Corradale and Beinn Mhòr with *Calluna vulgaris* and *Ericera cinerea* in foreground.

Family Orchidaceae

Species	Common name	Records
Dactylorhiza incarnata	Early Marsh-orchid	4
Dactylorhiza maculata	Heath Spotted-orchid	7
Hammarbya paludosa	Bog Orchid	1
Neottia ovata	Common Twayblade	3
Grand Total		**15**

A poor year for orchid records, just fifteen records of four of the nineteen species known from the Outer Hebrides. Particularly noticeable is the lack of records of Northern March Orchid (*Dactylorhiza purpurella*), Common Spotted Orchid (*Dactylorhiza fuchsia*) and Frog Orchid (*Coeloglossum viride*).

Families Cyperaceae, Juncaeae & Poaceae

Family / *Species*	Common name	Records
Cyperaceae		
Carex arenaria	Sand Sedge	1
Carex echinata	Star Sedge	1
Carex panicea	Carnation Sedge	1
Eleocharis palustris	Common Spike-rush	1
Eriophorum angustifolium	Common Cottongrass	10
Eriophorum vaginatum	Hare's-tail Cottongrass	1
Juncaceae		
Juncus articulatus	Jointed Rush	1
Juncus bulbosus	Bulbous Rush	4
Juncus effusus	Soft-rush	5
Poaceae		
Ammophila arenaria	Marram	4
Cynosurus cristatus	Crested Dog's-tail	1
Festuca vivipara	Viviparous Sheep's-fescue	2
Molinia caerulea	Purple Moor-grass	1
Phragmites australis	Common Reed	2
Total		**35**

Dactylorhiza incarnata – Early Marsh-orchid, in dune slack on Berneray

Dactylorhiza maculate – Heath Spotted-orchid, with Ceapabhal in background

Eriophorum vaginatum – Hare's-tail Cottongrass, occurs on wet moors and blanket bog. Masses of it, as in the photograph here, is often a sign of overgrazing by sheep or deer

Eriophorum angustifolium - Common Cottongrass, prefers less acidic conditions than *Eriophorum vaginatum*

Other families

Family / *Species*	Common name	Records
Apiaceae		
Angelica sylvestris	Wild Angelica	3
Araliaceae		
Hydrocotyle vulgaris	Marsh Pennywort	5
Asparagaceae		
Scilla verna	Spring Squill	1
Boraginaceae		
Mertensia maritima	Oysterplant	1
Brassicaceae		
Cakile maritima	Sea Rocket	1
Cardamine pratensis	Cuckooflower	13
Rorippa nasturtium-aquaticum	Water-cress	5
Campanulaceae		
Campanula rotundifolia	Harebell	1
Lobelia dortmanna	Water Lobelia	2
Caprifoliaceae		
Lonicera periclymenum	Honeysuckle	1
Succisa pratensis	Devil's-bit Scabious	2
Valerianella locusta	Common Cornsalad	1
Caryophyllaceae		
Cerastium fontanum	Common Mouse-ear	6
Silene uniflora	Sea Campion	2
Stellaria graminea	Lesser Stitchwort	1
Crassulaceae		
Sedum anglicum	English Stonecrop	9
Sedum rosea	Roseroot	1
Geraniaceae		
Erodium cicutarium	Common Stork's-bill	1
Geranium molle	Dove's-foot Crane's-bill	6
Geranium robertianum	Herb-Robert	1
Gunneraceae		
Gunnera	Gunnera	1
Gunnera manicata	Brazilian Giant-rhubarb	1
Haloragaceae		
Myriophyllum alterniflorum	Alternate Water-milfoil	1
Hypericaceae		
Hypericum elodes	Marsh St John's-wort	1
Hypericum pulchrum	Slender St John's-wort	3
Iridaceae		
Iris pseudacorus	Yellow Iris	14
Juncaginaceae		
Triglochin maritimum	Sea Arrowgrass	1
Lamiaceae		
Prunella vulgaris	Selfheal	5
Scutellaria minor	Lesser Skullcap	1
Thymus polytrichus	Wild Thyme	6
Menyanthaceae		
Menyanthes trifoliata	Bogbean	4
Myricaceae		
Myrica gale	Bog-myrtle	1
Nartheciaceae		
Narthecium ossifragum	Bog Asphodel	5
Onagraceae		
Epilobium palustre	Marsh Willowherb	1
Plumbaginaceae		
Armeria maritima	Thrift	7
Polygalaceae		
Polygala serpyllifolia	Heath Milkwort	5
Polygala vulgaris	Common Milkwort	7
Polygonaceae		
Persicaria maculosa	Redshank	1
Rumex acetosa	Common Sorrel	6
Rumex acetosella	Sheep's Sorrel	4
Rumex crispus	Curled Dock	7
Rumex obtusifolius	Broad-leaved Dock	5
Potamogetonaceae		
Potamogeton natans	Broad-leaved Pondweed	3
Potamogeton polygonifolius	Bog Pondweed	4
Primulaceae		
Anagallis tenella	Bog Pimpernel	3
Primula vulgaris	Primrose	4
Rosaceae		
Alchemilla alpina	Alpine Lady's-mantle	1
Potentilla anserina	Silverweed	7
Potentilla erecta	Tormentil	10
Potentilla palustris	Marsh Cinquefoil	4
Rubus fruticosus agg.	Bramble	2
Rubiaceae		
Galium aparine	Cleavers	1
Galium saxatile	Heath Bedstraw	5
Galium verum	Lady's Bedstraw	2
Salicaceae		
Salix aurita	Eared Willow	1
Salix repens	Creeping Willow	7
Urticaceae		
Urtica dioica	Common Nettle	11
Violaceae		
Viola canina	Heath Dog-violet	1
Viola riviniana	Common Dog-violet	6
Viola tricolor	Wild Pansy	1

