Outer Hebrides Biological Recording

Discovering our Natural Heritage

Biological Recording in 2019

Outer Hebrides Biological Recording

Discovering our Natural Heritage
Biological Recording in 2019

Robin D Sutton

This publication should be cited as:
Sutton, Robin D. *Discovering our Natural Heritage - Biological Recording in 2019*. Outer Hebrides Biological Recording, 2020

Published by Outer Hebrides Biological Recording, South Uist, Outer Hebrides

ISSN: 2632-3060

OHBR are grateful for the continued support of NatureScot

Contents

Introduction

This is our third annual summary of the biological records submitted by residents and visitors, amateur naturalists, professional scientists and anyone whose curiosity has been stirred by observing the wonderful wildlife of the islands. Each year we record an amazing diversity of species from the microscopic animals and plants found in our lochs to the wild flowers of the machair and the large marine mammals that visit our coastal waters. Some groups are intensively studied; we regularly add over 3,000 records of moths and butterflies to our database each year, whilst others receive less attention and we may only receive a handful records. These seemingly neglected or over-looked groups tend to be those which are difficult to identify, are often small, inconspicuous or uncommon, and are perceived to be "unattractive" or have not benefitted from a media campaign to raise public awareness of their importance. A survey directed at recording ladybirds will attract more attention that one targeting fleas.

This report highlights the stunning array of wildlife which is to be found throughout our islands and the contribution made by the local community and visitors to add to our knowledge of their biodiversity. The compilation of this annual record summary draws attention to the gaps in our knowledge, enabling us to take-up the challenge of learning about some of the more unusual groups of animals, plants and fungi or visit parts of the islands where information on the distribution of even very common species may be missing.

The records submitted to OHBR come from a wide range of sources – some from specific surveys or targeted recording programmes, others are random observations or a serendipitous encounter with a rare species. The activities of a small number of recorders who specifically target certain groups or locations can have a profound effect on the diversity of the records we receive. These annual variations in recorder effort are important and need to be understood when we are analysing our data to look for changes in biodiversity or geographic distribution. However, whether our records come from specialists, generalists, dabblers or the naturally curious and involve common, widespread, under-recorded or rare species, every single one is important.

The continued growth in our knowledge of the plants, animals and fungi of the islands is the result of the hard work and enthusiasm of the resident naturalists, the generosity of the visitors in sharing their observations and the interest of the local community in their natural environment. We would like to acknowledge the work of the small group of volunteers who organise OHBR and to thank Robin Sutton for compiling this annual review of our records.

Visiting naturalists recording on Vatersay July 2018
All photographs are by Robin Sutton unless otherwise credited

Biological Recording in the Outer Hebrides

Outer Hebrides Biological Recording (OHBR) was established in 2011 by a group of local amateur naturalists, to collect and collate information about the animals, plants and fungi which are found in the islands and to make these data available to everyone. Our aim is to build a comprehensive understanding of the islands' biodiversity and help ensure that decisions that may affect the quality of our natural environment are made with the best available knowledge. We maintain a database of biological records which are available on the National Biodiversity Network Atlas Scotland[1] and supplemented by a hub of wildlife websites[2].

We encourage individuals and communities to recognise the importance of maintaining biodiversity to conserve their natural heritage and to become involved in biological recording. We offer support and guidance for local biological recorders, providing training opportunities for new and more experienced recorders to improve their skills. We are committed to working together with a range of academic and conservation bodies, professional biologists and other amateur naturalists, providing local knowledge and expertise to discover more about the natural life of our islands. OHBR may be small, but by working together with national institutions and voluntary organisations, the information we collect can make a difference. You can discover more about biological recording in the Outer Hebrides on our website[3] and share your wildlife observations on our social media group page[4].

Biological recording is not restricted to specialists, we are as interested in the observations of common, easily recognisable species as those which may be rare or difficult to identify. They are important in helping us to form a picture of the islands' biodiversity and mapping the distribution of species. After all, what is common on Harris may be rare on Barra. Detailed information about biological recording and how to submit records is available on our website[5].

Our friends at Outer Hebrides Birds[6] aim to enhance their recording in the islands, and 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[7].

Links

[1] National Biodiversity Network Atlas Scotland – https://scotland.nbnatlas.org

[2] OHBR hub of wildlife websites - http://www.hebridensis.org/hub.php

[3] OHBR Website - https://www.ohbr.org.uk

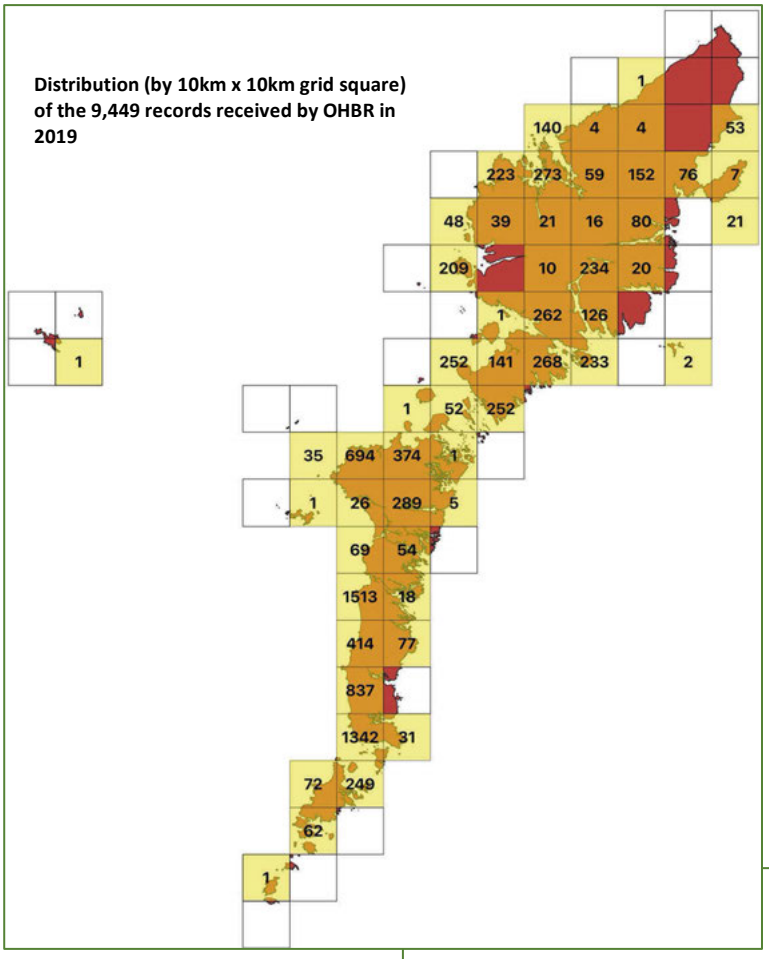
[4] OHBR Facebook page - https://www.facebook.com/groups/286293481746505

[5] OHBR How to submit records - https://www.ohbr.org.uk/recording-wildlife.php

[6] Outer Hebrides Birds website - https://www.outerhebridesbirds.org.uk

[7] Outer Hebrides Birds recording - https://www.outerhebridesbirds.org.uk/index.php?pages/recorder/

Summary



Distribution (by 10km x 10km grid square) of the 9,449 records received by OHBR in 2019

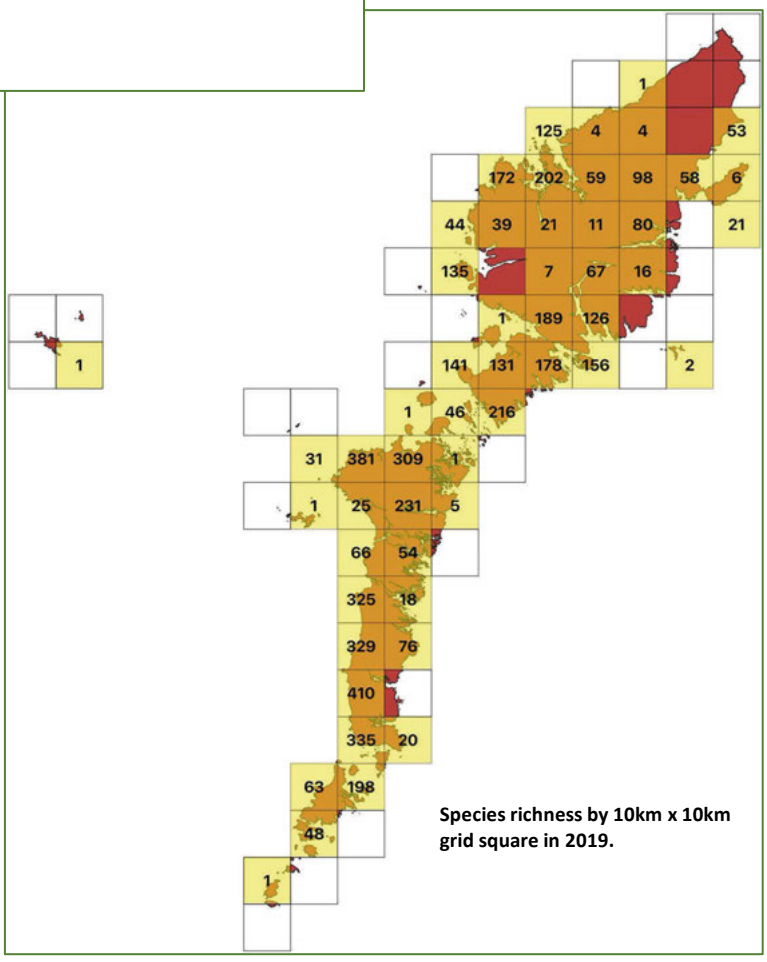
In 2019 Outer Hebrides Biological Recording (OHBR) received 9,449 records of 1,827 species of plants, fungi, and a whole variety of different types of animals. Records came from 54 of the 82 10km grid squares that cover the Outer Hebrides. For the purposes of this report we exclude those squares covering North Rona, Sula Sgeir and the Flannan Isles which are very remote and rarely visited by naturalists. We include the St Kilda archipelago as these are regularly visited nowadays and have short term resident and/or seasonal inhabitants that occassionally submit records to OHBR.

Most of the un-recorded squares are very remote, difficult to access or contain just a few very small offshore islands or tiny fragments of the main islands.

The north west coastal section of Lewis between Carloway and Ness stands out as being poorly recorded even though relatively well populated and easy to access.

The various islands that make up the Outer Hebrides don't separate easily by 10km squares but c.34% of the records come from Harris and Lewis. Roughly 62% of records are from the Uists and Benbecula and 4% are from Barra and the islands further south. Over 1,000 records were received from two 10km squares, both on South Uist. These were also two of the six squares (four on South Uist and two on North Uist) where over 300 species were recorded.

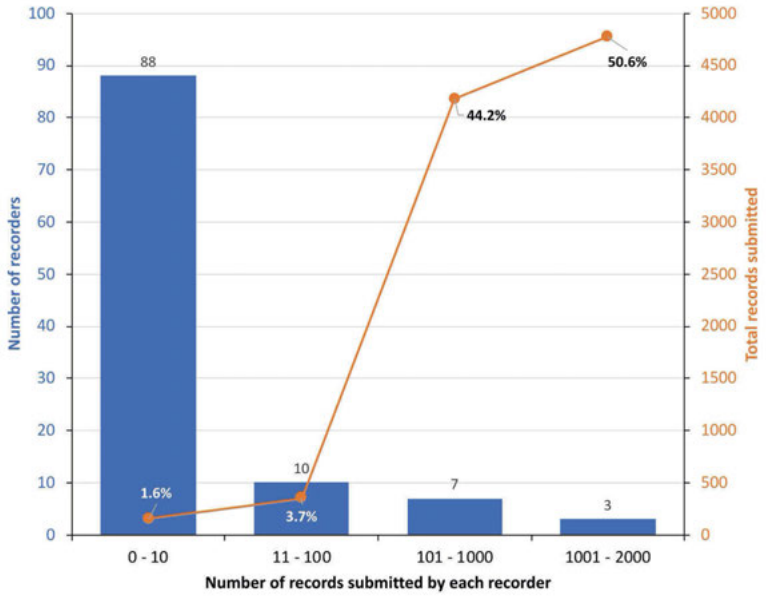
Records come from a mix of resident and visiting naturalists with varying interests and expertise.



Species richness by 10km x 10km grid square in 2019.

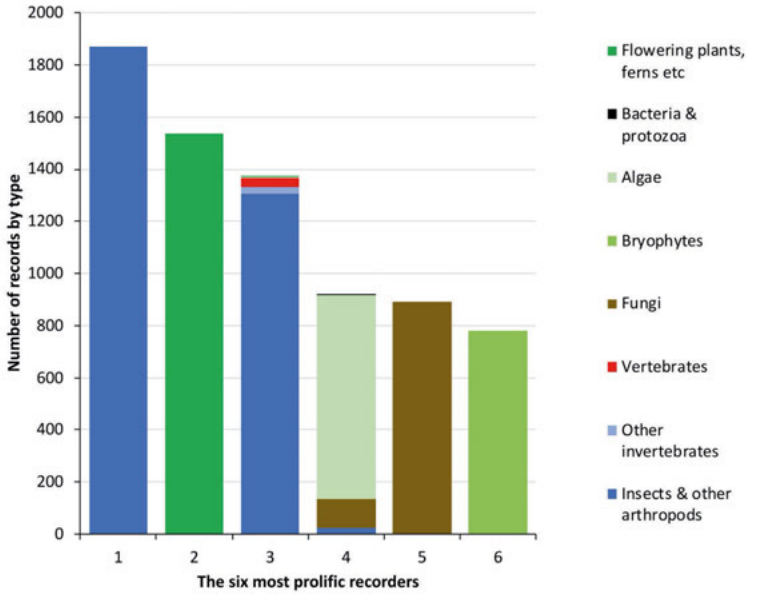
Summary

One hundred and eight recorders were involved in sending in records to OHBR in 2019. Eighty-eight of these sent in less than ten records each and contributed 1.6% of the total records. In contrast, three recorders sent in over 1000 records each and between them accounted for just over 50% of the total records.

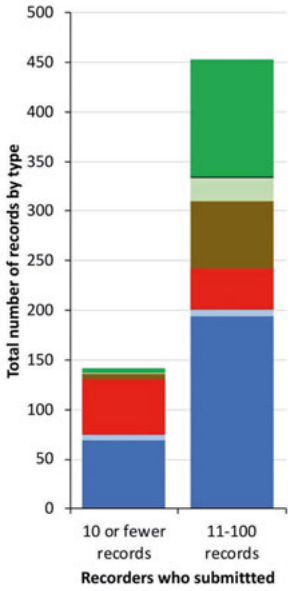


The most prolific recorders tend to be specialists. Taking the six who sent in the largest numbers of records in 2019 we can see there were two entomologists (recorders 1 and 3), one who specialised in the higher plants (no.2), an algal specialist (no.4), a fungus expert (no.5) and a bryologist (no. 6).

They were also often working in a restricted number of locations. All the bryophyte records came from Harris and Lewis as did most of the higher plant records, most of the fungi records came from the Uists and Benbecula and the two entomologists worked mainly on South Uist. These specialists give great depth to the records of certain, often poorly recorded, groups but didn't cover some of the other taxonomic groups well.



Those people who submitted fewer records (<100) had a very different taxonomic profile. They recorded relatively fewer of the difficult groups such as algae and bryophytes but were important recorders of vertebrates, the more charismatic insect groups (such as bumblebees, butterflies and dragonflies), and some marine invertebrates. Collectively their records provide some taxonomic breadth.



It's unlikely that many of the "generalists" will become "specialists" but it would be nice to think that some of them would want to submit more records and there are opportunities to encourage this. There is important work to be done in terms of species mapping for groups such as dragonflies and butterflies. Some systematic recording at important or iconic sites would be beneficial. Establishing regular beach surveys would counter the current decline in the number of records of marine invertebrates submitted. Collecting records to show the current distribution of Invasive Non-native Species provides another opportunity.

Summary

			[1]VC110	2019
Vertebrates	**Class**	**Common Names**	**No. of Species**	**No. of Species (records)**
	Aves*	Birds*	409	*
	Actinopterygii	Bony Fish	64	5 (5)
	Mammalia	Mammals	36	20 (141)
	Ascidiacea & Thaliacea	Sea Squirts, Salps etc	34	3 (6)
	Elasmobranchii	Sharks, Rays & Skates	6	2 (5)
	Reptilia	Reptiles	5	3 (4)
	Amphibia	Frogs, Toads & Newts	3	1 (16)
	Cephalaspidomorphi	Jawless Fish (Lampreys)	1	-
		Total	**578**	**34 (177)**

* Records of bird sightings – not collated by OHBR but through the Outer Hebrides Birds website and the BTO local recorder.

Invertebrates	**Class**	**Common Names**	**No. of Species**	**No. of Species (records)**
	Arthropoda	Insects (except Lepidoptera)	1593	163 (703)
		Lepidoptera	533	343 (3461)
		Other Arthropods e.g. Crustaceans, Spiders, Millipedes etc.	221	15 (19)
	Mollusca	Snails, Slugs, Bivalves, Octopuses etc.	412	20 (27)
	Annelida	True Worms	160	-
	Cnidaria	Corals, Jellyfish, Hydra etc.	89	7 (15)
	Porifera	Sponges	50	2 (2)
	Bryozoa	Sea Mats (Moss Animalcules)	47	-
	Echinodermata	Sea Urchins, Starfish, Brittlestars, Sea Potatoes etc.	41	3 (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	2 (2)
		Total	**3172**	**555 (4232)**

Plants	**Division**	**Common Names**	**No. of Species**	**No. of Species (records)**
	Magnoliopsida	Flowering Plants	950	298 (1949)
	Bryophyta*	Mosses	348	145 (579)
	Marchantiophyta*	Liverworts	169	74 (209)
	Rhodophyta	Red Algae	149	3 (3)
	Chlorophyta	Green Algae	72	17 (20)
	Charophyta	Stoneworts and Desmids	Awaiting revision	358 (959)
	Pteridophyta	Ferns & Horsetails	45	18 (79)
	Pinopsida	Conifers	23	3 (5)
	Lycopodiopsida	Clubmosses & Quillworts	9	2 (3)
	Anthocerotophyta*	Hornworts	2	1 (1)
		Total	**1767**	**919 (3807)**

* 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	282	11 (20)
		Lichen forming Ascomycota	616	218 (1107)
	Basidiomycota	Larger mushroom type species, and Rusts	539	62 (78)
		Lichen forming Basidiomycota e.g. *Lichenomphalia* spp.	6	3 (4)
	Chytridiomycota	Chytrids (fungi with flagellate spores)	2	-
	Zygomycota	Moulds	7	-
	Oomycota*	Filamentous protists (Downy Mildews)	10	-
	Myxomycota*	Slimemoulds	Unknown	2 (2)
		Total	**1462**	**296 (1211)**

*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	11	3 (3)
	Chromista	Brown Seaweeds, Diatoms etc.	79	16 (20)
	Protozoa		6	2 (3)
		Total	**96**	**21 (26)**

[1] Unless stated otherwise, No. of species for VC110 are from current OHBR checklists or NBN Atlas Scotland checklists as of 1/2/20. 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 and other invertebrates

It is estimated that there is something in the region of 24,000 species of insect in Britain. Approximately 9% of the UK insect species have been recorded, so far, from the Outer Hebrides. Of the 2,000 or so species featuring in the VC110 records, 506 (c.24%) of them were recorded in 2019. There appears to be a slightly rising trend in the number and percentage of VC 110 species recorded each year.