PHYLUM Tracheophyta – Lycopodiopsida, Pinopsida

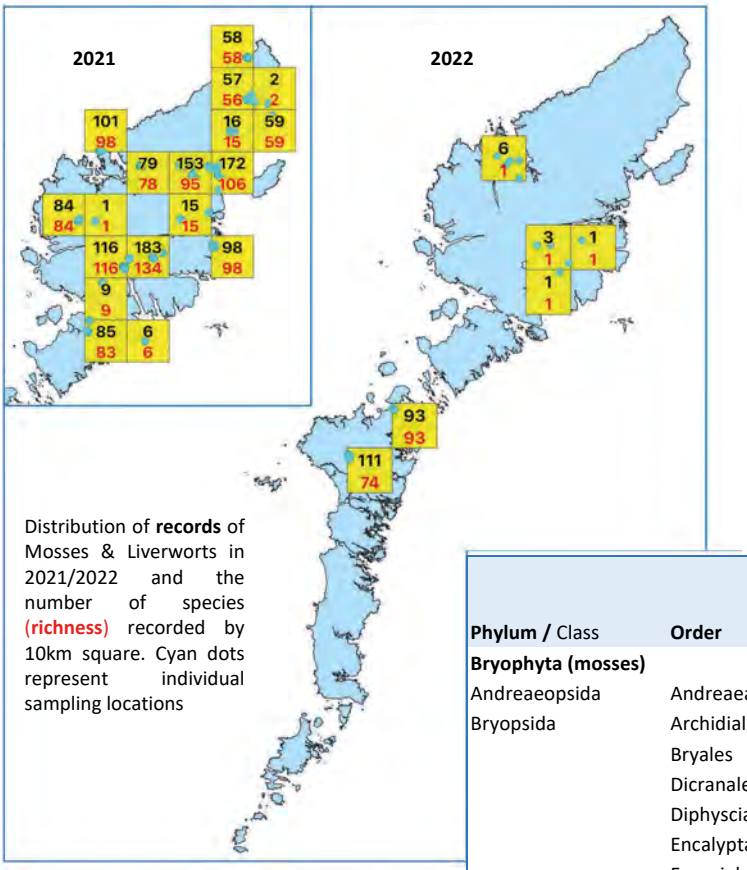
Just one species of clubmoss and one conifer were recorded in 2022.

Class	Family / *species*	Common name	Records
Lycopodiopsida	**Lycopodiaceae**		6
	Huperzia selago	Fir Clubmoss	
Pinopsida	**Cupressaceae**		
	Juniperus communis	Juniper	1
Total			**7**

Juniperus communis - Juniper

Mosses, liverworts and hornworts

PHYLA Anthocerophyta (Hornworts), **Marchantiophyta** (Liverworts) and **Bryophyta** (Mosses)



Distribution of **records** of Mosses & Liverworts in 2021/2022 and the number of species (**richness**) recorded by 10km square. Cyan dots represent individual sampling locations

At the time of writing of the 2021 report a complete submission of species data hadn't been received from our resident bryologist. This report therefore summarises those records subsequently sent to OHBR. In 2021 the final figures were 1,294 records of 283 species of moss or liverwort. No records of Hornworts, Anthocerophyta, were recorded. A breakdown, by Order, is given below.

All of the 2021 records came from Lewis and Harris, a pattern seen in previous years. In 2022 sampling at a number of locations on North Uist

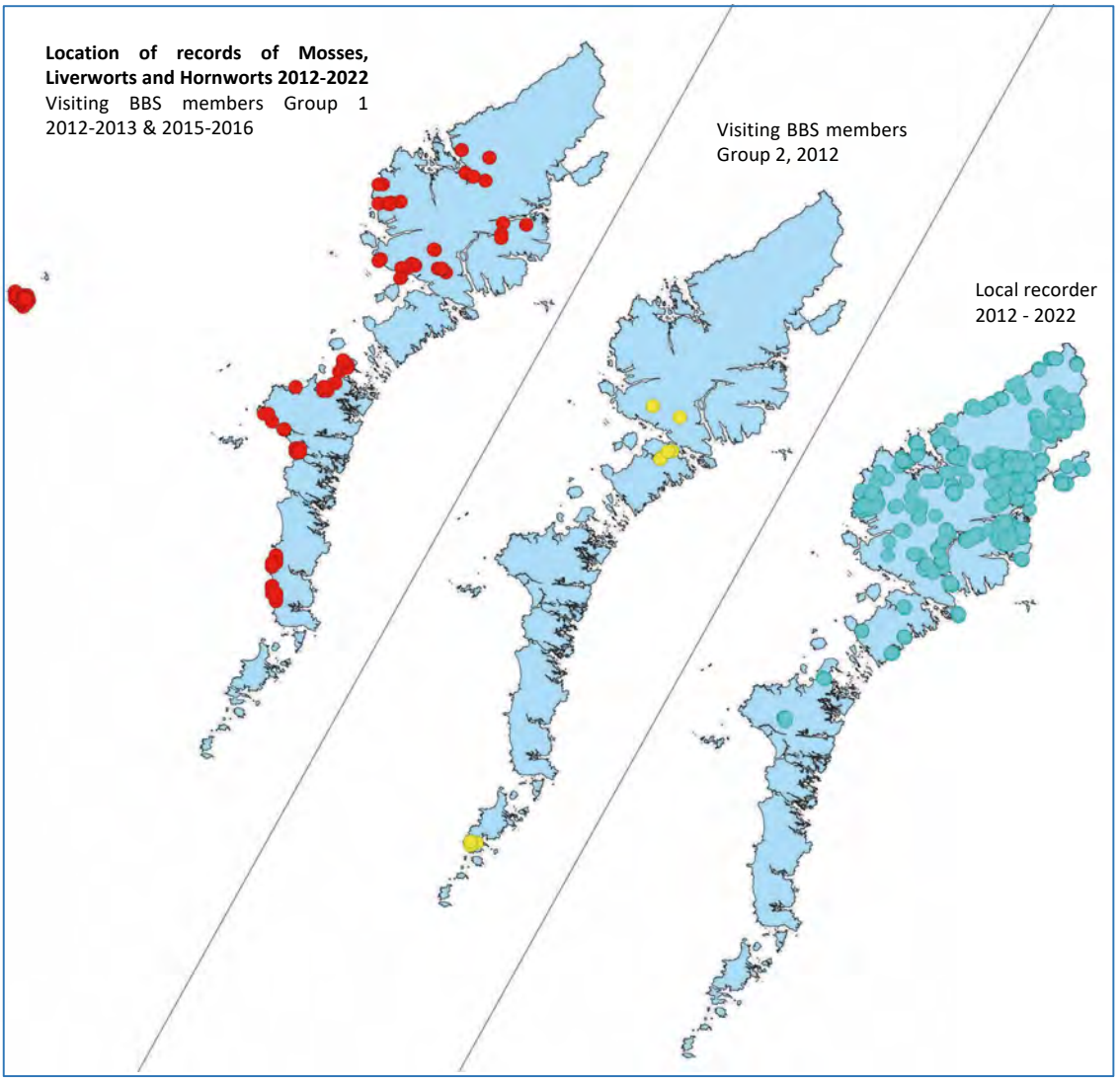
		2021 update (as of 9/1/23)		2022 records (as of 9/1/23)	
Phylum / Class	**Order**	**Records**	**Species**	**Records**	**Species**
Bryophyta (mosses)					
Andreaeopsida	Andreaeales	15	3	2	1
Bryopsida	Archidiales	1	1		
	Bryales	95	24	11	7
	Dicranales	139	28	34	13
	Diphysciales	1	1		
	Encalyptales	1	1		
	Funariales	12	3		
	Grimmiales	85	18	16	11
	Hedwigiales	6	1	1	1
	Hookeriales	4	1	1	1
	Hypnales	286	54	51	29
	Orthotrichales	17	7	5	5
	Pottiales	49	17	5	5
	Splachnales	3	1		
Polytrichopsida	Polytrichales	70	11	8	4
Sphagnopsida	Sphagnales	138	20	29	14
Tetraphidopsida	Tetraphidales	1	1		
Total		**923**	**192**	**163**	**91**
Marchantiophyta (liverworts)					
Jungermanniopsida	Jungermanniales	255	62	38	23
(leafy liverworts)	Metzgeriales	38	7	2	1
	Pelliales	13	3	3	1
	Pleuroziales	10	1	2	1
	Porellales	47	13	7	4
	Ptilidiales	1	1		
Marchantiopsida	Blasiales	3	1		
(thalloid liverworts)	Marchantiales	4	3		
Total		**371**	**91**	**52**	**30**

Recording mosses, liverworts and hornworts is very much a specialist activity. Since 2012 62.9% of all records came from a bryologist resident in the Outer Hebrides with almost all of those records coming from Lewis and Harris. They also did some intensive recording in two hectads on North Uist in 2022.

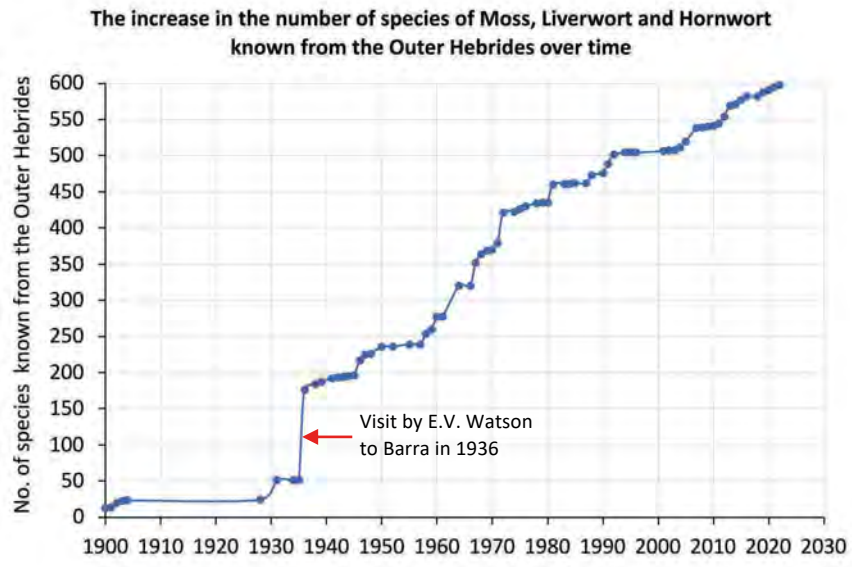
A further 35.9% of records came from some experienced British Bryological Society members who made recording trips here between 2102 and 2016. The locations visited by them complement those that our resident bryologist has recorded at very nicely and together they cover much of the Outer Hebrides. The areas which haven't been surveyed recently are mostly the parts of South Harris, North Uist, Benbecula and South Uist away from the west coastal fringe. The missing 1.2% of records come from a few local recorders or visitors making odd sightings at scattered locations.

In total there are over 21,000 records of 598 taxa of Mosss, Liverworts and Hornworts, mostly at species level but some as subspecies or genus and higher levels. This total has been reached after a steady accumulation of new species for well over 120 years. The exact dating of the earliest records can be difficult to ascertain as they are often given as ranges such as pre 1936 or 1850-1936.

Mosses, liverworts and hornworts



A visit by E. V. Watson to Barra in 1936 triggered the first big increase in number of recorded species; he added 125 new species to the VC110 list. He later went on to write *British Mosses and Liverworts*. First published in 1955, it looked at 200 or so commoner species plus a number of rarer ones and inspired many to start looking at the group and was no doubt used by many of the naturalists who continued to add species to the Vice County list. It was superseded by A.J.E. Smith's T*he Moss Flora of Britain & Ireland* in 1978.



The records received by OHBR for 2022 so far come almost entirely from North Uist. Twenty-seven species were recorded fifty or more times.

Species (>50 records in 2022)	Records
Sphagnum capillifolium subsp. *rubellum*	67
Hylocomium splendens	66
Hypnum jutlandicum	65
Dicranum scoparium	63
Rhytidiadelphus squarrosus	63
Sphagnum denticulatum	63
Scapania gracilis	62
Diplophyllum albicans	62
Rhytidiadelphus loreus	60
Thuidium tamariscinum	60
Racomitrium lanuginosum	59
Racomitrium fasciculare	59
Sphagnum palustre	58
Sphagnum subnitens var. subnitens	58
Sphagnum papillosum	57
Plagiothecium undulatum	55
Frullania tamarisci	55
Pleurozium schreberi	55
Nardia scalaris	53
Odontoschisma sphagni	52
Cephalozia bicuspidata	52
Calliergonella cuspidata	52
Sphagnum cuspidatum	51
Lophozia ventricosa	51
Scapania undulata	50
Calypogeia muelleriana	50
Racomitrium aciculare	50

The long flat green shoots are of *Plagiothecium undulatum*, a moss typical of acid moors and heaths but also found in sessile oak woodlands across western Britain. The bright red moss is a *Sphagnum* sp. (possibly *Sphagnum capillifolium* subsp. *rubellum)* and the fungus is a species of *Arrhenia*.

These species are all typical of acidic environments and are commonly encountered in areas of open moorland, heathy grasslands and similar habitats. The presence of a number of *Sphagnum* species indicates that some areas are waterlogged and likely to be peat covered.