		Britain	VC 110		2017		2018		2019	
Oder	**Common Name**	**Est. No. of Species[1]**	**No. of Species[2]**	**%[3]**	**Species**	**%[4]**	**Species**	**%[4]**	**Species**	**%[4]**
Diptera	Flies	7,000	849	12.1	74	8.7	69	8.1	55	6.5
Hymenoptera	Bees, Wasps etc.	7,000	97	1.4	26	26.8	22	22.7	28	28.9
Coleoptera	Beetles	4,000	439	11.0	18	4.1	19	4.3	32	7.3
Lepidoptera	Butterflies & Moths	2,570	533	20.7	312	58.5	333	62.5	343	64.4
Hemiptera	Bugs	1,830	59	3.2	11	18.6	6	10.2	10	16.9
Phthiraptera	Biting lice & Sucking lice	540								
Collembola[5]	Springtails	250	7	2.8						
Trichoptera	Caddisflies	198	73	36.9			14	19.2	22	30.1
Thysanoptera	Thrips	179								
Psocoptera	Barkflies	100	1	1.0					1	100.0
Neuroptera	Lacewinges & Ant Lions	69	4	2.9					1	25.0
Siphonaptera	Fleas	62	2	3.2						
Ephemeroptera	Mayflies	51	9	17.6			1	11.1	2	22.2
Odonata	Dragonflies	49	12	24.5	9	75	9	75	8	66.7
Plecoptera	Stoneflies	34	8	23.5					1	12.5
Orthoptera	Grasshoppers & Crickets	33	3	9.1	1	33.3	2	66.7	1	33.3
Protura[5]	Simpletails	15								
Diplura[5]	2-pronged bristle-tails	11								
Dictyoptera	Cockroaches, Termites & Mantids	11								
Strepsiptera	Stylops	10								
Archaeognatha	Bristle-tails	7	2	28.6	1	50	1	50	1	50.0
Dermaptera	Earwigs	7	1	14.3	1	100	1	100	1	100.0
Mecoptera	Scorpionflies	4								
Rhaphidioptera	Snakeflies	4								
Megaloptera	Alderflies	3	1	33.3						
Zygentoma (Thysanura)	Silverfish & Firebrats	2								
Total		**24,039**	**2,100**	**8.7**	**453**	**21.6**	**477**	**22.7**	**506**	**24.1**

[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 2020

[3] As percentage of total British species

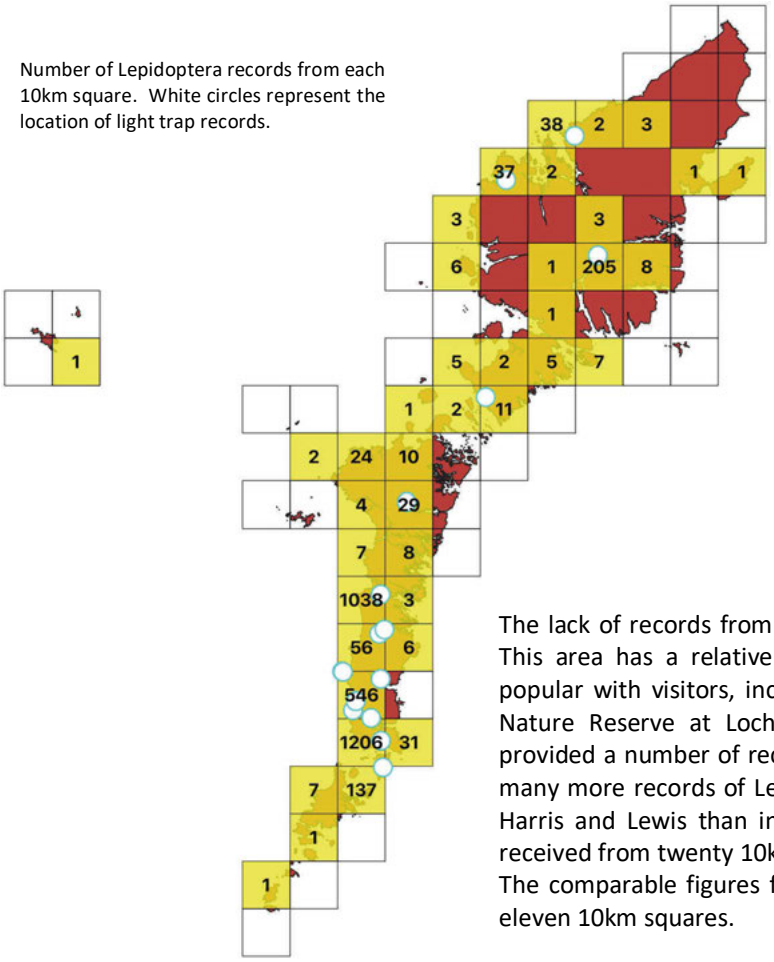
[4] As percentage of VC110 species

[5] Now not generally considered to be true insects

Four orders stand out as showing notable changes in either the percentage coverage of VC110 species or in the absolute numbers of species recorded. These are the orders Hymenoptera (increase coverage of VC110 species by 6.3%), Hemiptera (↑ 6.7%), Trichoptera (↑ 10.9%) and Coleoptera (40% increase in the number of species recorded). Four very under recorded orders also featured in 2019. Single species of Lacewing and Stonefly were recorded, there were two species of Mayfly recorded and the very first record of a Barklouse in the Outer Hebrides was made. This increased coverage of certain groups resulted, largely, from the activities of a small number of recorders who specifically targeted certain groups of insects or locations in 2019. These will be discussed separately as we consider each of the major orders in sequence.

Insects – Lepidoptera

Number of Lepidoptera records from each 10km square. White circles represent the location of light trap records.



As usual records of Lepidoptera received in 2019 exceed those of all the other invertebrates. Over four thousand invertebrate records were submitted and 81% (3461 records) of these were of Lepidoptera; 3274 records of 330 species of moths and 187 records of 13 species of butterflies. Records were received from forty 10km grid squares in 2019. This is about 50% of the 10km squares that cover the Outer Hebrides. Many of the "missing" squares covered either remote offshore island or tiny bits of inaccessible coastline or difficult to reach inland areas of Harris and Lewis.

The lack of records from the Ness area of Lewis stands out. This area has a relatively high resident population and is popular with visitors, including naturalists visiting the Local Nature Reserve at Loch Stiapabhat, and in the past has provided a number of records. Pleasingly though there were many more records of Lepidoptera received in general from Harris and Lewis than in 2018. In 2019, 343 records were received from twenty 10km grid squares on Harris and Lewis. The comparable figures for 2018 were just 25 records from eleven 10km squares.

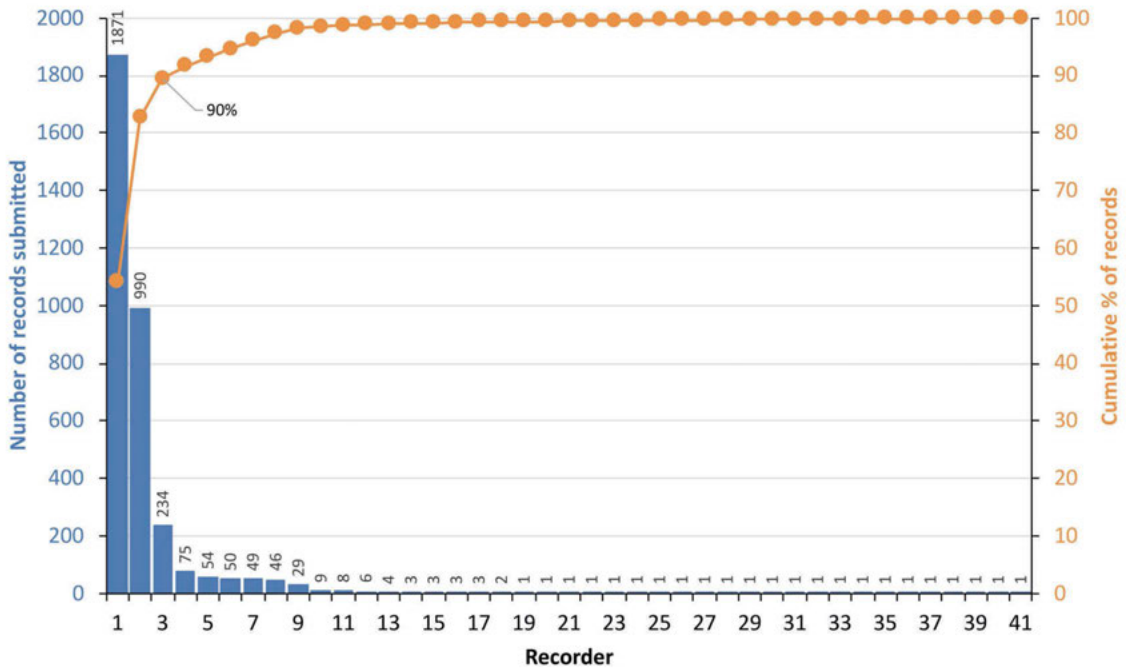
Group	2017 Records		2017 Species	2018 Records		2018 Species	2019 Records		2019 Species
Lepidoptera	3768	77%	312	3473	85%	333	3461	81%	343
Moths	(3546)		(299)	(3287)		(320)	(3274)		(330)
Butterflies	(222)		(13)	(186)		(13)	(187)		(13)
Other insects	864	18%	141	533	13%	144	703	17%	163
All Insects	**4632**		**453**	**4006**		**477**	**4164**		**506**
Other inverts.	290	6%	92	77	2%	53	75	2%	53
All Inverts.	**4922**		**545**	**4083**		**530**	**4239**		**559**

Some of the increase in the number of records from Harris and Lewis resulted from the fact that moth traps were operated at four locations in 2019; 278 of the 343 records were from moth traps. The other records were more wide-ranging ones of six butterfly and twelve moth species. Most of these moths being conspicuous day-flying species such as Six-spot Burnet, Magpie Moth and Fox Moth or those such as Emperor Moth and Knot Grass with distinctive caterpillars.

Saturnia pavonia - Emperor Moth caterpillar

Insects and other invertebrates

Forty-one people submitted Lepidoptera records in 2019. Most people only submitted a few records, 32 of the 41 recorders submitted less than ten records each. In contrast just three recorders contributed 90% of the records. Many of their records were from moth traps run regularly at a restricted number of locations. They give "depth" to the record set whilst the other recorders provide a "spread" of records over a wider geographical area. Both add to the overall value of the records.



Butterflies

Nineteen recorders submitted 187 records of thirteen species of butterfly in 2019. This is the third year this annual summary has been produced and OHBR gets about 200 butterfly records each year. Green-veined White, Meadow Brown, Common Blue, Red Admiral and Painted Lady are the most consistently abundant species. Recorded, but in lower numbers, each year are Small Tortoiseshell, Small Heath, Dark Green Fritillary, Large White, Grayling and Peacock. These eleven species have been recorded in each of the three years but there are a further four species that have also been recorded over the three-year period.

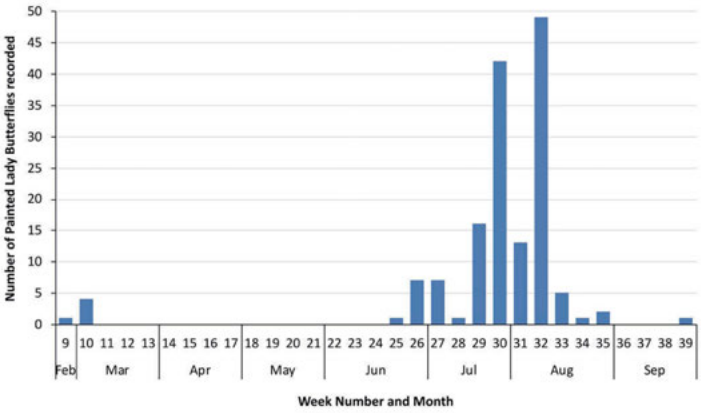
Species	Number of records						Discrepancy[2]
	NBN[1]		2017	2018	2019		
Green-veined White	1366	20.7%	54	27	31	16.6%	-4.1%
Meadow Brown	1294	19.6%	41	47	27	14.4%	-5.2%
Common Blue	885	13.4%	30	36	15	8.0%	-5.4%
Red Admiral	607	9.2%	31	24	27	14.4%	5.2%
Small Tortoiseshell	464	7.0%	11	5	6	3.2%	-3.8%
Painted Lady	456	6.9%	20	20	62	33.2%	26.3%
Large Heath	391	5.9%	6	4			
Dark Green Fritillary	332	5.0%	9	6	2	1.1%	-3.9%
Small Heath	312	4.7%	13	11	6	3.2%	-1.5%
Large White	199	3.0%	1	3	4	2.1%	-0.9%
Grayling	144	2.2%	3	1	1	0.5%	-1.7%
Peacock	71	1.1%	2	1	2	1.1%	0.0%
Speckled Wood	36	0.5%	1				
Small White	18	0.3%			3	1.6%	1.3%
Ringlet	16	0.2%					
Clouded Yellow	12	0.2%					
Orange-tip	6	0.1%		1	1	0.5%	0.4%
Total	**6609**		**222**	**186**	**187**		
	[1]as of 5/6/2019						[2]NBN% - 2019%

Large Heath was recorded in both 2017 and 2018 but not in 2019, Orange-tip in 2018 and 2019 with Speckled Wood (2017) and Small White (2019) making a consistent thirteen species recorded in each of the three years.

There are insufficient data to describe long term trends but different butterflies do well in different years. 2018 was a good year for Meadow Brown and Common Blue and 2019 was definitely a Painted Lady year. About a third of all butterfly records in 2019 were of Painted Ladies.

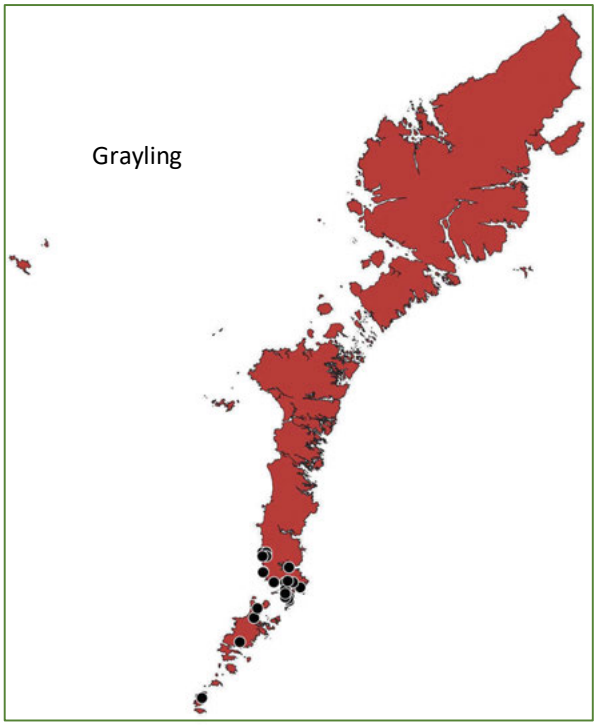
Insects and other invertebrates

The first Painted Ladies arrived in late February and early March. This was part of an extremely early influx noted in many western counties of the UK. They are thought to have been individuals from the North African wintering ground carried here by extremely strong warm southerly winds originating around the Canaries.



Vanessa cardui – Painted Lady

The next peak of records came around the end of June and into early July. The life cycle of the Painted Lady takes about six weeks, from egg to adult, so eggs laid by these individuals could have given rise to a further generation resulting in the next batch of sightings in late July/August. Only one Painted Lady caterpillar was recorded; at Scolpaig, North Uist on 25th August. Casual, unreported, sightings were of very large numbers of Painted Ladies in late summer. The number of records received in 2019 surely underestimates the scale of the 2019 influx of this species.



Four species of less common butterflies are of special interest. Three of them are potential new colonisers of the Outer Hebrides (Ringlet, Speckled Wood and Orange Tip) and Grayling is primarily a coastal species with a declining UK population. Single records of Orange Tip and Grayling were received in 2019. The Orange Tip was a late season (July) record from Berneray, a new location for the species in the Outer Hebrides. The Grayling was from the same area of South Uist as previous records and seems to be confined to the bottom of South Uist, Eriskay, Barra and has also been recorded on Mingulay.

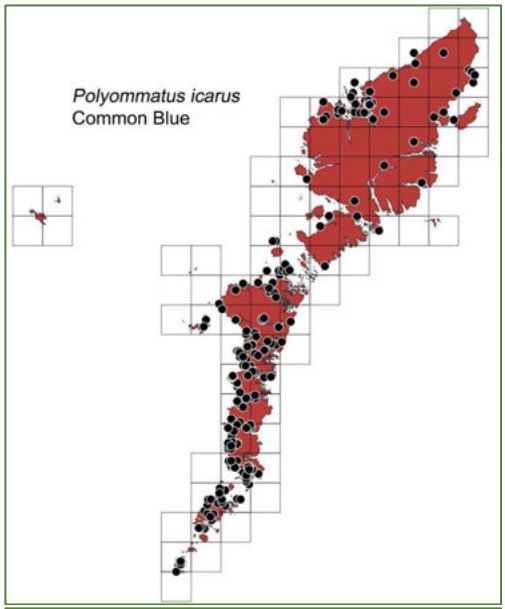
The OHBR database contains over 2500 butterfly records. These have allowed us to produce provisional distribution maps for the species of butterfly recorded in the Outer Hebrides. By providing these maps we hope to encourage recorders to add to our current understanding of butterfly distribution. There are still questions to be answered. Exactly how widespread are Grayling in the southern most islands of the Outer Hebrides and have there been recent changes in distribution and abundance?

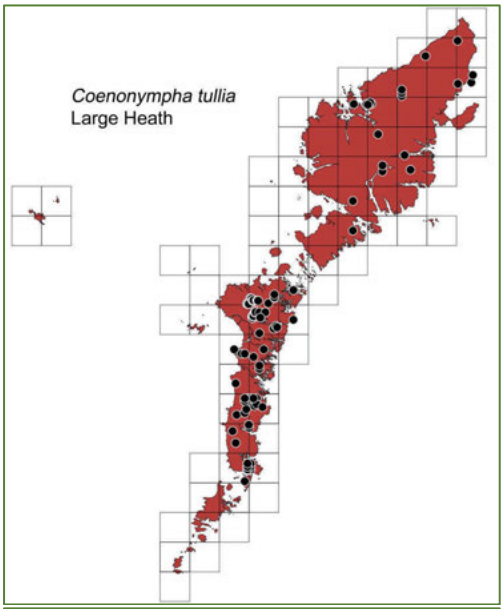
Knowing when each species is likely to be on the wing will help those wanting to make further records. Flight time diagrams have been produced from records we have already. Details of larval food plants can indicate likely habitats. For Grayling you are most likely to find them flying at the end of July through to mid-August in coastal habitats where their host plants, Marram Grass, various fescues and other fine leaved grasses grow.