A similar assemblage of acid loving mosses and liverworts might be expected to be found in areas of moorland such as this around Loch Druidibeg. NBN currently has just 6 moss records for the area.

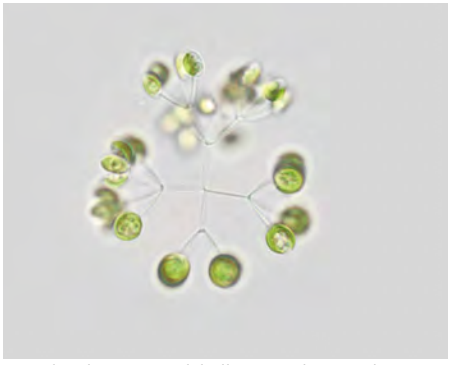
Species associated with more calcareous conditions on Baleshare, Kirkibost and Berneray by British Bryological Society members in 2015	
Amblystegium serpens var. salinum	*Hypnum cupressiforme var. lacunosum*
Aneura pinguis	*Kindbergia praelonga*
Barbula convoluta	*Leiocolea bantriensis*
Barbula unguiculata	*Leiocolea gillmanii*
Brachythecium glareosum	*Lophocolea bidentata*
Brachythecium rutabulum	*Moerckia flotoviana*
Bryoerythrophyllum recurvirostrum	*Pellia endiviifolia*
Bryum pseudotriquetrum	*Petalophyllum ralfsii*
Calliergonella cuspidata	*Plagiochila porelloides*
Ceratodon purpureus	*Plagiomnium cuspidatum*
Climacium dendroides	*Pohlia wahlenbergii var. wahlenbergii*
Cratoneuron filicinum	*Preissia quadrata*
Ctenidium molluscum	*Pseudocrossidium hornschuchianum*
Dicranum scoparium	*Pseudocrossidium revolutum*
Didymodon fallax	*Rhytidiadelphus squarrosus*
Didymodon ferrugineus	*Rhytidiadelphus triquetrus*
Didymodon insulanus	*Riccardia chamedryfolia*
Distichium inclinatum	*Riccia cavernosa*
Ditrichum gracile	*Scapania aspera*
Encalypta rhaptocarpa	*Scapania cuspiduligera*
Encalypta streptocarpa	*Scorpidium cossonii*
Entodon concinnus	*Syntrichia ruralis var. ruraliformis*
Fissidens dubius	*Thuidium assimile*
Frullania tamarisci	*Thuidium delicatulum*
Homalothecium lutescens	*Tortella tortuosa*
Hylocomium splendens	*Trichostomum brachydontium*

Ecologists use changes in moss and liverwort assemblages as indicators of environmental change. They are already seeing the effects on increased nitrogen deposition as mosses and liverworts more typical of sites with nutrient enrichment move in. The increased likelihood of environmental change caused by the climate crisis means its more important than ever to make sure that we know what is here now.

Algae

Phylum	Class	Order	Type of organism	Records	Taxa
Charophyta	Zygnematophyceae	Desmidiales	Desmids	1099	316
		Zygnematales	Desmids	60	13
Chlorophyta	Chlorophyceae		Green algae	2	2
	Trebouxiophyceae			2	2
	Ulvophyceae	Ulotrichales		1	1
Ochrophyta	Bacillariophyceae	Naviculales	Diatoms	1	1
		Tabellariales	Diatoms	2	2
	Phaeophyceae	Laminariales	Kelps	1	1
	Xanthophyceae	Mischococcales	Yellow-green algae	4	1
Rhodophyta	Florideophyceae	Batrachospermales	Red algae	1	1
		Corallinales	Calcified red algae	1	1
Protozoa	Euglenoidea	Euglenida	Unicellular flagellate	1	1
Total				**1175**	**342**

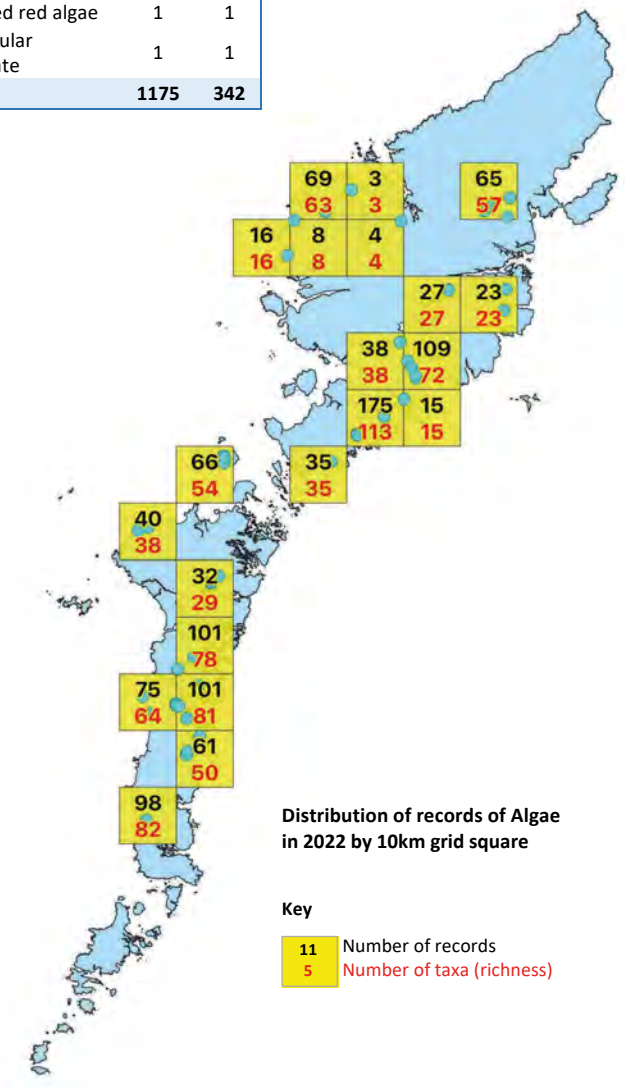
The continuing survey of freshwater algae produced 1,175 records of 342 different taxa, 99% of the records, and 96% of the taxa, were of desmids. 91% of the records came from just one person. That person was also responsible for 99% of the determinations to species.



Mucidosphaerium pulchellum - Trebouxiophyceae

The taxonomy of UK desmids lags a long way behind the Outer Hebrides survey. In 2022, 147 of the 342 taxa recorded here were not currently on the UK Species Inventory (UKSI) and whilst many of them had been recorded previously here, there were 14 taxa for which there were no previous UK records. Over the whole of the UK over 85% of all desmid records come from the Outer Hebrides.