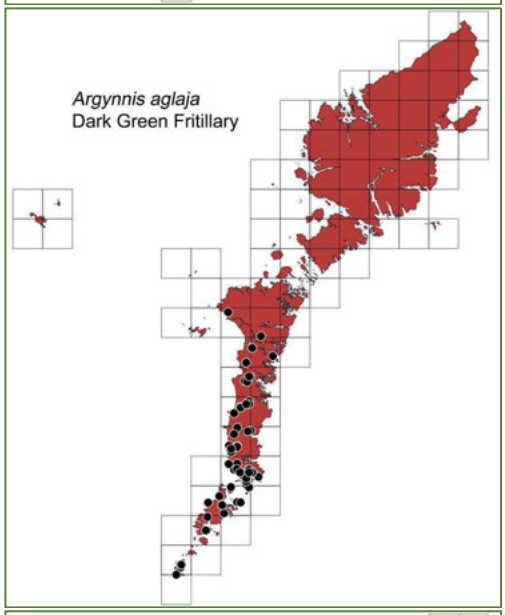
Flight times of Butterflies in the Outer Hebrides - with life-cycle and some ecological information, numbers are the total records per week

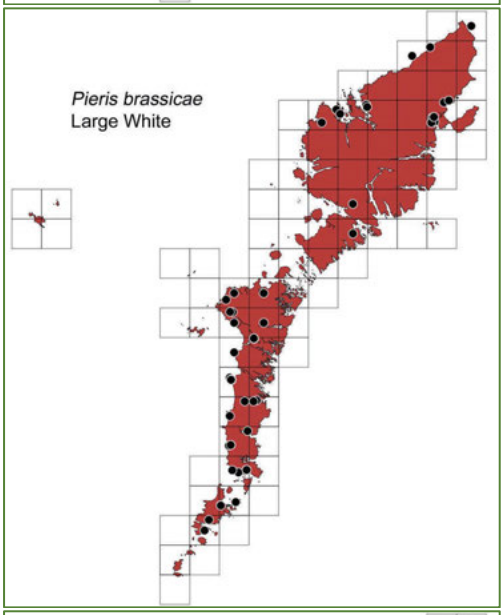
Month	Feb	Mar				Apr				May				Jun					Jul				Aug					Sep					Oct				Nov
Week Number	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
Painted Lady	1	3											3	10	13	15	10	26	15	18	25	5	20	6	10	7	3	3	3		2		1		1		
Migrates from N. Africa, arrives in variable numbers, in good years can be many millions arriving in UK, some reach the Outer Hebrides, may complete one or several generations in a year before adults start the return migration in autumn.																																					
Small Tortoiseshell				2		1	4	8	8	14	13	5	3	6	2	1	6	2	1	1	4	8	11	12	14	13	7	3	2	4	4		2	1			
Overwinters as adults, emerging in spring, eggs laid May, caterpillars active late May/June, pupates June/July, Adults emerge July/Aug and feed until they enter buildings to hibernate in late autumn. In good years may be a 2nd generation.																																					
Red Admiral							1	1	4	1	5	4	7	20	26	14	8	29	31	14	16	15	16	7	3	11	9	4	3	10	7	5	5	6	3	1	
Most arrive as migrants in May/June though increasingly some overwinter as adults especially in the south of Britain, they breed once here and the next generation emerges in late summer/early autumn and migrate back south.																																					
Green-veined White							1	4	17	32	27	36	33	48	34	19	21	21	12	8	25	23	96	52	37	20	8	9	1	1							1
Overwinter as chrysalis, adults emerge April/May/June, mate, lay eggs on various crucifers (eg. Lady's Smock), caterpillars hatch then feed and pupate before a 2nd generation of adults appears in July/August, their caterpillars form chrysalises and overwinter.																																					
Peacock								1	4	3	3	2				1								2		3	1	2	1		2						
Hibernates as adult, these emerge in spring as weather warms up, eggs laid May, caterpillars feed May/June then pupate and adults of next generation emerge July /August and often seen nectaring on thistles and similar plants until they hibernate in autumn.																																					
Speckled Wood										1			1								1		1	1	1						1	1					
Overwinters as either a caterpillar or a pupa, once emerged from the chrysalis the adults mate and lay eggs on various grasses and there can be 1 or 2 further generations depending on weather and how quickly development takes place.																																					
Small Heath												2	6	10	19	13	10	21	12	6	6	5	4			1											
Overwintering caterpillars pupate April/May, adults emerge May/June/July mate and lay eggs, these hatch in June and the caterpillars feed on various grasses. In good years they may grow quickly enough to allow a 2nd generation of adults/eggs/caterpillars.																																					
Common Blue												1	1		3	6	15	37	27	41	47	40	43	25	16	11	3	4		1							
Single brooded, adults flying June – August, eggs laid on Bird's-foot Trefoil and hatch after about 10 days, caterpillars feed, hibernating over winter, and then pupate April/May the following spring. Can be 2nd generation further south.																																					
Orange-tip													1		1							1															
A single generation, adults emerge from overwintering chrysalis in May/June, caterpillars feed (eg. on Lady's Smock) over the summer and pupate, the chrysalis overwintering attached to a plant stem. In good years can be a 2nd generation.																																					
Large White															4		2	5	8	4	9	4	7	4	2	1	1	1		1		1					
Overwinters as chrysalis, adults emerge in April and give rise to a 2nd generation of adults in July, these fly long into the summer. The lack of 1st generation adult records in April suggests a small population and records are from the bigger 2nd generation.																																					
Large Heath																2	5	12	12	36	35	6	7	6	1	2											
Overwintering caterpillars start feeding again in spring before forming a chrysalis and pupating in May/June. Adults emerge in July to mate and lay eggs, caterpillars hatch late July/August and feed on Hare's-tail Cotton grass, hibernate at base of grass tussocks.																																					
Small White																1	1		1		1		1			1	1	1									
Overwinters as chrysalis, adults emerge April/May/June lay eggs and a 2nd generation of adults appears in July. In really good summers there may even be a 3rd generation.																																					
Dark Green Fritillary																	2	5	4	10	16	18	20	12	5	9	4	4	1								
Overwintering caterpillars start feeding on Dog Violet or Marsh Violet in spring, pupates May/June and adults emerge mostly in July/August. Eggs hatch after about 2-3 weeks, the newly hatched caterpillars do not feed but hibernate immediately.																																					
Meadow Brown																	4	25	37	55	108	49	85	56	39	18	7	6	1	1							
One generation per year, adults fly June – August, with eggs laid on various grasses (eg. *Poa* spp.) July to August, caterpillars hatch after c.30 days. They continue feeding over the winter, becoming torpid in coldest weather, pupating May/June for 3 – 4 weeks.																																					
Grayling																			1	3	7	12	10	2	2	4	2	1	1								
Adults emerge July/August, eggs laid on Marram and other grasses in July/August hatch after about 3 weeks. Caterpillars are mostly nocturnal and feed until hibernation later in the autumn. Feeding resumes in spring and pupation takes place June/July.																																					
Ringlet																				3	1																
Adults on wing July, eggs laid randomly on ground near base of grasses. Caterpillars feed nocturnally on grasses such as Cock's-foot, Tufted Hair-grass and *Poa* spp., then hibernate over winter before starting to feed again in spring. Pupates June/July.																																					

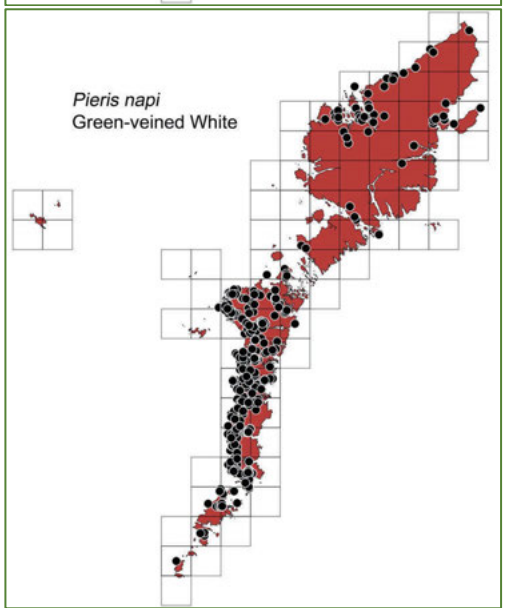
Provisional butterfly distribution maps

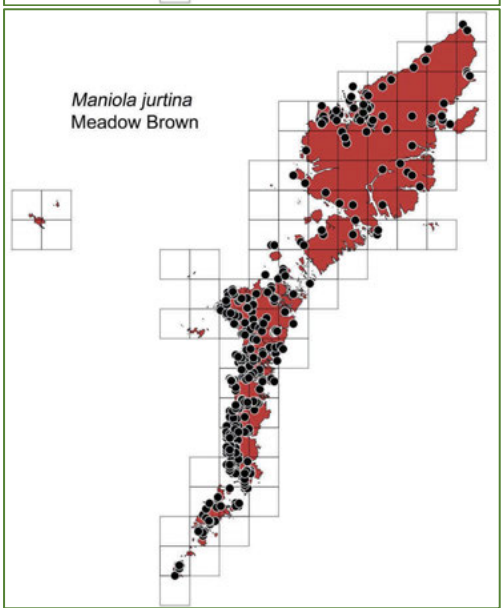




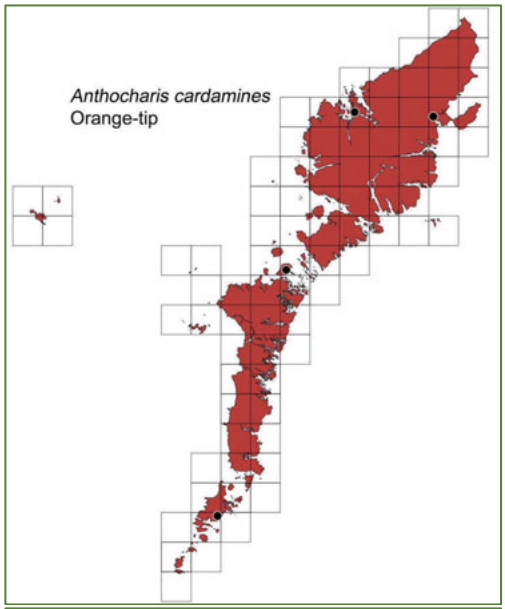


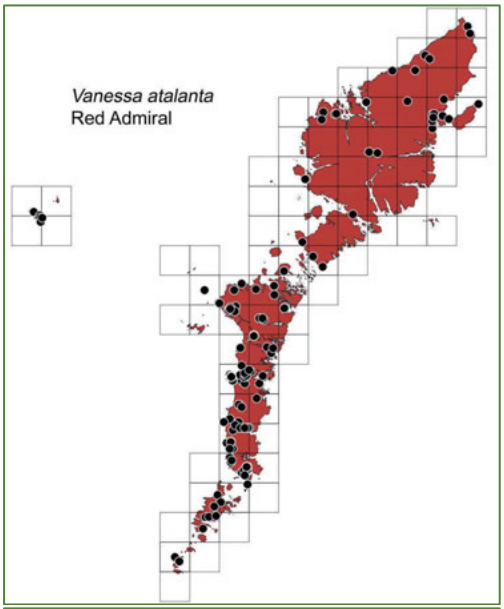


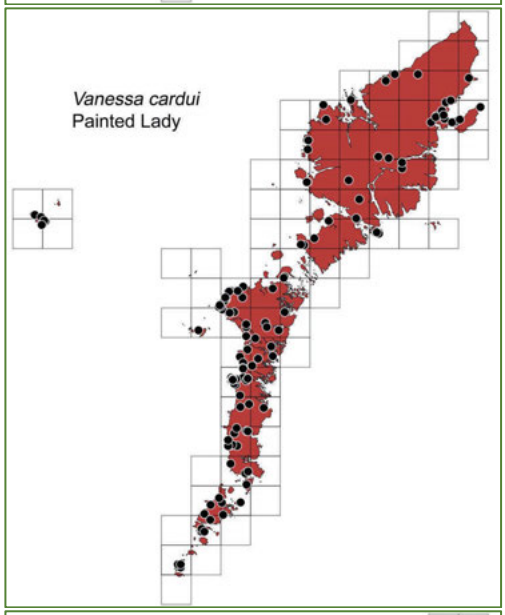


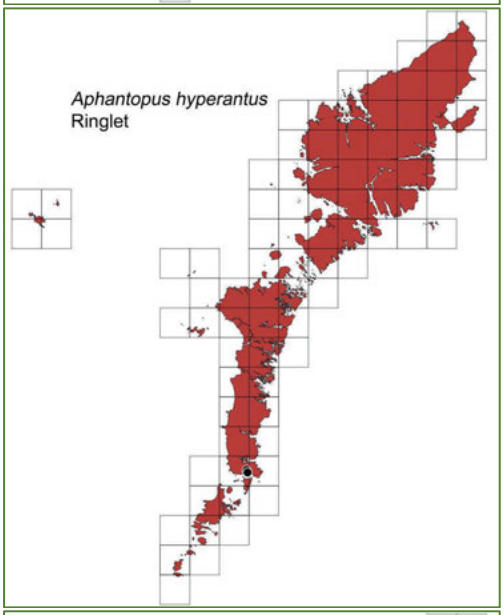


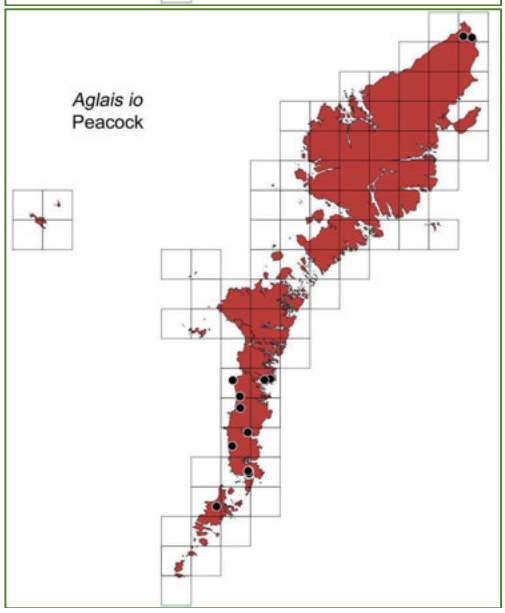
Provisional butterfly distribution maps

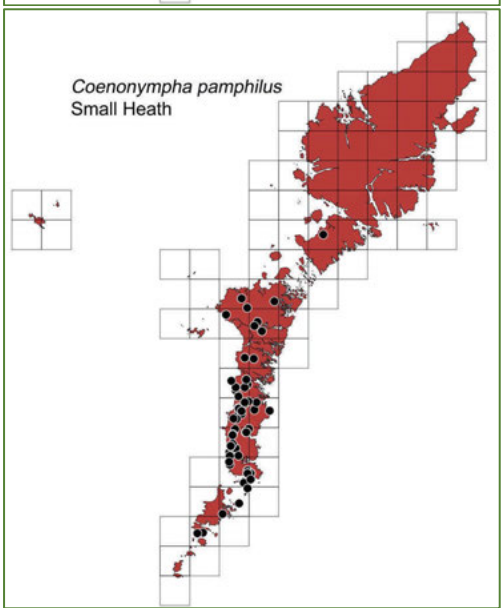




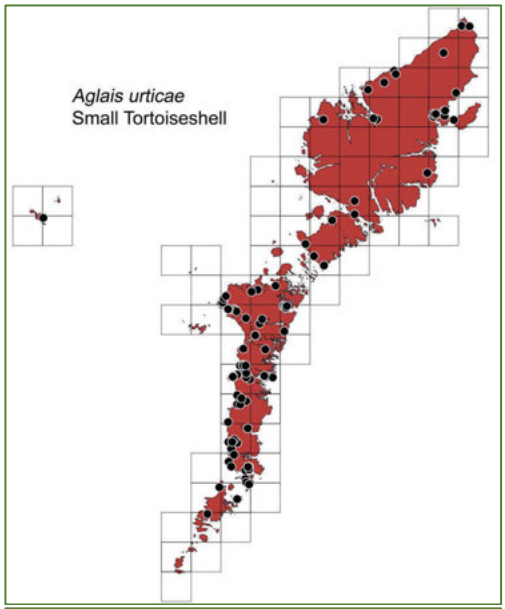


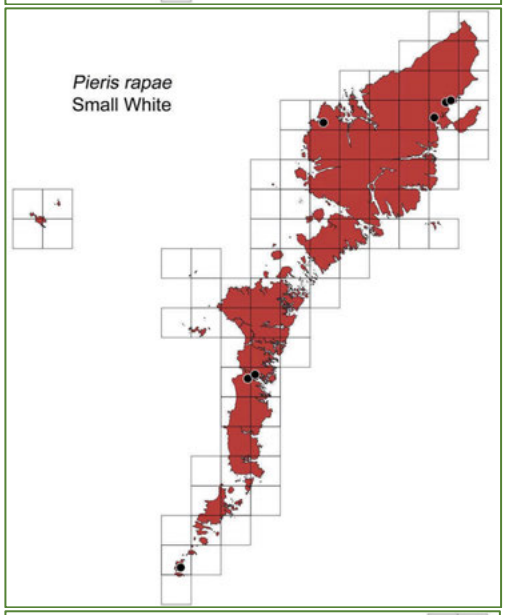


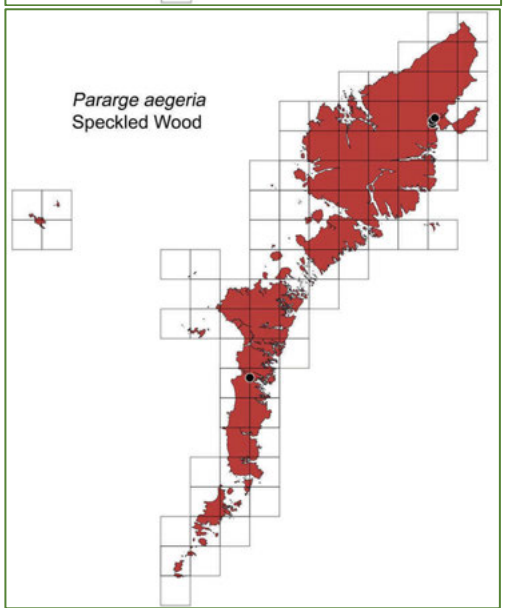




Provisional butterfly distribution maps







A number of species seem to peter out towards the more northern parts of the Outer Hebrides – Small Heath, Dark Green Fritillary and Large Heath for example. It is hard to know whether this is the true picture or a result of patchy recording intensity. Targeted visits to appropriate habitats on appropriate dates may help answer this question. For the three species mentioned above:

- Small Heath, late May to early July visits to areas intermediate between machair and acid peatlands with meadow type grasses
- Large Heath, July visits to moorland areas with acid loving grasses
- Dark Green Fritillary, mid-July to mid-August visits to locations where marsh or dog violets are found.

Butterfly	Larval Host (selected species)
Common Blue	Common Bird's-foot-trefoil
Dark Green Fritillary	Common Dog-violet
	Marsh Violet
Grayling	Marram
	Red Fescue
	Sheep's-fescue
	Tufted Hair-grass
Green-veined White	Charlock
	Cuckooflower
	Nasturtium
	Water-cress
Large Heath	Common Cottongrass
	Hare's-tail Cottongrass
	Jointed Rush
Large White	Cabbage family
	Nasturtium
	Sea-kale
Meadow Brown	bents
	Cock's-foot
	fescues
	meadow-grasses
Orange-tip	Charlock
	Cuckooflower
	Dame's-violet
	Honesty
	Turnip
Painted Lady	Lesser Burdock
	Common Nettle
	thistles
Peacock	Common Nettle
Red Admiral	Common Nettle
Ringlet	Cock's-foot
	Common Couch
	meadow-grasses
	Tufted Hair-grass
Small Heath	bents
	fescues
	meadow-grasses
Small Tortoiseshell	Common Nettle
Small White	Cabbage family
	Nasturtium
	Sea-kale
Speckled Wood	Cock's-foot
	Common Couch
	Yorkshire-fog

Moths

As in previous years most moth records (c.90%) come from moth traps. Eight recorders ran moth traps on 187 occasions at seventeen different locations. Most traps (11) were run on South Uist, three were on Lewis with other traps at single locations, operated for a few nights, on North Uist, Harris and Eriskay. The remainder of the moth records are from direct observation in the field and from examination of collected specimens.

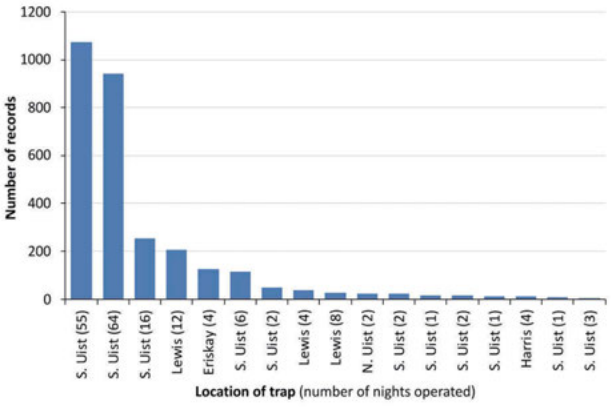
Method	No. of records	%
All moth trap types	2924	89.3%
Robinson MV 125w	(2263.00)	(69.1%)
Moth trap (general)	(661.00)	(20.2%)
Field Observation	267	8.2%
Netted/collected	83	2.5%
Total moth records	**3274**	

At two locations, both on South Uist, traps were run over fifty times in 2019. These two locations generated approximately 60% of all moth records.

Moth trap by-catch

As well as moths, light traps also give a considerable by-catch of other invertebrates. Caddisflies, for instance, are close relatives of moths and are similarly attracted to light. One moth trap on South Uist was systematically checked for by-catch and over the course of 2019 generated 300 records of 64 species of invertebrates. Many of these were from insect orders that have been poorly recorded in the Outer Hebrides and included a number of "first records" for the islands. Similar systematic checking of moth trap by-catch would doubtlessly generate many more records of poorly recorded groups of invertebrates.

Order	Type	Species	Records
Trichoptera	Caddisflies	23	194
Diptera	True Flies	17	38
Coleoptera	Beetles	5	22
Mollusca	Slugs	5	7
Hymenoptera	Bees, wasps etc	3	13
Arachnida	Spiders etc	2	2
Ephemeroptera	Mayflies	2	6
Dermaptera	Earwigs	1	7
Hemiptera	True Bugs	1	1
Isopoda	Woodlice	1	1
Neuroptera	Lacewings	1	2
Odonata	Damselflies	1	1
Plecoptera	Stoneflies	1	5
Psocoptera	Barkflies	1	1
Total		**64**	**300**



Most abundant moths

The 3274 moth records for 2019 covered 330 species and in total 20,033 individual moths were counted by 28 recorders. Most moth species were not recorded very often. Approximately 70% were recorded ten or fewer times and only 10% were found more than 25 times. The 33 most frequently recorded species are shown below.