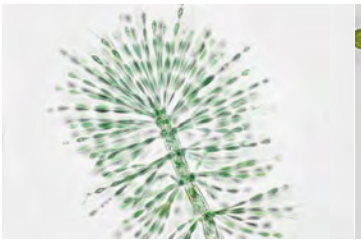
Species not previously recorded in UK
Cosmarium bisphaericum
Cosmarium bisphaericum var. *densegranulatum*
Cosmarium cedercreutzii
Cosmarium contractum var. *notatum*
Cosmarium costatum var. *gutwinskii*
Cosmarium granatum var. *alatum*
Cosmarium hexalobium f. *longum*
Cosmarium neonotabile
Cosmarium ordinatum var. *schulzii*
Cosmarium polygonum var. *depressum*
Cosmarium sinostegos var. *ausseeanum*
Cosmarium trilobatum f. *retusum*
Netrium lanceolatus
Staurastrum reductum
Xanthidium scrobiculatum



Distribution of records of Algae in 2022 by 10km grid square

Key

11 Number of records
5 Number of taxa (richness)

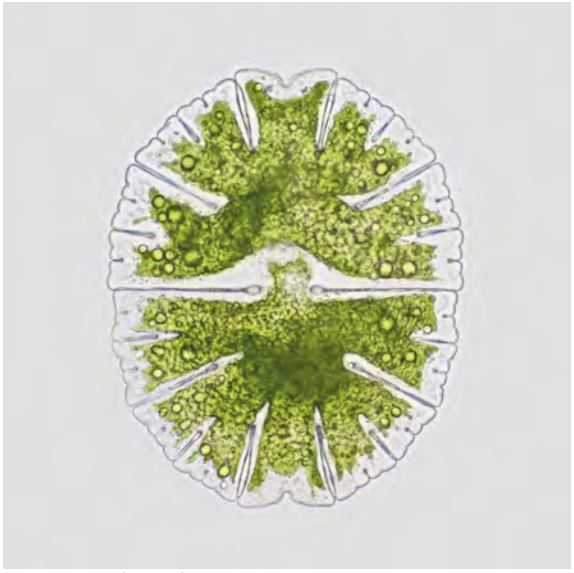


Batrachospermum turfosum - Rhodophyta, *Radiofilum flavescens* - Ulotrichales

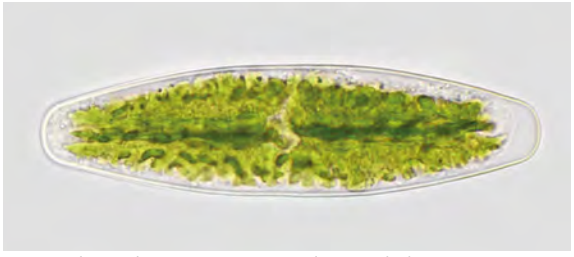
All photos on this page by Chris Johnson

Desmid Gallery – photos by Chris Johnson

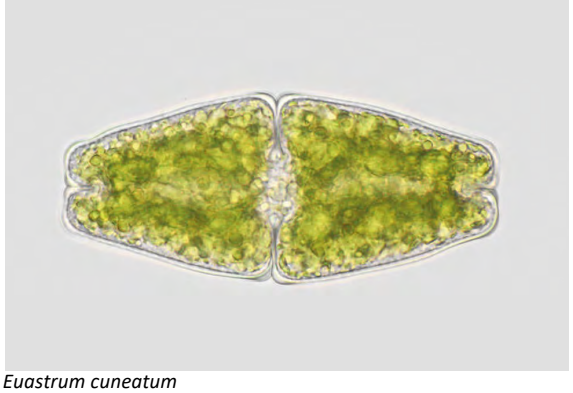
Closterium incurvum



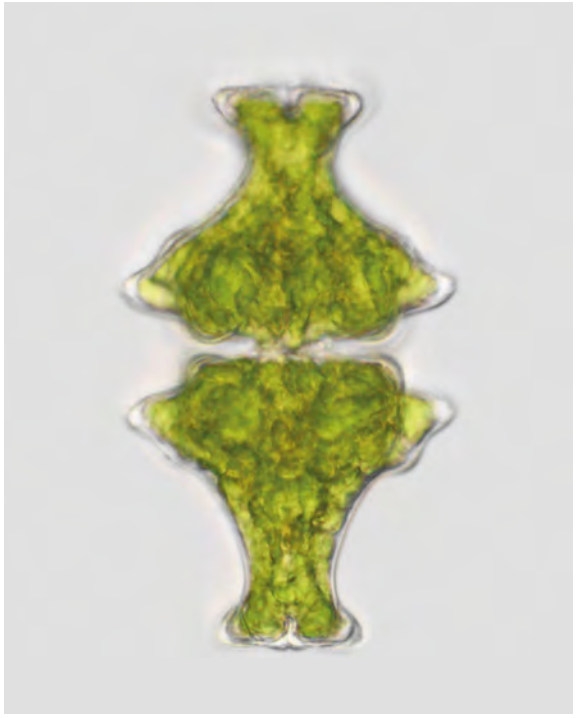
Micrasterias denticulata



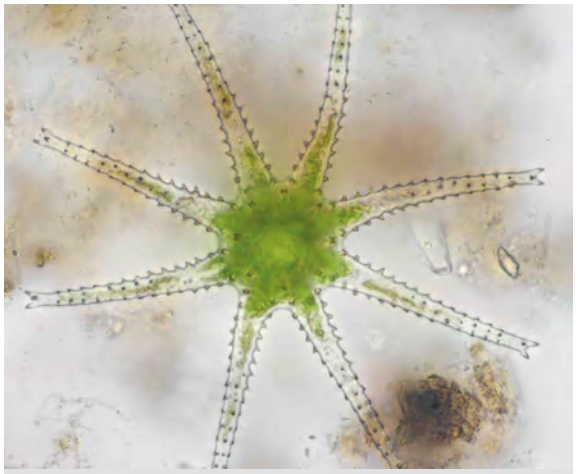
Netrium lanceolatum – not previously recorded in UK



Euastrum cuneatum



Euastrum insigne



Staurastrum verticillatum

OHBR visits to Pabbay and Mingulay

Island sampling – Pappay & Mingulay NBN records (to end of 2021)