Species	Common Name	Records
Apamea monoglypha	Dark Arches	69
Xanthorhoe designata	Flame Carpet	56
Denticucullus pygmina	Small Wainscot	53
Noctua pronuba	Large Yellow Underwing	52
Arctia caja	Garden Tiger	51
Cerapteryx graminis	Antler Moth	48
Amphipoea oculea agg.	Ear Moth agg.	45
Plutella xylostella	Diamond-back Moth	43
Euthrix potatoria	Drinker	43
Ochropleura plecta	Flame Shoulder	42
Mesapamea secalis agg.	Common Rustic	41
Mythimna impura	Smoky Wainscot	40
Plusia festucae	Gold Spot	40
Apamea remissa	Dusky Brocade	40
Lycophotia porphyrea	True Lover's Knot	39
Cerastis rubricosa	Red Chestnut	39
Xanthorhoe ferrugata	Dark-barred Twin-spot Carpet	38
Xanthorhoe montanata	Silver-ground Carpet	36
Hydraecia micacea	Rosy Rustic	36
Orthosia gothica	Hebrew Character	35
Apamea crenata	Clouded-bordered Brindle	35
Lacanobia oleracea	Bright-line Brown-eye	34
Spilosoma lubricipeda	White Ermine	34
Xestia xanthographa	Square-spot Rustic	32
Diarsia rubi	Small Square-spot	32
Cosmorhoe ocellata	Purple Bar	29
Diachrysia chrysitis	Burnished Brass	28
Eulithis testata	Chevron	27
Catoptria margaritella	Silver-stripe Grass-veneer	27
Diarsia mendica	Ingrailed Clay	27
Alcis repandata	Mottled Beauty	26
Blastobasis lacticolella	London Dowd	26
Autographa pulchrina	Beautiful Golden Y	26

Abundance is not just about how frequently a species is recorded but is also about how many individuals are counted. There is a clear candidate for the most abundant moth – Dark Arches, tops both the frequency table and has the highest individual count as well. Counts of over 100 Dark Arches were recorded from moth traps on Lewis and South Uist on four occasions between 26th July and 4th August 2019.

Species	Common Name	Records	Adults
Apamea monoglypha	Dark Arches	69	1829
Lycophotia porphyrea	True Lover's Knot	39	1629
Amphipoea oculea agg.	Ear Moth agg.	45	1536
Denticucullus pygmina	Small Wainscot	53	785
Arctia caja	Garden Tiger	51	753
Orthosia gothica	Hebrew Character	35	534
Petrophora chlorosata	Brown Silver-line	23	514
Xestia xanthographa	Square-spot Rustic	32	505
Mythimna impura	Smoky Wainscot	40	498
Cerapteryx graminis	Antler Moth	48	431
Cerastis rubricosa	Red Chestnut	39	401
Xanthorhoe montanata	Silver-ground Carpet	36	288
Ematurga atomaria	Common Heath	22	264
Plusia festucae	Gold Spot	40	250
Agriphila straminella	Straw Grass-veneer	22	250

Apamea monoglypha – Dark Arches

There were twenty-one occasions when the count of a single species on a single night exceeded 100 individuals. The highest count of any single species in a moth trap was of 482 True Lover's Knot in a trap on South Uist in mid-July.

Lycophotia porphyrea - True Lover's Knot

The total number of moths in a trap on occasion can be daunting. A 125w MV trap set at the bottom of South Uist on 15th July 2019 contained 76 different species and 833 individual moths in total.

There are 350 records of adult moths being observed directly or caught in a net. The number of individuals recorded was often considerable and species such as Yellow Shell and Belted Beauty were more likely to be recorded through direct observation in the field than by light trap. Some species, such as Common Heath and Six-spot Burnet, don't seem to be attracted to light at all.

Moth species commonly recorded as the result of direct field observation	No. of individual found by: Field Obs.	Netting	Light Trap
Common Heath	**272**		
Garden Grass-veneer	170	4	34
Straw Grass-veneer	150	19	81
Yellow Shell	**63**		16
Diamond-back Moth	60	16	132
Belted Beauty	**33**		1
Common Carpet	25		10
Silver Y	24		11
Grass Rivulet	19	2	11
Heather Groundling	12	1	9
Inlaid Grass-veneer	12	8	73
Triple-stripe Piercer	12		
Argent & Sable	11		
Six-spot Burnet	**10**	**1**	
Emperor Moth	9		2
Beautiful Yellow Underwing	7		

Zygaena filipendulae -Six-spot Burnet, a conspicuous day flying moth likely to be recorded at all stage of its life cycle. Its pupal case is commonly seen on the machair from mid-June to early July attached to grass and other plant stems.

Some moths, Fox Moth, Belted Beauty and Oak Eggar in particular, were more commonly recorded as larvae rather than as adult moths.

Macrothylacia rubi - Fox Moth, occasionally attracted to moth traps or encountered as adults on walls and rock during daylight but many more each year are recorded as caterpillars.

One species *Stigmella microtheriella*, the Nut-tree Pigmy, was only recorded as a larva. These form characteristic mines on Hazel and their recorded locations, Alt Volagair and North Loch Eynort reflect the location of their host species.

Species	Common Name	Larvae	Adults
Macrothylacia rubi	Fox Moth	185	17
Lycia zonaria	Belted Beauty	68	34
Lasiocampa quercus	Oak Eggar	17	3
Euthrix potatoria	Drinker	15	171
Stigmella microtheriella	Nut-tree Pigmy	11	
Arctia caja	Garden Tiger	7	753
Acronicta rumicis	Knot Grass	6	46
Acleris hastiana	Sallow Button	3	6
Noctua comes	Less. Yellow Underwing	1	36
Zygaena filipendulae	Six-spot Burnet	1	11
Eupithecia centaureata	Lime-speck Pug	1	26
Saturnia pavonia	Emperor Moth	1	11
Phalera bucephala	Buff-tip	1	8
Gracillaria syringella	Common Slender	1	3

Searching for and identifying moths by finding their larval mines can be a rewarding way of adding records of micro-moth. If your garden has a privet hedge then look out for the mines of the Common Slender (*Gracillaria syringella*).

Gracillaria syringella - Common Slender, leaf mine on Privet

Gracillaria syringella - Common Slender, adult

Species of leaf-mining micro-moths are often specific to a limited number of host plants which simplifies their identification to some extent. For those interested in leaf mines then there are a couple of useful resources:

Micro-moth Field Tips (ISBN 978 1999731243) by Ben Smart (2018) – this small book has some very clear photographs of mines formed by micro-moth larvae on a wide variety of host species.

The British Leafminers **website** covers mines formed by beetles (Coleoptera) true flies (Diptera) and sawflies (Hymenoptera) as well as those caused by moths.

Find it at: **http://www.leafmines.co.uk.**

Migrant Species

The early arrival of migrant Painted Ladies in late February was matched by similarly early arrival of two migrant moths, Dark Sword-grass and Diamond-back Moth.

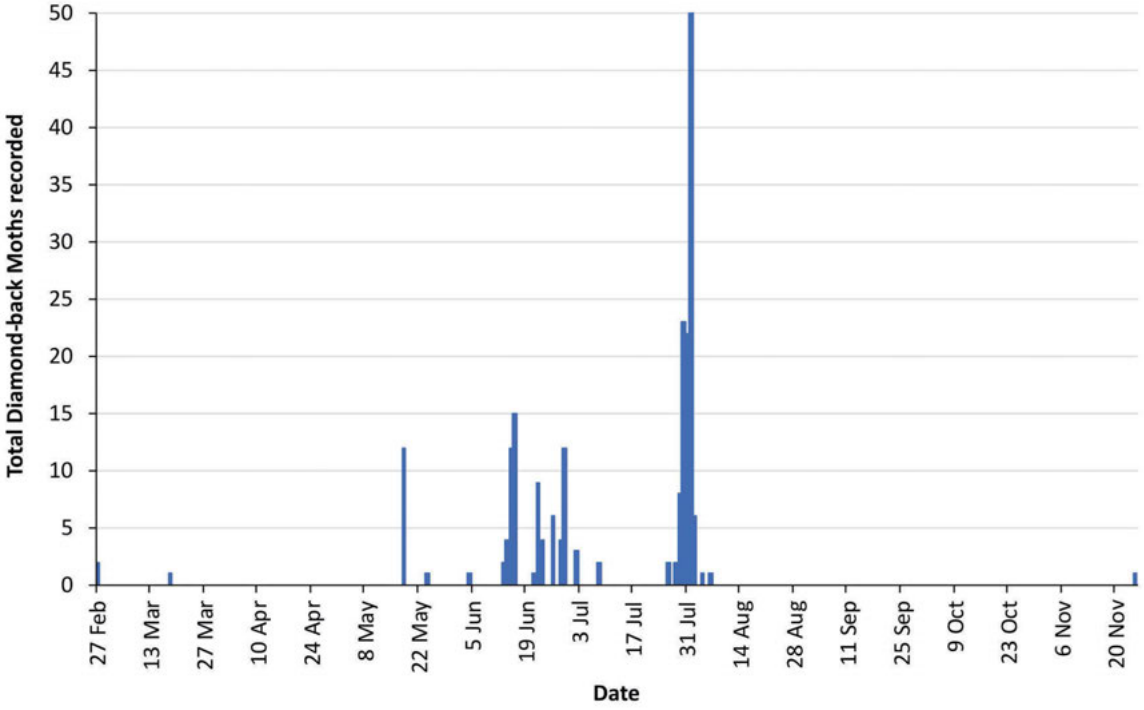
	Dates	First	Last	Total
Dark Sword-grass	15	26 Feb	4 Oct	50
Diamond-back Moth	27	27 Feb	25 Nov	203
Silver Y	18	9 May	28 Sep	33
Humming-bird Hawk-moth	2	1 Jul	3 Aug	2
Convolvulus Hawk-moth	8	24 Aug	28 Sep	9
Scarce Bordered Straw	2	22 Sep	24 Sep	2

Plutella xylostella – Diamond-back Moth, 25th May 2019

These very early individuals may not have given rise to a locally born second generation but arrival of Diamond-back Moths later in the year seem to have given rise to a number of subsequent generations. This species can be a serious pest of brassicas, cabbage, sprouts, cauliflowers etc.. Numbers, though, didn't subsequently explode in 2019 to "plague" proportions unlike 2016 when dire warnings about the threat to Christmas sprouts appeared in some newspapers.

More welcome migrants were the spectacular Humming-bird Hawk-moth and Convolvulous Hawk-moth that appeared later in the summer. Whilst not as spectacular, two South Uist moth trappers were very pleased to find Scarce Bordered Straws in their traps on the 22nd and 24th September. These were only the second and third records for the Outer Hebrides.

Helicoverpa armigera – Scarce Bordered Straw, 22nd Sept



Convolvulous Hawk-moth, photos by Meg Buchanan and John Kemp

Humming-bird Hawk-moth, photo by Chris Johnson

Insects other than Lepidoptera

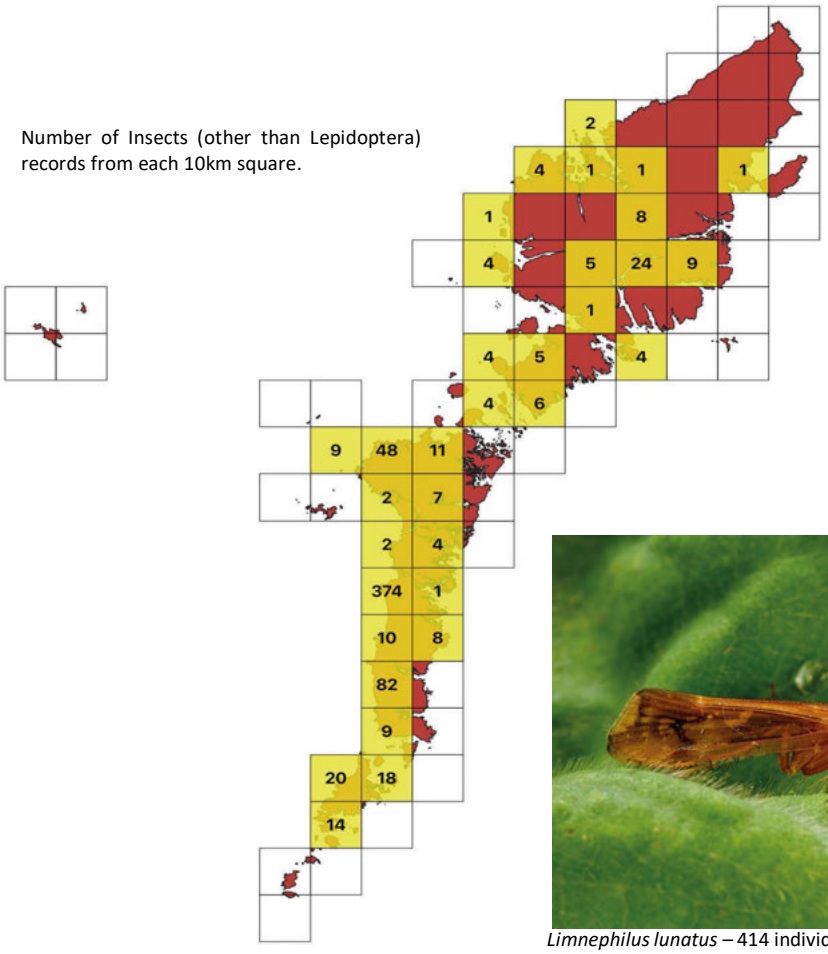
Insect recorders

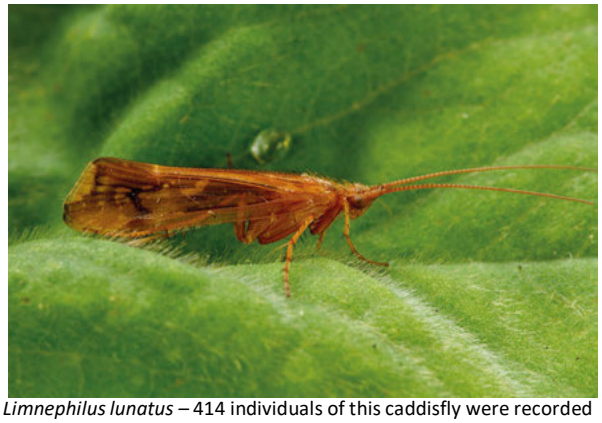
Insects (other than Lepidoptera) records by island						
Island	**2017**	**%**	**2018**	**%**	**2019**	**%**
Lewis, Harris etc.	**179**	**20.1**	**99**	**17.6**	**80**	**11.4**
Lewis	141		24		54	
Great Bernera					2	
Harris	38		75		20	
Scalpay					4	
North Uist etc.	**66**	**7.4**	**103**	**18.3**	**85**	**12.1**
Berneray	1		8		4	
North Uist	65		78		77	
Grimsay	0		17		4	
Benbecula	**77**	**8.6**	**56**	**9.9**	**3**	**0.4**
South Uist etc.	**506**	**56.7**	**284**	**50.4**	**483**	**68.7**
South Uist	485		277		481	
Eriskay	21		7		2	
Barra etc.	**64**	**7.2**	**22**	**3.9**	**52**	**7.4**
Barra	63		18		42	
Vatersay	1		2		10	
Mingulay			2			
Total	**892**		**564**		**703**	

Twenty-five recorders submitted 703 records of insects other than Lepidoptera in 2019. Whilst higher than in 2018 this is still much lower than the 892 records of 2017.

The proportion of records from Lewis and Harris (including Great Bernera and Scalpay) dropped again in 2019. There may have been fewer records in total but they represent a wider coverage of those islands. In 2018 approximately 25% of the 10km squares had records, in 2019 than increased to 35%. Decreases in the number and proportion of records were also seen for North Uist and Benbecula. Barra and the islands further south showed a slight increase. The three most active insect recorders are resident on South Uist so it perhaps not surprising that nearly 70% of the records came from there.

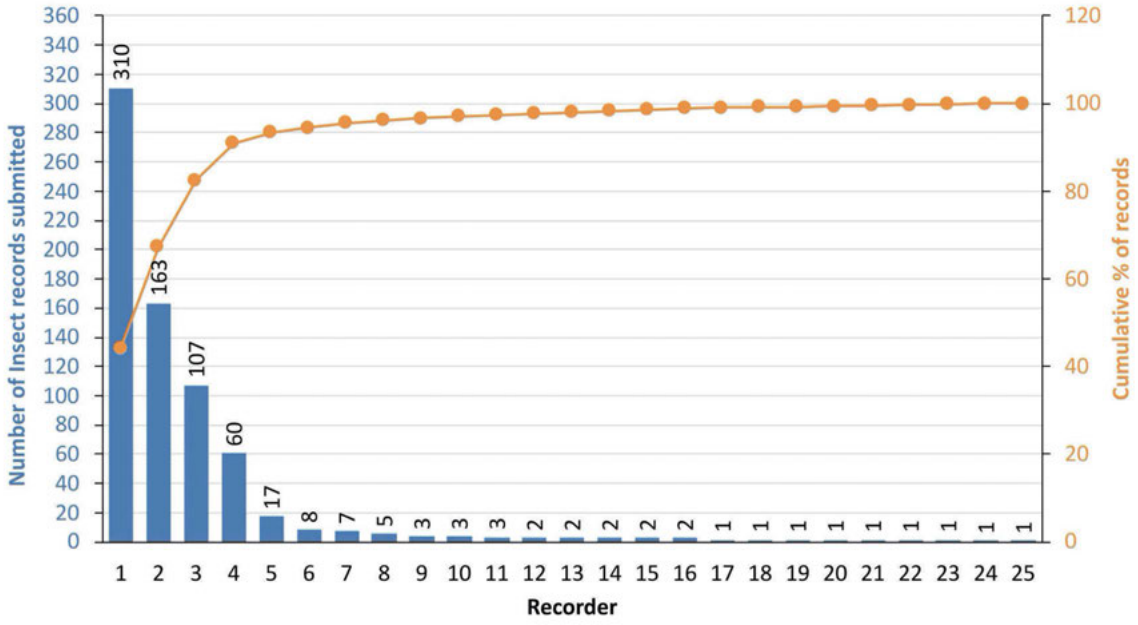
Number of Insects (other than Lepidoptera) records from each 10km square.





Limnephilus lunatus – 414 individuals of this caddisfly were recorded in 2019 making it the most abundant (non Lepidopteran) insect.

Insects and other invertebrates



Just over 90% of the 2019 records came from four people. Recorders have different interests and skills and that is seen in their recording profiles.

The most frequently recorded taxa belonged to the main "charismatic" groups. Of the twenty-one most frequently recorded species, six were dragonflies or damselflies (Odonata) and five were bumblebees (Hymenoptera). Fourteen recorders submitted dragonflies/damselflies and/or bumblebee records. At the other extreme only three people sent in caddisfly records yet this group contained another six of the most commonly recorded species.

Order	Type	2019 Recorders	2019 Records	2019 Species	% of VC110 species	VC 110 species
Hymenoptera	Bees, Wasps etc.	11	173	28	28.9	97
Trichoptera	Caddisflies	3	173	22	30.1	73
Diptera	Flies	9	134	55	6.5	849
Coleoptera	Beetles	8	88	32	7.3	439
Odonata	Dragonflies	8	85	8	66.7	12
Hemiptera	True Bugs	4	22	10	16.9	59
Dermaptera	Earwigs	3	10	1	100.0	1
Plecoptera	Stoneflies	2	6	1	12.5	8
Ephemeroptera	Mayflies	1	6	2	22.2	9
Neuroptera	Lacewings	1	2	1	25.0	4
Orthoptera	Grasshoppers etc.	2	3	1	33.3	3
Archaeognatha	Bristle-tails	1	1	1	50.0	2
Psocoptera	Barkflies	1	1	1	100.0	1

In previous years hoverflies (Diptera) have featured in the most frequently recorded list but 2019 generally seems to have been a poor year for hoverflies.

There are more Diptera and Coleoptera species recorded from the Outer Hebrides than of all the other non-lepidopteran insects put together. About 10% or less of the species in these two groups were found in each year from 2017 to 2019. In contrast, of the Hymenoptera, Odonata and Trichoptera c.30% or more of the VC110 species are found each year.

True bugs (Hemiptera) and the remaining orders rarely feature in the most frequent list but it was nice to see some records of these, often, under-recorded groups in 2019.

Type	The 21 most frequently recorded species	Records
Bumblebee	*Bombus lucorum*	37
Bumblebee	*Bombus muscorum*	36
Caddisfly	*Limnephilus marmoratus*	31
Caddisfly	*Plectrocnemia conspersa*	25
Bumblebee	*Bombus distinguendus*	22
Sexton Beetle	*Nicrophorus investigator*	21
Caddisfly	*Limnephilus affinis*	18
Dragonfly	*Sympetrum striolatum*	17
Caddisfly	*Limnephilus sparsus*	14
Damselfly	*Enallagma cyathigerum*	13
Caddisfly	*Limnephilus elegans*	13
Caddisfly	*Limnephilus lunatus*	13
Ichneumon Wasp	*Ophion obscuratus*	12
Bumblebee	*Bombus hortorum*	12
Damselfly	*Ischnura elegans*	12
Bumblebee	*Bombus pascuorum*	11
Dragonfly	*Sympetrum danae*	10
Earwig	*Forficula auricularia*	10
Dragonfly	*Aeshna juncea*	10
Hoverfly	*Sericomyia silentis*	8
Damselfly	*Pyrrhosoma nymphula*	8

Order Hymenoptera – Bees, Wasps, Ants etc

Recording synopsis

7000 British species, 97 VC110 species, 1.4% of British list. **2019**, 173 records of 28 species, 28.9% of VC List

A slight increase in the number of species recorded in 2019 (28 species) compared to 2018 (22) and 2017 (26).