		Pabbay		Mingulay	
	Phylum	**Species**	**Records**	**Species**	**Records**
Fungi	Ascomycota	18	41	11	19
	Basidiomycota	1	1	6	8
Algae	Chlorophyta			1	1
	Ochrophyta			11	19
	Rhodophyta			33	63
Mosses & liverworts	Bryophyta	147	389	50	178
	Marchantiophyta	59	143	22	38
Vascular plants	Tracheophyta	218	1144	175	1571
	Pteridophyta	11	28	4	23
Worms	Annelida			6	14
Arthropods	Arthropoda	6	6	203	434
Brozoans	Bryozoa			23	59
Jellyfish etc	Cnidaria			14	51
Starfish & urchins etc	Echinodermata			12	36
Snalis, sea slugs etc	Mollusca			41	69
Spronges	Porifera			14	38
Birds, mammals etc	Chordata	36	67	103	818
	Total	**496**	**1819**	**729**	**3439**

Year	Ascomycota	Basidiomycota	Bryophyta	Chordata	Arthropoda	Marchantiophyta	Pteridophyta	Tracheophyta	Total
1935							1	27	**28**
1938								13	**13**
1939								6	**6**
1940							1	22	**23**
1941							2	39	**41**
1942					6			1	**7**
1945								1	**1**
1950								3	**3**
1956								1	**1**
1964				2					**2**
1976	41		94			18			**153**
1977				1					**1**
1983			3					9	**12**
1986				1					**1**
1992			98			41			**139**
1994				1					**1**
1995				10					**10**
1996							14	763	**777**
2004			41			4	10	259	**314**
2005			41			27			**68**
2006				5					**5**
2009			112			53			**165**
2010				1					**1**
2011				31					**31**
2014		1							**1**
2017				13					**13**
2018				1					**1**
2019				1					**1**
Total	**41**	**1**	**389**	**67**		**143**	**28**	**1144**	**1819**

Pabbay - naturalists have always been drawn to islands, the earlist dated records for Pabbay go back to 1935. Twenty-seven fully dated trips that generated some records can be identified from the NBN dataset, but many records are just assigned to a year. The recording focus seems to have varied for each vistor or group of visitors. Early records were mostly of vascular plants (Tracheophyta) and some very intensive recording of the same group, and also ferns (Pteriophyta) took place on the 7th August 1996 and 27th July 2004. Records of mosses (Bryophyta) and liverworts (Marchantiophyta) came from visits in 1976, 1992, 2004, 2005 and 2009. Chordate records are mostly of birds with two mammals (Harbour Seal and a stranded Cuvier's Beaked Whale) and a Basking Shark sighting the only exceptions. What is really striking though is a more or less complete absence of any invertebrate records. A visit by a team of OHBR recorders on 6th June 2022 might have hoped to turn up a few new plant records but it was certain that any invertebrate species would be records of species not on the NBN database.

Zygaena filipendulae - Six-spot Burnet (L) and *Rhagio scolopaceus* - Downlooker Snipefly (R), the most frequently recorded invertebrates on the OHBR Pabbay trip.

OHBR visits to Pabbay and Mingulay

Pabbay new species (to NBN) recorded by OHBR 6th June 2022

Phylum	Class	Species	Common Name/ type	Rec's
Tracheophyta	Magnoliopsida	*Anthyllis vulneraria*	Kidney Vetch	1
		Eriophorum vaginatum	Hare's-tail Cottongrass	1
		Erodium cicutarium	Common Stork's-bill	1
		Neottia ovata	Common Twayblade	2
		Phragmites australis	Common Reed	1
		Ranunculus baudotii	Brackish Water-crowfoot	1
		Rumex acetosella	Sheep's Sorrel	1
		Thymus polytrichus	Wild Thyme	4
Ochrophyta (Brown Seaweeds)	Phaeophyceae	*Saccharina latissima*	Sugar Kelp	1
Rhodophyta (Red Seaweeds)	Florideophyceae	*Corallina officinalis*	Coral Weed	1
Charophyta	Charophyceae	*Chara virgata*	Delicate Stonewort	1
	Zygnematophyceae	67 records of 55 new species of Desmids for Pabbay		67
Ascomycota	Lecanoromycetes	*Ochrolechia parella*	Crab's Eye Lichen	1
		Rhizocarpon geographicum	Map Lichen	1
		Xanthoria parietina	Common Orange Lichen	1
Arthropoda	Insecta	*Agabus*	a diving beetle	1
		Agabus bipustulatus	a diving beetle	1
		Bombus lucorum agg.	White-tailed Bumblebee	2
		Bombus muscorum	Moss Carder Bee	5
		Cloeon simile	a mayfly	1
		Corixidae	Lesser Water-Boatman	1
		Eupeodes corollae	a hoverfly	1
		Gerris (Gerris) thoracicus	a pond skater	1
		Hydroporus	a diving beetle	1
		Ischnura elegans	Blue-tailed Damselfly	2
		Notonecta	Back-Swimmer	1
		Oecetis furva	a caddis fly	1
		Phragmatobia fuliginosa	Ruby Tiger	1
		Pieris napi	Green-veined White	2
		Rhagio scolopaceus	Downlooker Snipefly	6
		Scathophaga stercoraria	a dung fly	1
		Sigara (Subsigara) scotti	Lesser water-boatmen	1
		Sympetrum	Darter Dragonfly	1
		Zygaena filipendulae	Six-spot Burnet	9
	Malacostraca	*Carcinus maenas*	Green Shore Crab	1
Cnidaria	Anthozoa	*Actinia equina*	Beadlet anemone	1
Mollusca	Gastropoda	*Doris pseudoargus*	Sea Lemon	1
		Littorina littorea	Common Periwinkle	1
		Steromphala umbilicalis	Flat Top Shell	1
Chordata	Mammalia	*Lutra lutra*	Otter	1
Total				**130**

In the end the group added thirteen records of eight new flowering plants, not particularly rare species but when recording takes place on a limited number of dates even common species can easily be missed. There was, not surprisingly, a good range of new invertebrate records including some larvae identifiable only as far as genus. Having a freshwater algae specialist in the group led to sixty-seven records of fifty-five Desmid species, all new to the island. There were a few new marine invertebrates and the first recorded sighting of an otter. There is obviously still more work to be done especially on the invertebrate fauna of Pabbay.

Gerris thoracicus – a pond skater, Pabbay 6th June 2022

OHBR visits to Pabbay and Mingulay

Oecetis furva – a cased caddisfly larva

Ischnura elegans – Blue-tailed Damselfly, larva

Agabus bipustulatus – a dving beetle

Sigara scotti – a leasser waterboatman

All four species shown above were collected as bycatch during sampling for freshwater algae on Pabbay 6th June 2022.

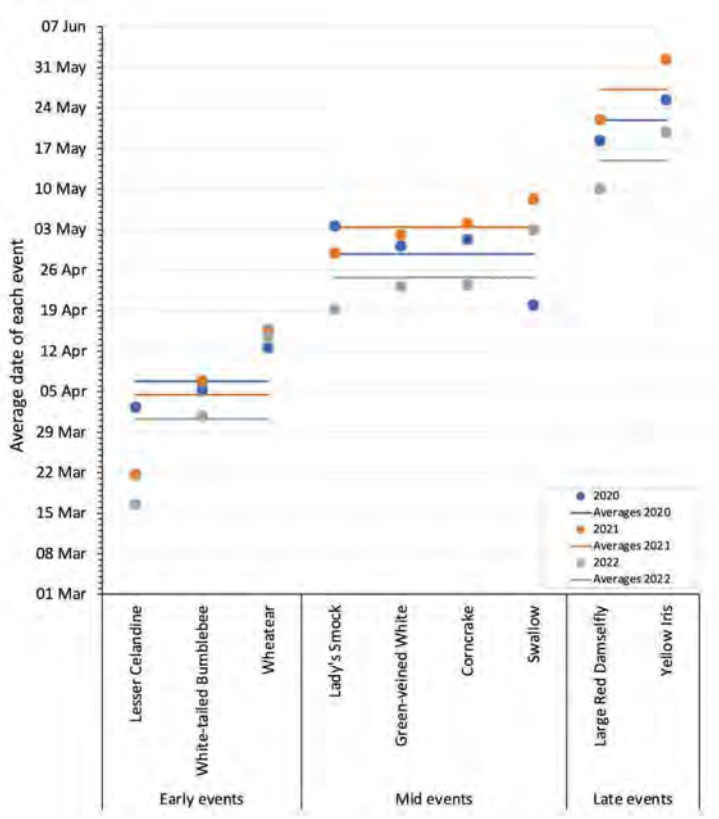
Mingulay has perhaps been even more of an attractive destination for naturalists than Pabbay. There is much to appreciate, a poignant history with a deserted village abandoned by the islanders in 1912, and a stunningly beautiful beach on the east side of the island contrasting with 215m vertical cliffs on the west.

Some sightings from a OHBR recorder who visited Mingulay on the 2nd May 2021 were sent in in late 2022. A new record of *Gunnera* is slightly disconcerting given its invasive nature and the first Otter (*Lutra lutra*) record for the island were the most notable species.

Mingulay – beach on west side of the island, the building in the mid-distance is the old school house, the abandoned village lies out of sight just below.

Phenology of spring events

Spring events 2020 – 2022 summary



Bombus lucorum agg. – White-tailed Bumblebee

Of the nine spring events that recorders are asked to note, three are indicators of the **early spring period**, the dates of:

- The first Lesser Celandine with a fully open flower,
- The sighting of the first White-tailed Bumblebee, almost always a queen searching for a new nest site or taking on nectar to fuel her search,
- The first Wheatear seen, being a summer visitor the appearance of these is determined to a large extent by weather conditions along their migration route.

Ficaria verna – Lesser Celandine

The average of these three dates gives an indication of the progression of the first part of spring.

- Lesser Celandine always flowers early. The first fully open Lesser Celandine in 2022 was on 16th March, 16 days earlier than in 2020.
- White-tailed Bumblebees were also active early, the first on 31st March was four and six days earlier than in 2020 and 2021 respectively.
- Wheatear appeared at more or less the same time between the 12th and 15th April in all three years.

The averages of all the dates were:

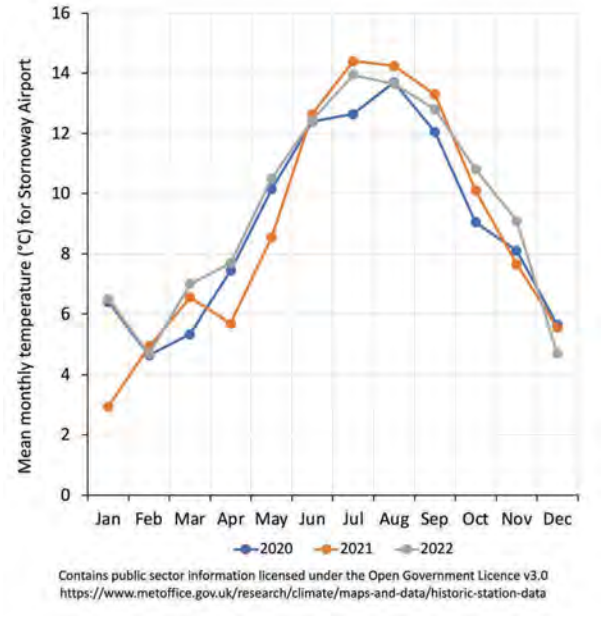
- 31st March in 2022, compared to
- 5th April in 2020 and
- 6th April in 2021.

So, the first part of spring semed to be slightly earlier in 2022, than in the other two years, by about a week.

Phenology of spring events

Pieris napi – Green-veined White

Pyrrhosoma nymphula – Large Red Damselfly



For the **mid spring events** we used the appearance of:

- Lady's Smock flowers,
- Green-veined White;
- hearing a Corncrake,
- and seeing the first Swallow.

Average dates of all four events were:

- 24th April in 2022,
- 28th April in 2020 and
- 3rd June in 2021.

As with the first part of spring, 2022 was markedly earlier than the other two years, coming in at about nine days earlier than in 2021.

We use two **late events** to mark the final part of spring:

- the first Large Red Damselfly on the wing,
- and the first Yellow Iris fully in flower.

The first Large Red Damselfly appeared, in 2022, eight days earlier than in 2020 and 12 days earlier than in 2021. It was a similar pattern for Yellow Iris, again about 12 days earlier in 2022 than in 2021.

The average dates for the last two events were:

- 14th May in 2022,
- 21st May in 2020 and
- 27th May in 2021.