Six of the 28 species were bumblebees and in total they made up 73% of all Hymenoptera records. White-tailed Bumblebee and Moss Carder Bee being the most frequently recorded species. Of the bumblebees known from VC110 only the Gipsy Cuckoo Bumblebee, *Bombus bohemicus* failed to get any records.

Enicospilus ramidulus – only the 5th record from the Outer Hebrides.

Family	Species	Common name or type	Rec's
Andrenidae	*Andrena ruficrus*	Northern Mining Bee	1
Apidae	*Bombus lucorum agg.*	White-tailed Bumblebee	37
	Bombus muscorum	Moss Carder-bee	36
	Bombus distinguendus	Great Yellow Bumblebee	22
	Bombus hortorum	Small Garden Bumblebee	12
	Bombus pascuorum	Common Carder Bee	11
	Bombus jonellus	Heath Bumble Bee	9
Braconidae	*Homolobus infumator*	a braconid wasp	1
Chrysididae	*Chrysis*	Ruby-tailed Wasp	2
Colletidae	*Colletes floralis*	The Northern Colletes	1
Formicidae	*Myrmica ruginodis*	a red ant	8
	Myrmica scabrinodis	a red ant	1
Ichneumonidae	*Ophion obscuratus*	an icheumon wasp	12
	Enicospilus ramidulus	an icheumon wasp	1
	Gelis	an icheumon wasp	1
Tenthredinidae	*Pontania collactanea*	a sawfly forming galls on willow	3
	Dolerus aericeps	a sawfly (NEW species for VC110)	1
	Pontania bridgmanii	a sawfly forming galls on willow	1
	Pontania pedunculi	a sawfly forming galls on willow	1
	Tenthredopsis coquebertii	a sawfly (2nd record for VC 110)	1
Vespidae	*Vespula rufa*	Red Wasp	4
	Ancistrocerus oviventris	a potter wasp	2
	Ancistrocerus scoticus	a potter wasp	2
	Ancistrocerus	a potter wasp	1
	Dolichovespula norwegica	Norwegian Wasp	1
	Dolichovespula sylvestris	Tree Wasp	1
Total			**173**

Outside of the bumblebees only one other species was recorded more than ten times, an ichneumon *Ophion obscuratus*. This is a night flying species that is relatively easy to identify partly as it is on the wing over winter, spring and in the autumn unlike most ichneumons. Most of the records come from the by-catch of one of the moth traps run on South Uist. A second ichneumon was also recorded from the same moth trap, *Enicospilus ramidulus*. This is another relatively easy species to identify as it has a very distinctive, sharply bordered black tail and an unusual combination of sclerites in the forewing (shown in inset).

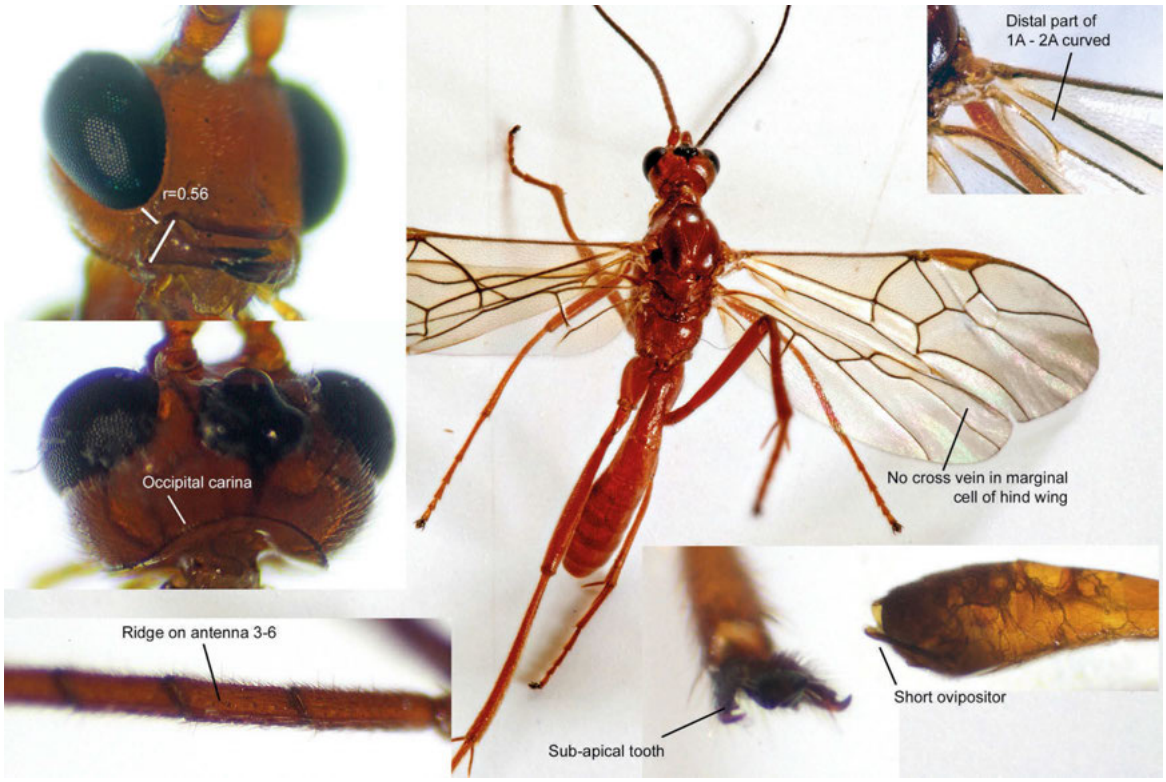
The third ichneumon, a *Gelis* sp. is a flightless species that bears a remarkable resemblance to an ant.

Gelis sp - an ant mimic, the long antennae identify it as an Ichneumon. Anys have shorter, elbowed antennae. Photo Bill Neill

Dolerus aericeps - a sawfly, a new record for the Outer Hebrides

Five species of sawfly were recorded in 2019. Sawflies lack the narrow "waist" between the thorax and abdomen that most Hymenoptera have. Many of them are gall formers including three of the species recorded in 2019, *Pontania collactanea*, *P.bridgmanii* and *P.pedunculi*. These form galls on willow and are perhaps most easily spotted by looking for the galls. The other two have caterpillar like larvae. Sawfly larvae are often mistaken for the caterpillars of moths or butterflies but can be distinguished by the number of pro-legs - seven for sawflies, five or fewer for Lepidoptera. *Dolerus areiceps*, was a new species for VC110. It's larvae feed on horsetails, *Equisetum* spp, and was found by the recorder whilst they were attempting the impossible task of clearing horsetails from the veg patch. The final sawfly *Tenthredopsis coquebertii* has larvae that feed on grasses and had one previous VC110 record, from South Uist in 1988.

Tenthredopsis coquebertii – a second record for the Outer Hebrides



Homolobus infumator – a Braconid wasp, showing identification features

There was a single record of a parasitoid braconid wasp *Homolobus infumator*, these are similar to ichneumons in appearance and ecology. Their separation from ichneumons and identification down to species requires detail examination under the microscope.

To complete this summary there were two records of a Ruby-tailed (or Cuckoo) Wasp, *Chrysis* sp. Called cuckoo wasps because they lay their eggs in the nests of solitary bees. When they hatch they eat the egg and any provisions left by the host for their own offspring. Two of the six species of solitary bees known from the Outer Hebrides, the Northern Mining Bee (*Andrena ruficrus*) and the Northern Colletes (*Colletes floralis*) were recorded in 2019. Finally, there were two ants, three social wasps and two potter wasps.

Order Trichoptera – Caddisflies or Sedges

Recording synopsis

198 British species, 73 VC110 species, 36.9% of British list. **2019**, 173 records of 22 species, 30.1% of VC List

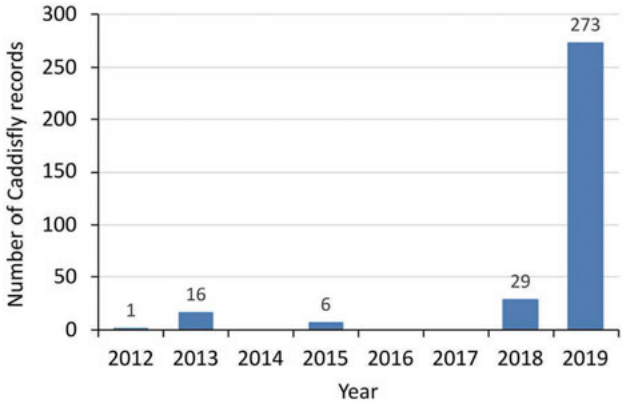
A higher proportion of British species of caddisfly, c.37%, are found in the Outer Hebrides than is the case for the other insect orders. Their larvae are aquatic and as the Outer Hebrides is blessed with numerous lochs and, streams and ditches then this isn't really surprising. Prior to 2016 just 23 caddisfly records had been received by OHBR with no records at all in 2016 or 2017. For a group that is so well represented here this was surprising.

In 2018 one recorder started identifying those caddisflies caught as by-catch in one of the moth traps regularly run on South Uist. Of the 302 records received in 2018 and 2019 all bar 8 have come from the same recorder at the same location.

All the species recorded in 2019 are ones that have been recorded previously. Three species stand out though as having not been seen very often in the past and not been recorded recently. *Oecetis furva* was last seen in 1971 and has only been recorded seven time previously. *Limnephilus luridus* had been recorded only four times with the last record in 1962. Most unexpected though were the 40 records of *Limnephilus elegans* made in 2019. This species had only been recorded three times previously and the last record had been in 1901.

For a caddisfly it is quite distinctive and unlikely to have been missed in the past. It's possible that it has a very restricted distribution but the three previous records had been from Lewis, two near Stornoway (the third was given a generic Lewis grid reference). The species was recorded form two locations in 2019. Most were from the South Uist moth trap site but one was from North Uist so that's three distinct locations it has been recorded at so it's unlikely to be restricted geographically but may have very specific habitat requirements.

A fourth species *Limnephilus vittatus* had a similar history. Prior to 2017 there had been three records, two in 1966 and one in 1952. But on the other hand there are many species that have been recorded regularly in the past but have not been seen recently.



Scientific name	2019 records	Last seen	Previous records
Limnephilus lunatus	*414*	2018	16
Limnephilus marmoratus	*164*	2018	46
Plectrocnemia conspersa	*91*	2018	33
Limnephilus affinis	*42*	2018	26
Limnephilus elegans	*40*	1901	3
Limnephilus sparsus	*39*	2018	61
Tinodes waeneri	*26*	2018	29
Phryganea grandis	*15*	2018	13
Oecetis ochracea	*13*	2018	20
Stenophylax permistus	*7*	2018	26
Agrypnia varia	*5*	2017	17
Limnephilus hirsutus	*5*	2018	16
Polycentropus flavomaculatus	*4*	2017	36
Athripsodes cinereus	*4*	2017	16
Halesus radiatus	*4*	2018	16
Limnephilus luridus	*3*	1962	4
Lepidostoma hirtum	*2*	2018	28
Mystacides azurea	*2*	2018	16
Ceraclea fulva	*2*	2018	6
Limnephilus griseus	*1*	2013	27
Oecetis furva	*1*	1971	7
Limnephilus vittatus	*1*	2017	4

Limnephilus elegans – recorded in 2019 for the first time since 1901

Species not or infrequently recorded recently	Last recorded	NBN records
Hydropsyche siltalai	2008	42
Rhyacophila dorsalis	2007	39
Philopotamus montanus	2013	30
Hydropsyche pellucidula	2007	25
Plectrocnemia geniculata	2006	23
Sericostoma personatum	2004	21
Tinodes maclachlani	2013	21
Cyrnus trimaculatus	2010	14
Triaenodes bicolor	2010	12
Micropterna sequax	2006	10
Apatania muliebris	2006	7
Beraea maurus	2013	7
Polycentropus kingi	2007	7
Limnephilus auricula	1906	6
Limnephilus coenosus	1966	6
Agapetus fuscipes	2007	5
Holocentropus picicornis	1978	5
Hydroptila tineoides	1973	5
Potamophylax cingulatus	1976	5
Limnephilus extricatus	1940	4
Agrypnia obsoleta	2017	3
Athripsodes aterrimus	1968	3
Ceraclea nigronervosa	1960	3
Limnephilus ignavus	1966	3
Limnephilus incisus	2010	3
Molanna albicans	1900	3
Oxyethira falcata	2006	3
Oxyethira flavicornis	1977	3
Oxyethira sagittifera	1976	3
Polycentropus irroratus	2001	3
Psychomyiidae	2007	3
Anabolia nervosa	2015	2
Beraea pullata	1935	2
Cyrnus flavidus	1977	2
Halesus digitatus	1900	2
Limnephilus rhombicus	2017	2
Limnephilus stigma	1966	2
Lype phaeopa	1900	2
Oxyethira frici	1967	2
Stenophylax vibex	1966	2
Wormaldia occipitalis	1960	2
Athripsodes bilineatus	1900	1
Ceraclea annulicornis	1982	1
Hydropsyche angustipennis	1998	1
Hydroptila simulans	1960	1
Hydroptila sparsa	1900	1
Limnephilus borealis	2013	1
Limnephilus flavicornis	2017	1
Limnephilus politus	1970	1
Neureclipsis bimaculata	2002	1
Oecetis lacustris	1960	1
Phryganea bipunctata	1998	1
Plectrocnemia brevis	2007	1

Some of these species are associated with running water Most of the current caddisfly recording is taking place near to a small loch with associated marsh and mire habitats and no running water. It would seem necessary for rather more sampling to take place in other locations. Light traps are a very effective way of obtaining caddisfly records so it may be possible to examine some of the by-catch obtained by other moth trappers at different locations. Occasionally running a light trap alongside flowing water could be productive.

Historical data for caddisflies on NBN shows distinct periods of active caddis recording with slacker periods in between.

Decade	Total Caddis Records	Recorded as Adults	Larvae	Pupa
1850 - 1899	14	14	0	0
1900 - 1909	59	59	0	0
1910 - 1919	37	37	0	0
1920 - 1929	8	8	0	0
1930 - 1939	66	66	0	0
1940 - 1949	17	17	0	0
1950 - 1959	14	13	1	0
1960 - 1969	195	194	1	0
1970 - 1979	38	33	5	0
1980 - 1989	34	28	4	2
1990 - 1999	8	5	2	1
2000 - 2009	216	11	171	34
2010 - 2019	76	49	3	24
Total	**782**	**534**	**187**	**61**

Most of the early recording involved adult caddisflies. They are closely related to moths so may have been a natural group for some lepidopterists to become interested in. The peak in the 2000's was associated with much more recording of larval and pupal stages. Much of this seems to have been based on the RIVPACS procedures for monitoring the health of freshwater ecosystems by environmental agencies such as SEPA.

Phryganea grandis – recorded 15 times in 2019

Keys exist for the identification of the larval stages of caddisflies. These can either be free living or ones that live in a protective case of stones, sand grains or vegetable detritus. Some direct sampling of aquatic habitats would probably increase the number of caddis records and perhaps the range of species and would be a productive strategy.

Order Diptera – True Flies

Recording synopsis

7000 British species, 849 VC110 species, 12.1% of British list. **2019**, 134 records of 55 species, 6.5% of VC List

Episyrphus balteatus - Marmalade Hoverfly

Trypeta zoe - a fruit fly

Ornithomya chloropus - a ked

Sylvicola punctatus - a window gnat

Tipula confusa - a cranefly

Family	Species	Common Name or type	Rec's
Sub-order Brachycera			
Agromyzidae	*Chromatomyia aprilina*	a leaf mining fly	1
	Phytomyza calthophila	a leaf mining fly	1
	Phytomyza ranunculi	a leaf mining fly	1
Drosophilidae	*Scaptomyza flava*	a fruit fly	1
Sepsidae	*Sepsis punctum*	a scavenger fly	1
Syrphidae	*Cheilosia illustrata*	a Hoverfly	1
	Episyrphus balteatus	Marmalade Hoverfly	6
	Eristalis arbustorum	a hoverfly	1
	Eristalis intricarius	a hoverfly	7
	Eristalis pertinax	a hoverfly	1
	Eupeodes corollae	a hoverfly	2
	Helophilus pendulus	a hoverfly	7
	Leucozona glaucia	a hoverfly	1
	Melanostoma scalare	a hoverfly	5
	Meliscaeva auricollis	a hoverfly	1
	Meliscaeva cinctella	a hoverfly	2
	Neoascia podagrica	a hoverfly	1
	Platycheirus manicatus	a hoverfly	1
	Rhingia campestris	a hoverfly	8
	Scaeva pyrastri	a hoverfly	5
	Sericomyia silentis	a hoverfly	8
	Syritta pipiens	a hoverfly	1
	Tropidia scita	a hoverfly	1
	Volucella bombylans plumata	a hoverfly	1
Tephritidae	*Trypeta zoe*	a fruit fly	2
Calliphoridae	*Calliphora vicina*	Common Bluebottle	1
	Cynomya mortuorum	Yellow-faced Blowfly	2
Hippoboscidae	*Ornithomya chloropus*	a ked	1
Muscidae	*Phaonia perdita*	a house fly	1
Rhagionidae	*Chrysopilus cristatus*	Black Snipefly	1
	Rhagio scolopaceus	Downlooker Snipefly	4
Scathophagidae	*Scathophaga stercoraria*	a dung fly	4
Tabanidae	*Chrysops relictus*	Twin-lobed Deerfly	4
	Haematopota pluvialis	Notch-horned Cleg	7
Tachinidae	*Tachina grossa*	a parasitic fly	3
Sub-order Nematocera			
Bibionidae	*Bibio marci*	St Marks Fly	1
	Dilophus febrilis	Fever Fly	1
Cecidomyiidae	*Jaapiella alpina*	a gall midge	1
Anisopodidae	*Sylvicola cinctus*	a window gnat	1
	Sylvicola punctatus	a window gnat	4
Trichoceridae	*Trichocera*	a winter cranefly	1
Ptychopteridae	*Ptychoptera albimana*	a phantom cranefly	1
Limoniidae	*Dicranomyia didyma*	a short-palped cranefly	1
	Dicranomyia ventralis	a short-palped cranefly	1
	Dicranophragma nemorale	a short-palped cranefly	2
	Erioptera lutea	a short-palped cranefly	2
Pediciidae	*Pedicia rivosa*	a hairy-eyed cranefly	1
	Tricyphona immaculata	a hairy-eyed cranefly	4
Tipulidae	*Nephrotoma cornicina*	a cranefly	1
	Tipula confusa	a cranefly	3
	Tipula lateralis	a cranefly	1
	Tipula oleracea	a cranefly	4
	Tipula pagana	a cranefly	1
	Tipula paludosa	a cranefly	7
	Tipula rufina	a cranefly	1
	55 Species	**Total**	**134**

Insects and other invertebrates

With 55 species, the Diptera are second only to the Lepidoptera (343 species) in terms of the number of species of insects recorded in 2019. In terms of the overall diversity of these orders in VC110. There are 510 species of Lepidoptera recorded from the Outer Hebrides and 849 Diptera species. Approximately 6% of the known Diptera species were recorded in 2019.

Suborder	Family	Common Name or type	Species	Records
Brachycera	Agromyzidae	Leaf mining flies	3	3
	Calliphoridae	Bluebottles & blowflies	2	3
	Drosophilidae	Fruit fly	1	1
	Tephritidae	Fruit fly	1	2
	Hippoboscidae	Ked	1	1
	Muscidae	House flies	1	1
	Rhagionidae	Snipeflies	2	5
	Scathophagidae	Dung flies	1	4
	Sepsidae	Scavenger flies	1	1
	Syrphidae	Hoverflies	19	60
	Tabanidae	Clegs, horse flies etc.	2	11
	Tachinidae	Parasitic flies	1	3
Nematocera	Bibionidae	St Marks flies	2	2
	Cecidomyiidae	Gall midges	1	1
	Anisopodidae	Window gnats	2	5
	Trichoceridae	Winter gnats	1	1
	Ptychopteridae	Phantom craneflies	1	1
	[1]Tipuloidea	Craneflies	13	29
[1]Superfamily		Total	55	134

The hoverflies (Syrphidae) were the most frequently recorded group of flies with 60 records of 19 species being submitted by nine different recorders. These nine recorders were responsible for all of the Diptera records though 90% came from just three of them.

After the hoverflies the next most "popular" insects were the craneflies and their allied families (the gnats and phantom craneflies). Together these gave 36 records of 17 species. Most of these (86%) came from a single recorder and originated as moth-trap by-catch.

This by-catch study seemed to be the closest to a systematic survey of Diptera at any location. Most of the other records seem to be casual records of interesting, attractive or odd-looking species. The hoverflies clearly sit in the attractive part of the spectrum and the clegs and horseflies might sneak in that category on the basis of their amazing eyes. The Down-looker Snipe-fly probably comes in the interesting category but has the added attraction of being relatively easy to identify, another key characteristic a dipteran needs before it's recorded.

Helophilus pendulus - the "Footballer" hoverfly

Haematopota pluvialis - Notch-horned Cleg

Chrysops relictus - Twin-lobed Deerfly

Rhagio scolopaceus - Downlooker Snipe-fly

Order Coleoptera – Beetles

Recording synopsis

4000 British species, 439 VC110 species, 11.0% of British list. **2019**, 88 records of 32 species, 7.3% of VC List

Aphodius rufus - a dung beetle

Otiorhynchus singularis - Raspberry Weevil

Family	Species		Rec's
Suborder Adephaga			
Carabidae	*Amara familiaris*	a ground beetle	1
	Calathus melanocephalus	a ground beetle	1
	Carabus glabratus	a ground beetle	2
	Carabus granulatus	a ground beetle	2
	Carabus problematicus	a ground beetle	1
	Carabus violaceus	Violet Ground Beetle	3
	Pterostichus madidus	Rain-Clock	1
	Pterostichus nigrita agg.	a ground beetle	1
Dytiscidae	*Agabus nebulosus*	a diving beetle	2
Gyrinidae	*Gyrinidae*	Whirligig beetles	1
	Gyrinus substriatus	a whirligig beetle	2
Suborder Polyphaga			
Chrysomelidae	*Donacia simplex*	a leaf beetle	2
Coccinellidae	*Adalia decempunctata*	10-spot Ladybird	2
	Coccinella septempunctata	7-spot Ladybird	1
	Coccinella undecimpunctata	11-spot Ladybird	8
Curculionidae	*Otiorhynchus atroapterus*	Black Marram Weevil	1
	Otiorhynchus singularis	Raspberry Weevil	1
	Otiorhynchus sulcatus	Vine Weevil	1
Cantharidae	*Rhagonycha fulva*	Common Red Soldier Beetle	2
Elateridae	*Ctenicera cuprea*	a click beetle	1
Aphodiidae	*Aphodius rufipes*	a dung beetle	7
	Aphodius rufus	a dung beetle	3
Melolonthidae	*Serica brunnea*	Brown Chafer	3
Histeridae	*Saprinus semistriatus*	a carrion beetle	1
Silphidae	*Necrodes littoralis*	Shore Sexton Beetle	1
	Nicrophorus humator	Black Sexton Beetle	4
	Nicrophorus investigator	a sexton beetle	21
	Nicrophorus vespilloides	a sexton beetle	2
	Silpha atrata	Black Snail Beetle	2
	Thanatophilus rugosus	a carrion beetle	4
Staphylinidae	*Creophilus maxillosus*	Carrion Beetle	2
	Staphylinus erythropterus	a rove beetle	2
	32 species	**Total**	**88**

Eighty-eight records of thirty-two beetle species were received in 2019. There is often an element of chance in what gets recorded, interesting or odd things are likely to attract the attention of naturalists. Big ground beetles (12 records of 8 spp.) always seem to feature in yearly lists as do the equally large (and sometimes brightly coloured) sexton beetles (28 records of 4 spp.). A number of other beetles associated with carrion also feature (7 records of 3 spp.) indicating perhaps a more systematic interest in beetles associated with carrion. The dung beetles (10 records of 2 spp.) and two weevils (*O.singularis* and *O.sulcatus*) came from the moth trap by-catch data set and ladybirds (11 records of 3 spp.) are always popular. There were three species (*G.substriatus*, *A.nebulosa* and *D.simplex* found during an exploration of freshwater habitats around Loch Scolpaig. The remaining species probably just happened to be in the right place at the right time to be noticed.

Silpha atrata – Black Snail Beetle, in the right place at the right time to be noticed, identified and recorded.

Order Odonata – Dragonflies & Damselflies

Recording synopsis

49 British species, 12 VC110 species, 24.5% of British list. **2019**, 85 records of 8 species, 66.7% of VC List

Species	Common Name	2017	2018	2019
Aeshna juncea	Common Hawker	11	11	10
Enallagma cyathigerum	Common Blue Damselfly	23	18	13
Ischnura elegans	Blue-tailed Damselfly	22	13	12
Lestes sponsa	Emerald Damselfly	11	5	7
Libellula quadrimaculata	Four-spotted Chaser	17	18	8
Pyrrhosoma nymphula	Large Red Damselfly	35	25	8
Sympetrum danae	Black Darter	9	8	10
Sympetrum striolatum	Common Darter	20	11	17
Total		**148**	**109**	**85**

The OHBR data base considers there to be eight species of Odonata (dragonflies and damselflies) in the Outer Hebrides. The NBN has records of a further four. One (*Sympetrum nigrescens*) has now been subsumed into *Sympetrum striolatum* and the other are vagrants or are based on records of doubtful provenance and haven't been seen in recent years.

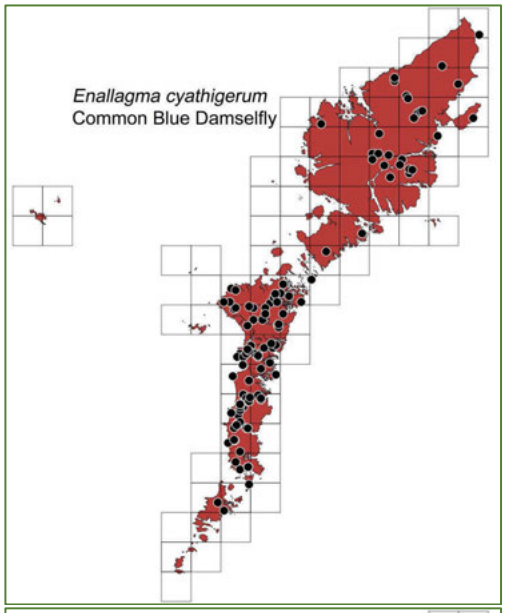
Species	Common Name	Status
Anax ephippiger	Vagrant Emperor	Rare vagrant, single record 2012
Sympetrum nigrescens	Highland Darter	Now considered a dark form of *Sympetrum striolatum*
Cordulegaster boltonii	Golden-ringed Dragonfly	Two post 1950 records of doubtful provenance
Aeshna cyanea	Southern Hawker	One record (2011) from Lewis

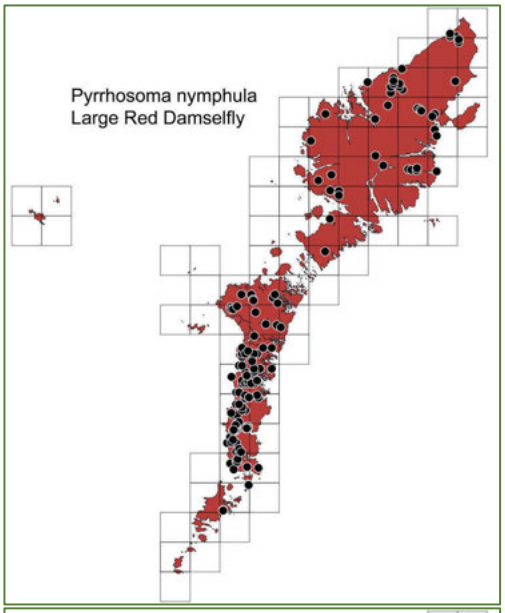
All of the eight species have been recorded in each of the last three years but the number of records has declined. There may have been, a real decline in numbers of these species, poor weather during key flight periods hindering recording in some years for certain species or fewer people recording the group.

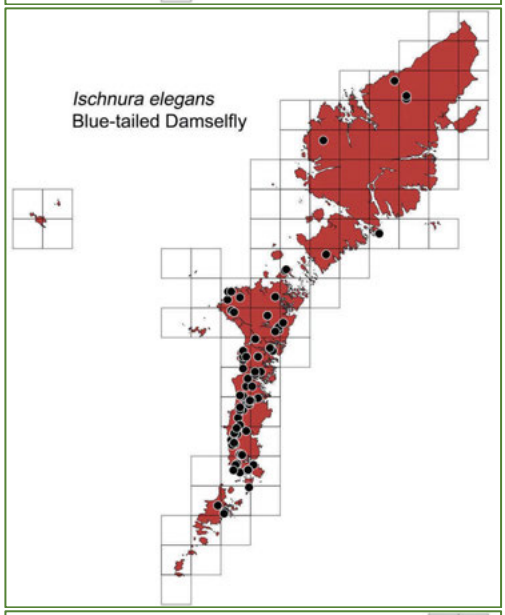
Encouraging recorders to adopt standardised transect or point counts at key locations may be possible and is probably the most effective way of monitoring population change. The British Dragonfly Society has guidelines for those who wish to survey dragonflies. Visits would need to be made at different times of the summer because of the varying activity periods of species. A summary of the flight periods of VC110 species from OHBR data is shown below. Provisional distribution maps are also provided and some work is still needed to verify the true distribution of some species. It is hard to believe, for example, that so few dragonflies or damselflies are found in the Bays area on South Harris.

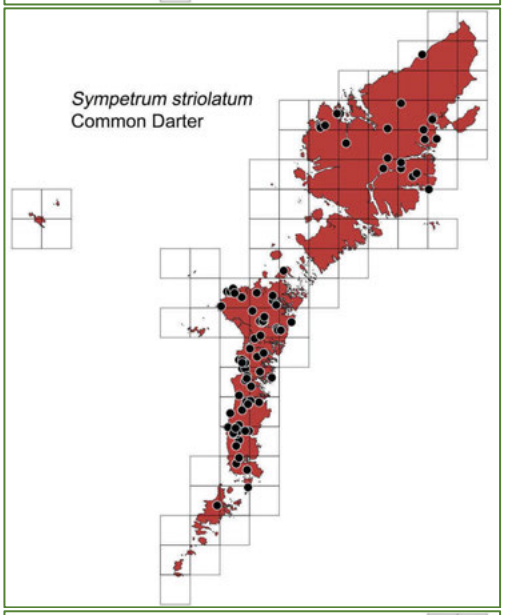
Month	April			May				June					July				August				September					October	
Week number	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
Large Red Damselfly *Pyrrhosoma nymphula*	1			2	10	12	16	23	29	14	13	17	8	7	10	2	1	2	4	2	2	2	1			1	1
Common Blue Damselfly *Enallagma cyathigerum*				1			2	8	6	8	15	19	8	8	8	9	14	13	13	5	1	1					
Blue-tailed Damselfly *Ischnura elegans*				1			4	6	5	11	4	11	8	12	9	7	5	4	4	1	5	3		1		1	
Four-spotted Chaser *Libellula quadrimaculata*					1	3	7	13	20	13	12	14	9	8	8	1	5	2	1	1	2						
Common Darter *Sympetrum striolatum*						1		1	1	1		3	7	10	14	11	21	9	11	6	6	4	4	1			
Common Hawker *Aeshna juncea*											3	2	5	8	13	5	20	19	7	11	7	4	1		1	2	
Emerald Damselfly *Lestes sponsa*														2	1		9	3		6	6	2					
Black Darter *Sympetrum danae*														1	3	2	13	6	11	10	8	8	6		2		

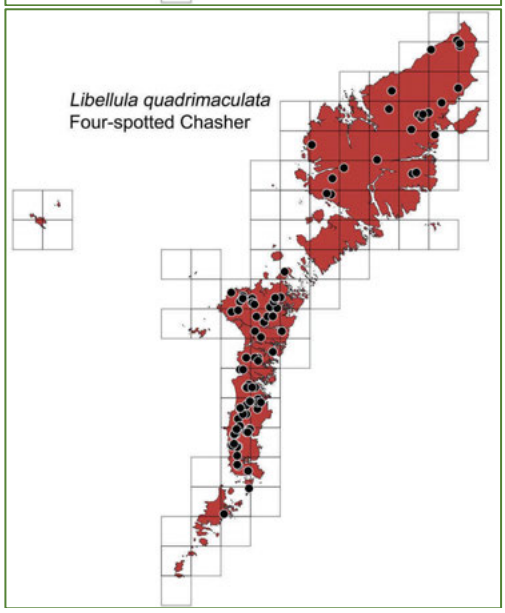
Provisional dragonfly & damselfly distribution maps

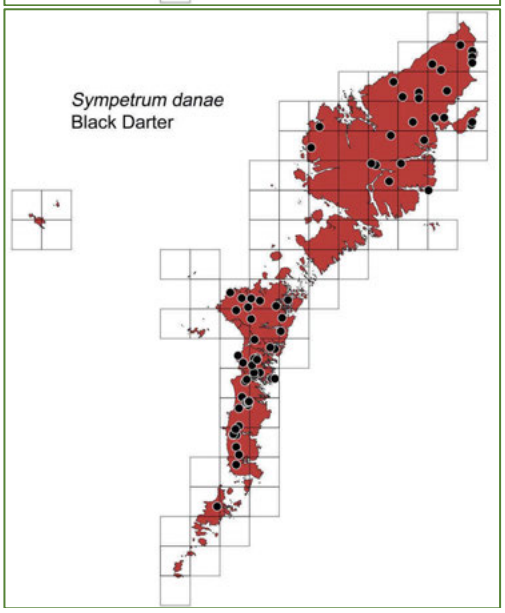




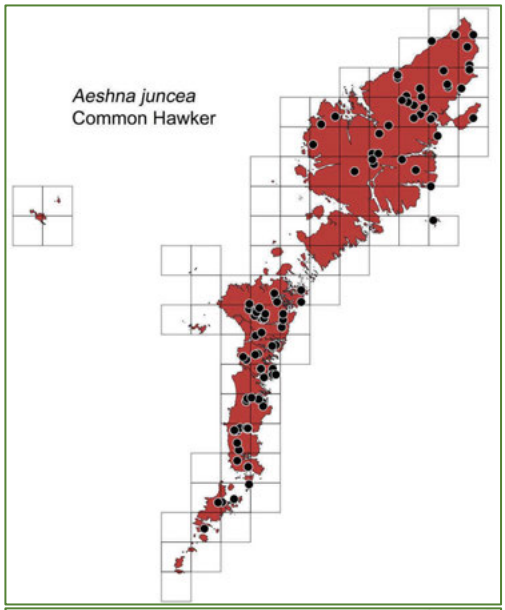


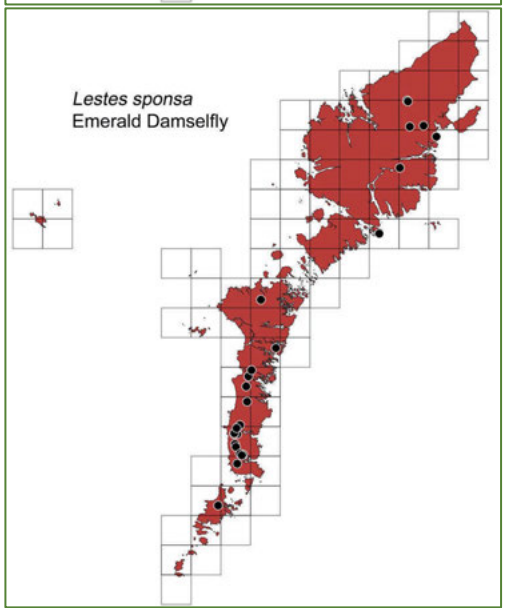






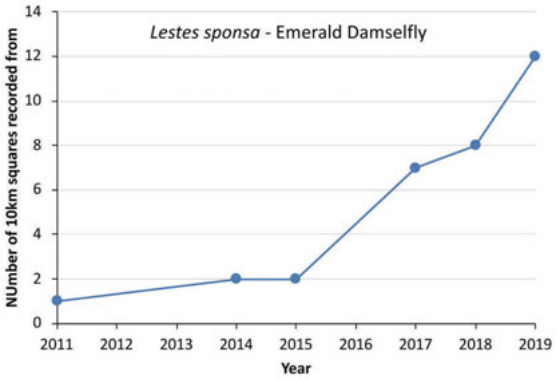
Provisional dragonfly & damselfly distribution maps





The scope for further work is well illustrated by the Emerald Damselfly records. OHBR records for this species start in 2011 with a few records from a 10km on Lewis. A few locations in NF74 on South Uist were added in 2014/15 and in the last three years records from a further ten 10km squares have been added including first records from Barra, North Uist and Scalpay in 2019. There is clearly more to learn about the current distribution of this and other species.

10km Location	Records by year and 10km square						
	2011	2014	2015	2017	2018	2019	Total
NB31 Lewis						1	1
NB33 Lewis				2	2		4
NB42 Lewis	3						3
NF60 Barra						1	1
NF71 South Uist				1			1
NF72 South Uist				6	2	2	10
NF73 South Uist				1		1	2
NF74 South Uist		2	1				3
NF84 Benbecula				1			1
NF85 Ronaigh					1		1
NF87 North Uist						1	1
NG29 Scalpay						1	1
Total	**3**	**2**	**1**	**11**	**5**	**7**	**29**



Lestes sponsa - Emerald Damselfly

Order Hemimptera – True Bugs

Recording synopsis

1830 British species, 59 VC110 species, 3.2% of British list. **2019**, 22 records of 10 species, 16.9% of VC List

Philaenus spumarius - Cuckoo-Spit Insect

Family	Species	Common name or type	Rec's
Suborder Cicadomorpha			
Aphrophoridae	*Philaenus spumarius*	Cuckoo-Spit Insect	5
Cicadellidae	*Evacanthus interruptus*	a leafhopper	1
Suborder Heteroptera			
Miridae	*Closterotomus norwegicus*	Potato Capsid	1
Corixidae	*Corixidae*	Lesser Water-Boatman	1
	Sigara (Sigara) dorsalis	a water-boatman	1
Gerridae	*Gerris*	Pondskater	1
	Gerris (Gerris) lacustris	Common Pondskater	2
Suborder Sternorrhyncha			
Aphididae	*Brachycolus cerastii*	an aphid	1
Psyllidae	*Livia juncorum*	a psyllid	5
Triozidae	*Trioza galii*	a psyllid	4
Total			**22**

Poorly represented in the Outer Hebrides, only 3.2% of the British species are found here. 2019 produced 22 records of 10 species so c.17% of the VC110 was recorded. *Philaenus spumarius* (Cuckoo-Spit Insect) was the most frequently recorded species together with one of the gall forming psyllids, *Livia juncorum*, which forms distinctive galls on the flower heads of Jointed Rush (*Juncus articulatus*).

Evacanthus interruptus – a leafhopper

The other two members of the Sternorrhyncha were also gall formers, *Trioza galii* forms pit-galls on various bedstraws (*Gallium* spp.). The aphid *Brachycolus cerastii* forms galls on Common Mouse-ear and other *Cerastium* species. A single leafhopper, *Evacanthus interruptus*, was only the second record for the Outer Hebrides. It was last seen in 2013 at Askernish on South Uist. The Potato Capsid (*Closterotomus norwegicus*) was a third record after two on Barra and Mingulay again in 2013.

Closterotomus norwegicus - Potato Capsid

Sigara dorsalis – a water-boatman

The final species of Hemiptera recorded in 2019 were two pondskaters and two water boatmen. One pondskater was identified to species as *Gerris lacustris*. There are seven previous pondskater records for VC110 of the same species. Of the two water-boatman records one was identified to species as *Sigara dorsalis*, a commonly recorded species throughout the Outer Hebrides.

Minor Orders

Order	Species	Common name or type	Records
Dermaptera	*Forficula auricularia*	Common Earwig	10
Ephemeroptera	*Caenis luctuosa*	Angler's Curse	5
	Cloeon simile	a mayfly	1
Plecoptera	*Nemoura cinerea*	a stonefly	6
Neuroptera	*Micromus variegatus*	A brown lacewing	2
Orthoptera	*Myrmeleotettix maculatus*	Mottled Grasshopper	2
Psocoptera	*Chilenocaecilius ornatipennis*	a barklouse	1
Archaeognatha	*Petrobius maritimus*	Sea Bristletail	1
Total			28

Forficula auricularia - Common Earwig

Order Dermaptera – Earwigs & Cockroaches

Recording synopsis
7 British species, 1 VC110 species, 14.3% of British list.
2019, 10 records of 1 species, 100% of VC List

The single species of earwig found in the Outer Hebrides was found on ten occasions. Seven of those were as by-catch in a moth trap operated on South Uist. The species was also recorded on Barra and South Uist.