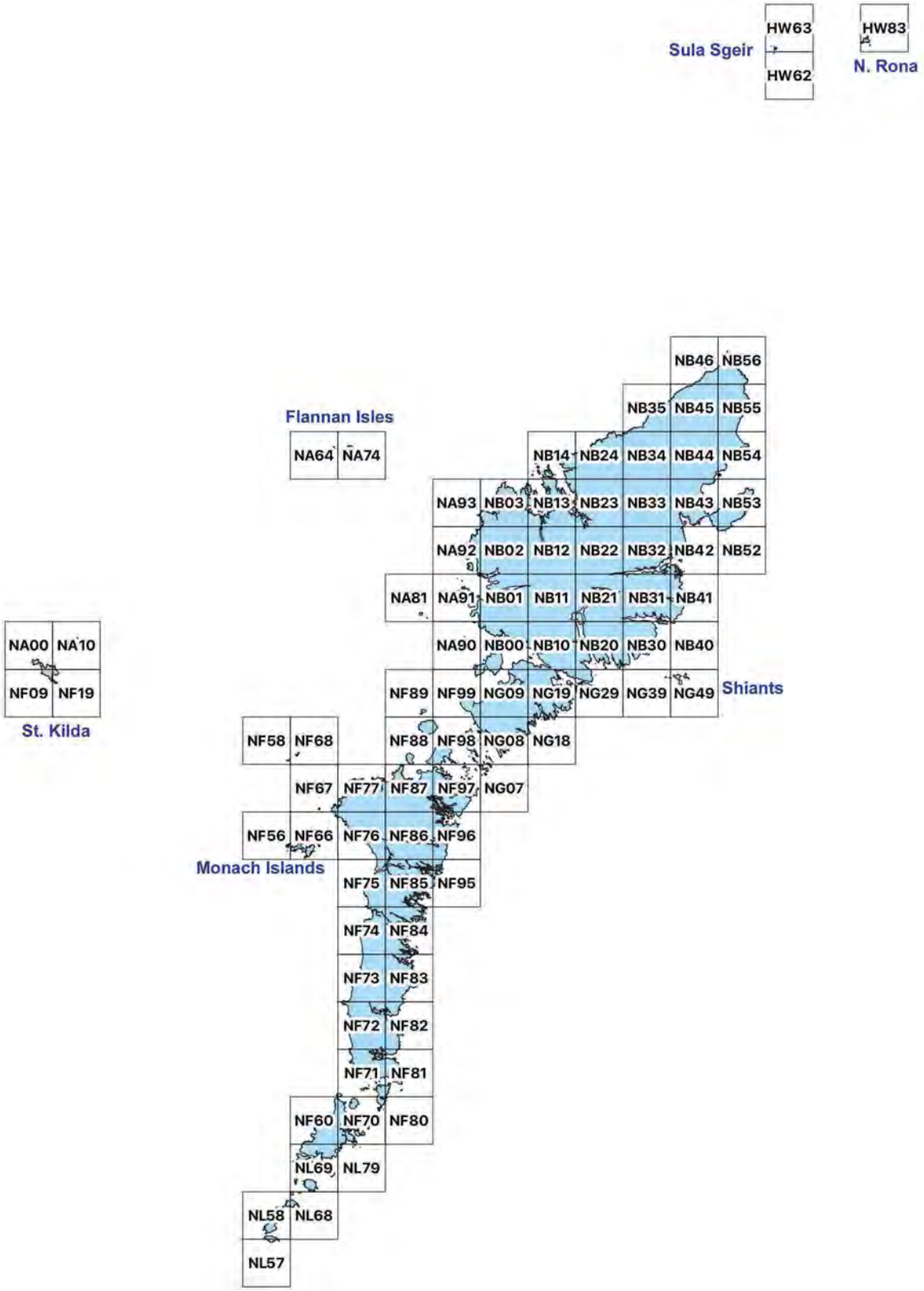
Mean monthly temperatures were calculated from the Met Office Historic Station datset for Stornoway Airport, the only available open-licence data for the Outer Hebrides. It is noticeable that the winter to spring (Jan – May) data is more chaotic than the data for the rest of the year.

The mean temperatures for March, April and May were higher in 2022 than in 2020 or 2021 though, apart from March, 2022 and 2020 were very similar.

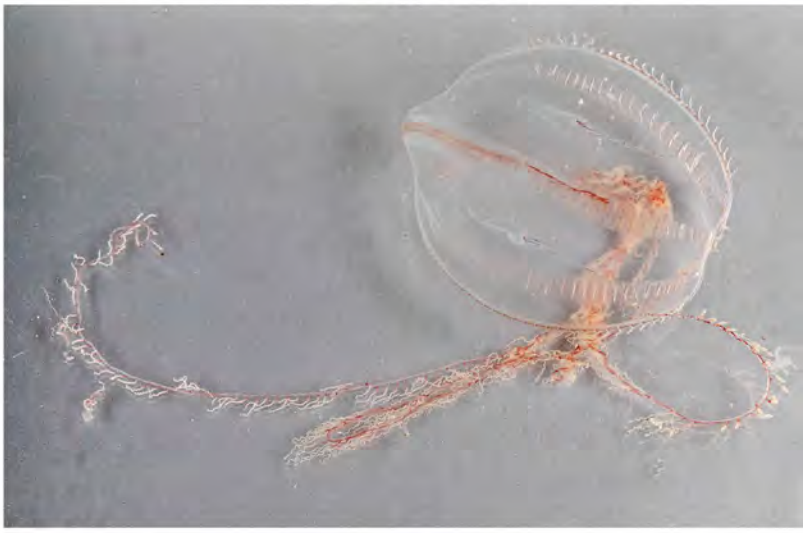
The mean temperature for March 2021 was similar to that of March 2022 and both were around about 1.5°C higher than in 2020. In April and May 2021 mean temperatures were about 2°C cooler than in 2022. So a two degree difference in mid to late spring temperatures was associated with a roughly two week delay in the phenological progression of spring in 2021 compared to 2022. The spring survey data appears to be showing an effective way of describing the progression of spring and hopefully more people will join the survey in future years.

VC110 10km grid squares

VC110 - hectad (10km square) coverage of the Outer Hebrides



Clachan Sands, North Uist - 31st August 2022,
Chrysaora hysoscella - Compass Jellyfish (below left) & *Pleurobrachia pileus* - Sea Gooseberry (below right)



Working Together

To help to sustain and enhance the biodiversity of the Outer Hebrides to enrich the lives of local communities and future generations

To increase our knowledge of the wildlife: flora, fauna and fungi, of our islands and make this information available to everyone

To encourage everyone to take an interest in the natural world and provide opportunities to participate in biological recording