Stream dipping would generate a greater number of records than those that arise through casual observations. It would require the use of microscopes and advanced keys to identify specimens to species level.

Order Ephemeroptera – Mayflies

Recording synopsis
51 British species, 9 VC110 species, 17.6% of British list.
2019, 6 records of 2 species, 22.2% of VC List

Cloeon simile – a mayfly

Two species were recorded in 2019, one occurred in huge numbers. *Caenis luctuosa* is known to anglers as the Angler's Curse as it's mass emergences can swamp their attempt to lure trout to flies. Between 16th and 22nd June over 350 were caught in a moth trap on South Uist. Many thousands more blanketed the grass and walls adjacent to the moth trap.

Order Plecoptera – Stoneflies

Recording synopsis
34 British species, 8 VC110 species, 23.5% of British list.
2019, 6 records of 1 species, 12.5% of VC List

Caenis luctuosa - the Angler's Curse mayfly

Nemoura cinerea – a stonefly

The second species, *Cloeon simile,* was just recorded once as a single individual from the same moth trap. As a group the mayflies are under-recorded in VC110. There are 44 records of 10 species and a few additional records identified just to family level.

A single species was recorded at two locations on South Uist. Most of the records were of individuals caught as by-catch in a moth trap. Another under-recorded order where stream dipping would yield new records.

Order Neuroptera – Lacewings

Recording synopsis
69 British species, 4 VC110 species, 5.8% of British list.
2019, 2 records of 1 species, 25.0% of VC List

A single species of brown lacewing *Micromus variegatus* was recorded on two occasions in July and August from the light trap that produced many of the other records in this section. This tiny lacewing was a first record for the Outer Hebrides. Four other species (9 records) exist on NBN Scotland for this area.

Micromus variegatus – a brown lacewing

Order Orthoptera – Grasshopers & Crickets

Recording synopsis
33 British species, 3 VC110 species, 9.1% of British list.
2019, 3 records of 1 species, 33.3% of VC List

Two records of Mottled Green Grasshopper in early August from South Uist and one from Harris in June are the only ones for 2019.

Order Psocoptera – Barklice or Barkflies

Recording synopsis
33 British species, 0 VC110 species, 0% of British list.
2019, 1 record of 1 species, NEW to VC110

In many respects this was one on the most surprising records made in 2019.

Like many others the specimen was taken as moth trap by-catch and was very small. This species was unknown outside of South America until 2015. In that year four specimens were collected at Glengariff Woods – a nature reserve in County Cork, Republic of Ireland. They were identified and named as this species and at the time they were the very first from the Western Palearctic. It has spread rapidly and is now known from several sites across the UK. This was the first for the Outer Hebrides and indeed is the only record of any barklouse species from the area.

Order Archaeognatha – Bristletails

Recording synopsis
7 British species, 2 VC110 species, 28.6% of British list.
2019, record of 1 species, 50% of VC list

Just a single record of Sea Bristletail, *Petrobius maritimus,* from Scolpaig, North Uist in late August.

Ideas for insect recording in the future

- Encourage moth trappers to record by-catch, offer support to aid identification of unfamiliar groups.
- Establish recording transects or spot count locations as "constant effort" locations for bumblebees, dragonflies and butterflies in typical habitats, iconic locations or under-recorded areas. Tentative suggestions are:
  - Barra – Northbay woods and Loch an Dùin
  - North Loch Eynort – woodland
  - Druidibeg – machair to moorland
  - Balranald – machair
  - Bays of Harris
  - Stornoway – woodland and woodland edge
  - Loch Stiapabhat, Ness
- Provide mentoring support for new recorders of groups such as Bumblebees, Dragonflies, and Butterflies to support establishment of "constant effort" recording areas.
- Identify distribution gaps and encourage more recording in areas such as Bays of Harris and Ness area of Lewis. Butterflies and Dragonflies initially and other orders as provisional distribution maps are developed.
- Support "own patch" recording and encourage more systematic coverage of less recorded taxa.
- Provide skills training and support for recorders wanting to carry out freshwater invertebrate sampling.
- VC110 wide surveys of important local species eg. Belted Beauty (*Lycia zonaria*).

Chilenocaecilius ornatipennis – a barkfly

Invertebrates other than Insects

Eighteen recorders submitted 75 records of 53 different species in 2019. This was almost identical to 2018 except that slightly fewer people (18) were involved in recording in 2019 than in 2018 (21). Compared to 2018 only about a quarter (25.7%) of the total records were submitted and 57% of the number of species were recorded.

Phylum	Common Name	No. of records			No of species		
		2017	2018	2019	2017	2018	2019
Mollusca	Snails, Limpets, Mussels and many similar marine and freshwater animals	139	31	27	43	28	20
Arthropoda	Spiders, Mites, Woodlice, Millipedes, Crabs, Lobsters etc.	74	24	19	22	16	15
Cnidaria	Corals, Jellyfish, Hydra etc.	48	18	15	10	5	7
Echinodermata	Sea Urchins, Starfish, Brittlestars, Sea Potatoes etc.	14	1	3	5	1	3
Amoebozoa	Amoeba	3			1		
Annelida	Marine Polychaete and other worms	3	1		3	1	
Ctenophora	Comb Jellies eg Sea Gooseberry	2		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	1	1	3
Ciliophora	Microscopic Ciliates such as Paramecium	1			1		
Foraminifera	Forams (microscopic marine ameboid Protists)	1			1		
Gastrotricha	"Hairy-backs" - microscopic worm like animals	1			1		
Myzozoa	Microscopic animals related to the Ciliates	1			1		
Rotifera	Rotifers			2			2
Total		**291**	**76**	**75**	**93**	**53**	**53**

Over half the recorders sent in single records and these were almost invariably of interesting marine species such as Jelly Fish, By-the-wind Sailor, Salps. These are typical species that get washed up on the shore, and are likely to be found on a casual basis by any visitor to our beaches. In total thirty-two of the fifty-three species found were marine organisms, sixteen were terrestrial and five associated with freshwater habitats.

Terrestrial and freshwater species

Phylum Arthropoda – spiders, harvestmen etc.

Twelve records of ten species of terrestrial (T) or freshwater (F) arthropod were recorded in 2019. Most of these were single records with just one arachnid - *Aceria thomasi*, a Gall mite, and one isopod - *Porcellio scaber,* the Common Rough Woodlouse, being recorded twice. Three spiders were recorded once. Two were the common Cobweb Spider and Garden Orb-web Spiders.

Aceria thomasi, a gall forming mite on Thyme

Class	Order	Species	Common Name or type	Habitat	Records
Arachnida	Araneae	*Araneus diadematus*	Garden Orb-Web Spider	T	1
		Pholcus phalangioides	Cobweb Spider	T	1
		Tetragnatha	a Long-jawed Orb Weaver	T	1
	Opiliones	*Mitopus morio*	a Harvestman	T	1
		Platybunus triangularis	a Harvestman	T	1
	Prostigmata	*Aceria thomasi*	a Gall mite	T	2
Branchiopoda	Diplostraca	*Acroperus harpae*	a Water flea	F	1
Chilopoda	Lithobiomorpha	*Lithobius*	a Centipede	T	1
Diplopoda	Julida	*Tachypodoiulus niger*	White-legged Snake Millipede	T	1
Malacostraca	Isopoda	*Porcellio scaber*	Common Rough Woodlouse	T	2
Total					**12**

Porcellio scaber - Common Rough Woodlouse

Tetragnatha sp. - a Long-jawed Orb Weaver

Platybunus triangularis - a Harvestman

The other spider, a long-jawed Orb Weaver, was only identified to genus – *Tetragnatha* sp. Identification of spiders can be difficult and often requires examination of their genitalia and palps. This can be difficult to achieve on live specimens and spider recorders often have to maintain sprit collections of specimens for identification and verification. Even a detailed digital photograph of the underside of the *Tetragnatha* sp. shown here was insufficient for confirmation at a species level.

With a more restricted number of UK species harvestmen can be easier to identify and the FSC fold-out chart covers all those found outside and in addition there is a multi-access lateral key to the group here: https://harvestmen.fscbiodiversity.uk. *Platybunus triangularis* has been recorded just twice previously from the Outer Hebrides.

Harvestmen records by year Species	2010	2013	2014	2015	2016	2017	2018	2019	Total
Mitopus morio	1	8		2	2	1		1	14
Nemastoma bimaculatum					2				2
Phalangium opilio		2							2
Megabunus diadema			1						1
Platybunus triangularis				1				1	1
Dicranopalpus ramosus							1		1

There is an old (1935) record from Barra and a more recent (2015) one from Cladh Hallan, South Uist. Since the year 2000 there have only been 21 reocrds of six species of harvestmen from the Outer Hebrides. This group is probably easier to identify now and warrants more attention.

The remaining arthropods were single records of a millipede, centipede and water flea.

Phylum Mollusca – slugs and snails

Fourteen records of nine species of mollusc were submitted in 2019. The 2018 report featured just three species of non-marine snail so there has been a small but welcome increase in Mollusc records in 2019.

There were two records of freshwater snails, *Radix balthica*, the Wandering Snail, and *Potamopyrgus antipodarum*, Jenkins' Spire Snail. Both came from Scoplaig on North Uist and were collected as part of a wider study of the freshwater habitats there. The remaining records were of five slug species a single Heath Snail (*Helicella itala*) and four Common Garden Snails (*Cornu aspersum*).

Insects and other invertebrates

Potamopyrgus antipodarum - Jenkins' Spire Snail

Radix balthica - Wandering Snail

Class	Order	Species	Common Name or type	Habitat	Records
Gastropoda	Hygrophila	*Radix balthica*	Wandering Snail	F	1
	Littorinimorpha	*Potamopyrgus antipodarum*	Jenkins' Spire Snail	F	1
	Pulmonata	*Arion flagellus*	Green-soled Slug	T	3
		Cornu aspersum	Common Garden Snail	T	4
		Deroceras laeve	Marsh Slug	T	1
		Deroceras reticulatum	Netted Field Slug	T	1
		Deroceras invadens	Tramp Slug	T	1
		Helicella itala	Heath Snail	T	1
		Tandonia sowerbyi	Sowerby's Keeled Slug	T	1
Total					**14**

Tandonia sowerbyi - Sowerby's Keeled Slug

The slug records came from a surprising source. They were all associated with a light trap and came from a study of the by-catch of that trap. A small drainage hole on the underside of the trap allows water to leave but also allows slugs slugs to enter. One of the four slug species recorded in 2019 has been recorded just once before. Sowerby's Keeled Slug (*Tandonia sowerbyi*) is known previously only from a single record from Barra. The others have been more commonly recorded in the past.

Phylum Rotifera

Class	Order	Species	Common Name or type	Habitat	Records
Eurotatoria	Bdelloidea	*Philodina roseola*	a Rotifer	F	1
	Ploima	*Keratella cochlearis*	a Rotifer	F	1
Total					**2**

Insects and other invertebrates

Marine species

Phylum Cnidaria - jellyfish, anemones etc.

Fifteen record of seven species including four jellyfish, two hydroids and one anemone. Most were recorded as beached the exception being *Clava multicornis* which was a found during a dive at Loch Skiport.

Class	Order	Species	Common Name or type	Records
Anthozoa	Actiniaria	*Actinia equina*	Beadlet Anemone	1
Hydrozoa	Anthoathecata	*Clava multicornis*	Club-headed Hydroid	1
		Velella velella	By-the-wind Sailor	3
Scyphozoa	Rhizostomeae	*Rhizostoma pulmo*	Barrel Jellyfish	4
	Semaeostomeae	*Aurelia aurita*	Moon Jellyfish	2
		Chrysaora hysoscella	Compass Jellyfish	1
		Cyanea capillata	Lion's Mane Jellyfish	3
Total				**15**

Velella velella - By-the-wind Sailor

Mass stranding of assorted jellyfish

Phylum Mollusca - snails, limpets, mussels etc.

Thirteen records of eleven species. Seven of the species were recorded on a walk on the beach at Luskentyre on Harris, two more at Traigh Hornais on North Uist, two on Gighay and single species at Howmore and Ormiclate on South Uist. Recorders need to spend more time on the beach in 2020.

Class	Order	Species	Common Name or type	Records
Bivalvia	Euheterodonta	*Ensis*	a Razor shell	1
	Mytiloida	*Mytilus edulis*	Common mussel	2
	Veneroida	*Arctica islandica*	Icelandic Cyprine	1
		Chamelea gallina	Striped Venus Clam	1
		Limecola balthica	Baltic Tellin	1
Cephalopoda	Sepiida	*Sepia officinalis*	Common Cuttlefish	1
Gastropoda	Gastropoda	*Patella pellucida*	Blue rayed limpet	1
		Patella vulgata	Common Limpet	2
	Littorinimorpha	*Euspira catena*	Necklace shell	1
	Neogastropoda	*Buccinum undatum*	Common whelk	1
		Nucella lapillus	Dog Whelk	1
Total				**13**

Insects and other invertebrates

Phylum Arthropoda – crabs, lobsters, barnacles etc.

Just seven records of five species. Two crabs, a goose barnacle and the amphipod *Phronima sedentaria* were all likely to have been found as strandline records; the barnacle *Semibalanus balanoides* was more likely to have been found attached to rocks. *Phronomia* is almost always found within a transparent, gelatinous casing formed from the outer layers of a Salp or similar gelatinous zooplankton species.

> "*Phronima sedentaria* is a type of hyperiid amphipod, or small crustacean, that preys on gelatinous plankton, such as salps. The free-floating organism is equipped with claw-like appendages that slice open its victims, enabling the creature to crawl in and devour the soft tissues from the inside out. It then uses the leftover bits of the prey's body to build a gelatinous protective home, or barrel, where females can deposit their young"
> Lauren J. Young Science Friday October 29th 2015.

Class	Order	Species	Common Name or type	Records
Malacostraca	Amphipoda	*Phronima sedentaria*	an Amphipod	1
	Decapoda	*Carcinus maenas*	Green Shore Crab	3
		Hyas araneus	Great Spider Crab	1
Maxillopoda	Lepadiformes	*Lepas anatifera*	Common Goose Barnacle	1
	Sessilia	*Semibalanus balanoides*	Acorn Barnacle	1
Total				**7**

Phylum Chordata – sea squirts etc

Strictly speaking these should be considered along with the vertebrates as they possess a primitive structure called a notochord that is a precursor of a proper spine. They are marine organisms that are generally found with other marine organisms and we will consider them here. Six records of three species were collected in 2019. Two were sea squirts that normally live attached to rocks. The third was a salp, these are gelatinous members of the zooplankton and its generally their empty skin that is washed up on beaches.

Class	Order	Species	Common Name or type	Records
Ascidiacea	Phlebobranchia	*Ascidiella scabra*	a Sea squirt	1
	Stolidobranchia	*Botrylloides leachii*	a Sea squirt	1
Thaliacea	Salpida	*Salpida*	a planktonic Tunicate	4
Total				**6**

Phylum Echinodermata – starfish, brittle stars, sea urchins etc.

Three records, individuals of three species the Common Starfish (*Asterias rubens*) and two sea urchins Edible Sea Urchin (*Echinus esculentus*) Sea potato (*Echinocardium cordatum*). All three are commonly found washed up on beaches throughout the Outer Hebrides.

Class	Order	Species	Common Name or type	Records
Asteroidea	Forcipulatida	*Asterias rubens*	Common starfish	1
Echinoidea	Camarodonta	*Echinus esculentus*	Edible Sea Urchin	1
	Spatangoida	*Echinocardium cordatum*	Sea potato	1
Total				**3**

Phylum Porifera – sponges

Two records of two species of sponge.

Class	Order	Species	Common Name or type	Records
Calcarea	Leucosolenida	*Grantia compressa*	Purse Sponge	1
Demospongiae	Halichondrida	*Halichondria panicea*	Breadcrumb Sponge	1
Total				**2**

Phylum Ctenophora – sea gooseberries

Just one record of a Sea Gooseberry in 2019, on Askernish beach.

Vertebrates

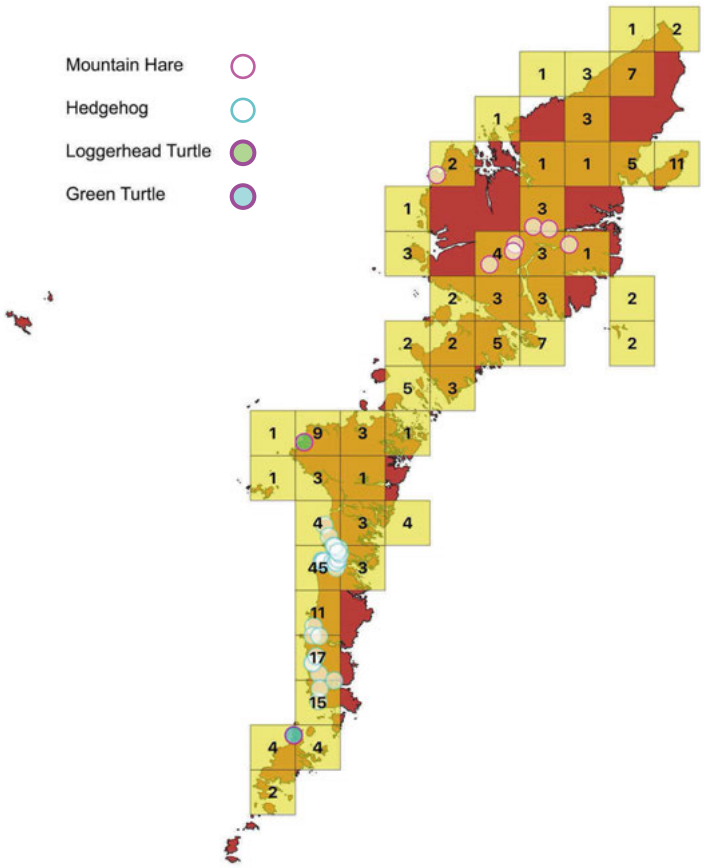
A good year for vertebrate recording. Once again, more individuals contribute to recording vertebrates than to any other taxonomic grouping. Two thirds of people submitted just single records, usually of an exciting species such as an Otter or a Cetacean such as Common Porpoise, Dolphin or Minke Whale.

Vertebrate records received			
	2017	2018	2019
Records	160	158	171
Species	36	29	31
Recorders	46	34	49

As in 2018 many of the records were of casualties. Two-thirds of all Hedgehog records were of road kill and two-thirds of cetacean sightings were of stranded or dead animals on various beaches around our coasts. The only species where droppings, footprints or other signs were important sources of records were Otter and Rough Hound. For this last species, two of the records were of egg cases washed up on beaches.

Type	Species	Common name	Seen from boat	Stranded or otherwise dead	Droppings, footprints, runs or other signs	Caught/trapped	General observation	Total
Fish								
Bony Fish	*Gasterosteus aculeatus*	Three-spined Stickleback				1		**1**
	Spinachia spinachia	Sea Stickleback					1	**1**
	Thunnus thynnus	Blue-fin Tuna					1	**1**
	Salmo salar	Atlantic Salmon					1	**1**
	Cyclopterus lumpus	Lumpsucker		1				**1**
Shark, ray etc.	*Scyliorhinus canicula*	Rough Hound			2		1	**3**
	Cetorhinus maximus	Basking Shark	1				1	**2**
Amphibian								
Frog	*Rana temporaria*	Common Frog		1			15	**16**
Reptile								
Lizard	*Anguis fragilis*	Slow-worm					2	**2**
Turtle	*Caretta caretta*	Loggerhead Turtle		1				**1**
	Chelonia mydas	Green Turtle		1				**1**
Mammal								
Deer	*Cervus elaphus*	Red Deer					2	**2**
Carnivore	*Halichoerus grypus*	Grey Seal		1			8	**9**
	Lutra lutra	European Otter		4	10		12	**26**
	Phoca vitulina	Common Seal					6	**6**
Cetacean	*Balaenoptera acutorostrata*	Minke Whale		2			2	**4**
	Delphinidae	Dolphin sp.		1				**1**
	Delphinus delphis	Common Dolphin		5			1	**6**
	Globicephala melas	Long-finned Pilot Whale		3				**3**
	Grampus griseus	Risso's Dolphin		1				**1**
	Orcinus orca	Killer Whale					2	**2**
	Phocoena phocoena	Common Porpoise		5			4	**9**
	Physeter macrocephalus	Sperm Whale		2				**2**
	Stenella coeruleoalba	Striped Dolphin		2				**3**
	Tursiops truncatus	Bottle-Nosed Dolphin					2	**2**
Insectivore	*Erinaceus europaeus*	Hedgehog		23			9	**32**
	Sorex minutus	Pygmy Shrew		1		1	6	**8**
Lagomorph	*Lepus timidus*	Mountain Hare			1		5	**6**
	Oryctolagus cuniculus	Rabbit					5	**5**
Rodent	*Microtus agrestis*	Field Vole		4			1	**5**
	Rattus norvegicus	Brown Rat		7			2	**9**
Total			**1**	**66**	**13**	**2**	**89**	**171**

Vertebrates



Distribution of vertebrate sightings

Records of vertebrates were received from 47 10km spread covering most of the Outer Hebrides. There is a slight concentration of records on South Uist where some of the most active recorders live and numbers of records are boosted there by an appreciable number of Hedgehog records.

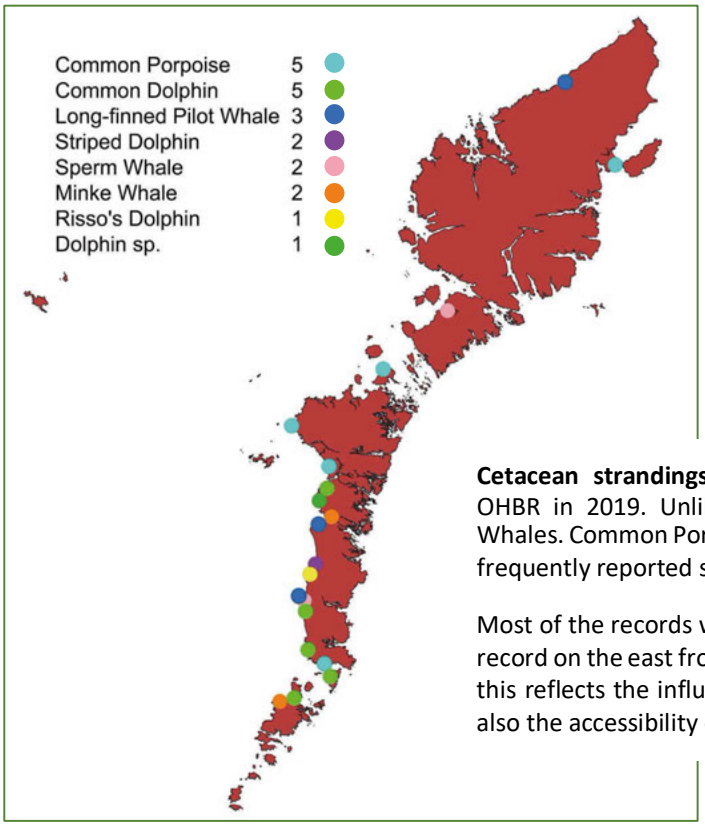
Certain species had very localised distributions. Hedgehog records were confined to South Uist and Benbecula. Mountain Hare was only recorded on Harris and Lewis.

Also worthy of general note were two turtles – a Loggerhead was recorded from Hosta, North Uist in March and a Green Turtle was found on Barra in December.

Cetaceans

Killers Whales were recorded from Tiumpan Head, Lewis on two dates, 19th June and 12th August. On the basis of photographs the individual on the first date was identified as being from the Moussa Pod from Shetland. The individual on the second occasion was from the West Coast Pod.

The remaining records of live Cetacean was made up of a few sightings of Harbour Porpoise, Common Dolphin, and two Bottle-nosed Dolphin, both at Ardivachar Point. There were just a couple of Minke Whale sightings, one from Barra the other off Scalpay.



Cetacean strandings - there were twenty-one recorded by OHBR in 2019. Unlike 2018 there were no Cuvier's Beaked Whales. Common Porpoise and Common Dolphin were the most frequently reported species.

Most of the records were from the west coast with just a single record on the east from The Braigh near Stornoway. Presumably this reflects the influence of prevailing winds and currents but also the accessibility of the coast to wandering recorders.

Other Mammals (non Cetaceans)

Species	Records
Hedgehog	32
European Otter	26
Grey Seal	9
Brown Rat	9
Pygmy Shrew	8
Common Seal	6
Mountain Hare	6
Rabbit	5
Field Vole	5
Red Deer	2
Total	**106**

Of the non-Cetacean species Hedgehog and Otter are the only ones recorded more than twenty times. Hedgehog remain common and abundant on South Uist and Benbecula and are regularly recorded as road-kill.

Grey Seal and Common Seal are much more abundant than their number of records suggest. They are more or less constant around the coasts of most islands, are often commented on by visitors but rarely recorded.

Brown Rat, Field Vole and Pygmy Shrew are probably widespread but, when compared to the seals, much less likely to be spotted and are similarly under recorded.

Phoca vitulina - Common Seal

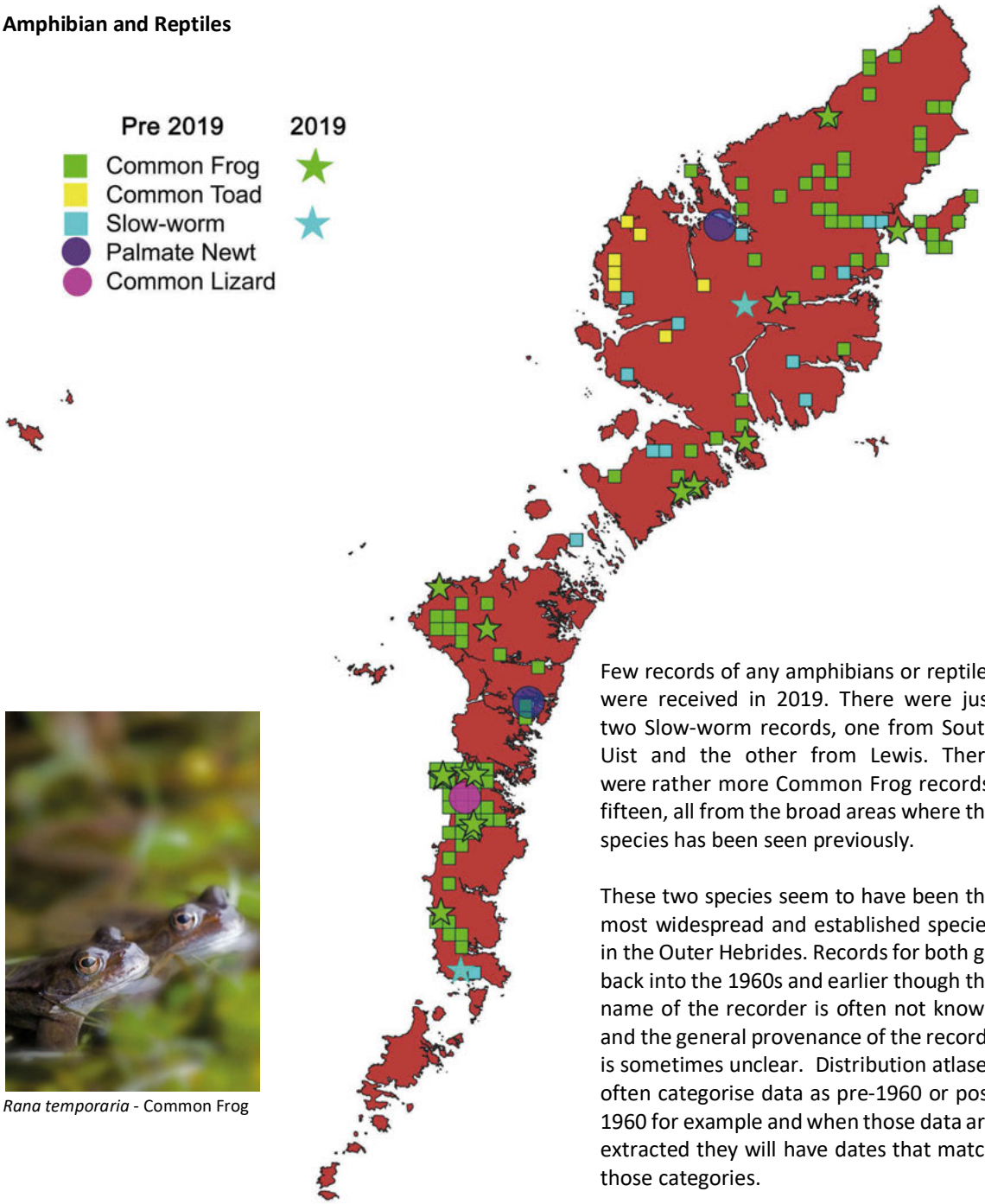
Oryctolagus cuniculus - Rabbit

Rabbit numbers, certainly on parts of South Uist seem very low at the moment but presumably will increase cyclically as they have in the past. Mountain Hare is restricted both geographically (Harris and Lewis only) and altitudinally. They are only likely to be spotted by those who venture into the higher parts.

Red Deer is another species where records don't seem to match abundance on the ground. Almost anyone who has used one of the late ferries, particularly in the colder months is likely to have spotted Red Deer waiting in ambush alongside the roads.

Cervus elaphus - Red Deer, Loch Druidibeg

Amphibian and Reptiles



Rana temporaria - Common Frog

Few records of any amphibians or reptiles were received in 2019. There were just two Slow-worm records, one from South Uist and the other from Lewis. There were rather more Common Frog records, fifteen, all from the broad areas where the species has been seen previously.

These two species seem to have been the most widespread and established species in the Outer Hebrides. Records for both go back into the 1960s and earlier though the name of the recorder is often not known and the general provenance of the records is sometimes unclear. Distribution atlases often categorise data as pre-1960 or post 1960 for example and when those data are extracted they will have dates that match those categories.

Records by species and year Species	1900	1960	1963	1966	1997	2000	2002	2005	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Total
Common Frog	2	4		1				1	2	2	6	4	16	6	18	24	11	16	21	9	15	143
Common Lizard						2																2
Common Toad										4		2		2			1	1				10
Palmate Newt																			4	1		4
Slow-worm	8	4	2		1		1				1			1	2				3	3	2	32
Total	10	8	2	1	1	2	1	1	2	6	7	6	16	9	20	24	12	18	28	13	17	193

No records of Common Toad have been received since 2016 and it would be interesting to see whether this species still exists on Lewis. Common Lizard was never more than an accidental import with cargo to the Range on South Uist. It is unsure whether Palmate Newt became established on Grimsay or Great Bernera.

Fish

Scyliorhinus canicular - Rough Hound, egg case with developing embryo.

Scyliorhinus canicular - Rough Hound, empty egg case found on the drift line.

Ten records of seven species of fish were received in 2019. Two of the species were members of the Class Elasmobranchii which includes sharks and rays. There were two sightings of Basking Shark both in May in the Sound of Harris. The other species was a much smaller shark the Rough Hound. The empty egg cases of this species are commonly found on the drift line and formed the basis of two of the three records for 2019.

The other main class of fish is the Actinopterygii. These are known as Bony Fish to separate them from the sharks and rays that have cartilaginous skeletons. There were single records of five species.

Easily the most interesting of which was a sighting of two large Blue-fin Tuna (*Thunnus thynnus*) that were photographed leaping from the sea off Tiumpan Head, Lewis, in November. The fish are big and reputed to be one of the fastest. They can weigh up to 900kg and can travel at speeds of up to 70 kilometres per hour (43mph).

Once common around UK shore, a commercial sport fishery operated off Scarborough in the 1930s, it declined partly through overfishing but perhaps also because of changes in sea temperature caused by the Atlantic Multidecadal Oscillation. This seems to be in a warm phase and this could very well alter the distribution of several marine species.

There appear to be an increasing number of Blue-fin Tuna seen around UK shores. One made headlines in October 2017 when one weighing 300kg managed to burst through the net forming one of the fish cages of a salmon farm off Colonsay. It was safely caught and released back into the sea. Currently protected, there is some pressure chiefly from recreational anglers to allow catch and release fishing of the species. The move is opposed by fisheries scientists who consider the recovery of populations of this species to be unsecured as yet.

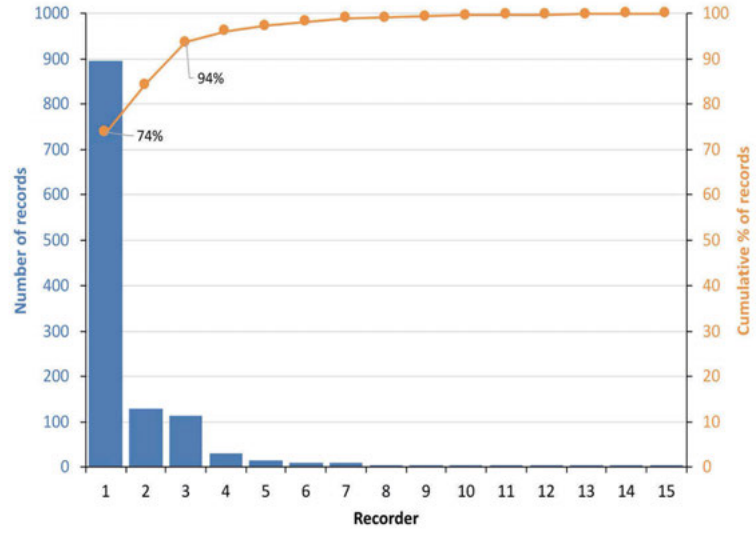
Fungi, Lichens & Slime moulds

KINGDOM Phylum	Type	Species	%	Records	%
FUNGI					
Ascomycota	fungus	11	3.7	20	1.7
	lichen	218	73.6	1107	91.4
Basidiomycota	fungus	62	20.9	78	6.4
	lichen	3	1.0	4	0.3
PROTOZOA	slime mould	2	0.7	2	0.2
Total		**296**		**1211**	

There were 1211 records of 296 species of fungi, lichens and slimemoulds received in 2019. Slimemoulds have traditionally been studied by mycologists but are now thought of as Protozoa hence their inclusion in this section.

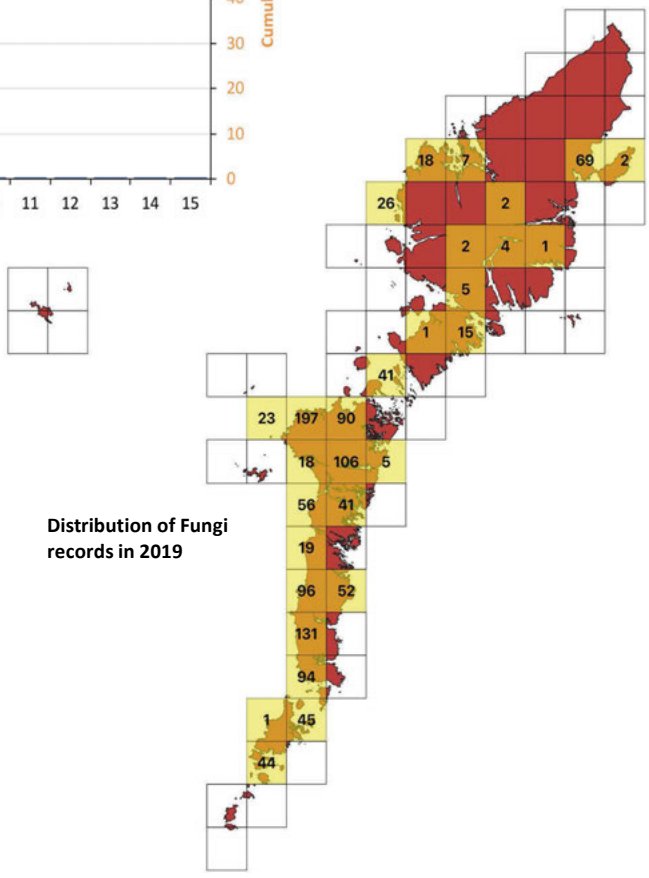
Lichens, although a mutualistic relationship between a fungus and various other organisms (mainly algae), are classified by the status of the fungal partner. Most of the lichen forming fungi belong to the phylum Ascomycota. This group of lichens dominated the 2019 records, 74% of the species and 91% of the total records were of lichen forming Ascomycota.

Fifteen recorders were involved in the submission of fungi records in 2019. One recorder, a visiting lichenologist, contributed 74% of all the records (all lichen forming Ascomycota species). As befits the chair of the British Lichen Society's Churchyard Lichen Group many of this person's records were from standing stones, stone circles, burial grounds etc. on Barra and the Uists.



In total 87% of records in 2019 were from the Uists, Benbecula and Barra. Only 13% came from Harris and Lewis.

Fuligo septica – a slimemould



Distribution of Fungi records in 2019

Plants, seaweeds etc.

KINGDOM / Phylum	Type of "Plant"	Species 2017	Species 2018	Species 2019	Records 2017	Records 2018	Records 2019
BACTERIA							
Cyanobacteria	Blue-green Bacteria	10	5	3	12	10	3
CHROMISTA							
Ochrophyta	Brown Seaweeds etc	19	14	14	109	33	18
	Diatoms	1	1	2	1	2	2
PLANTAE							
Rhodophyta	Red Seaweeds	40	12	3	68	13	3
Chlorophyta	Green Seaweeds	34	6	5	60	8	6
	Other green algae	3	9	12	3	13	14
Charophyta	Desmids	60	367	358	60	924	959
	Stoneworts	1	3	-	1	4	-
	Other Charophyta	1	-	-	1	-	-
Anthocerophyta	Hornworts	-	-	1	-	-	1
Marchantiophyta	Liverworts	88	71	72	398	224	207
Bryophyta	Mosses	182	150	144	1011	527	569
Pteridiophyta	Horsetails	4	3	3	65	14	20
	Ferns	21	16	15	145	67	59
Tracheophyta	Clubmosses & Quillworts	2	2	2	2	7	3
	Flowering Plants	304	342	298	3213	1789	1949
	Conifers	6	3	3	17	7	7
	Total	**776**	**1013**	**935**	**5166**	**3642**	**3820**

The organisms considered in this section range from microscopic bacteria through to massive multicellular trees. It is somewhat artificial to lump them all together but they do have one thing in common – the ability to fix light through photosynthesis. All have been considered plants at some point in the past.

In total 3820 records were received from sixteen recorders covering 935 taxa (includes species, sub species and varieties) of plants. The number of people sending in plant records is the second lowest of all our main taxonomic groupings. Only the fungi had fewer recorders.

Recorder	Tracheophyta	Charophytes	Bryophytes	Pteridiophyta	Ochrophyta	Chlorophyta	Rhodophyta	Blue-green Bacteria	Total
1	1471	-	-	64	-	-	-	-	1535
2	1	754	-	-	8	12	3	2	779
3	-	-	776	-	-	-	-	-	776
4	281	78	-	4	8	7	1	2	380
5	122	-	-	5	-	-	-	-	127
6	-	121	-	-	-	-	-	-	121
7	50	-	-	-	-	-	-	-	50
8	20	-	-	1	-	-	-	-	21
9	11	6	-	1	1	1	-	-	20
10	1	-	-	-	2	-	-	-	3
11	2	-	-	1	-	-	-	-	3
12	2	-	-	-	-	-	-	-	2
13	1	-	-	-	-	-	-	-	1
14	-	-	-	-	1	-	-	-	1
15	1	-	-	-	-	-	-	-	1
16	1	-	-	-	-	-	-	-	1
Total	**1963**	**959**	**776**	**76**	**20**	**20**	**4**	**4**	**3820**

Group	Recorders	Records	Records /recorder
Vertebrates	49	171	3.5
Lepidoptera	41	3461	84.4
Other Insects	25	703	28.1
Other Invertebrates	18	75	4.2
All plants	16	3820	238.8
Tracheophyta	13	1963	151.0
Ochrophyta	5	20	4.0
Charophytes	4	959	239.8
Chlorophyta	3	20	6.7
Rohodophyta	2	4	2.0
Blue-green Bacteria	2	4	2.0
Bryophytes	1	776	776.0

The few active recorders for this group returned an impressive number of records however. A single recorder sent in 776 records of bryophytes (hornworts, liverworts and mosses). All from Harris and Lewis.

Over 70% of all the records of flowering plants and ferns came from a visiting botanist (Recorder 1) surveying under-recorded monads (1km squares) for the forthcoming BSBI plant atlas. Most of these were on Harris and Great Bernera, 87% of the records of Desmids (Charophyta) came from two resident recorders based on South Uist.

The reliance on a limited number of specialist recorders for the bulk of the plant records has led to an uneven distribution of the 2019 records across the area. This is most marked for the bryophytes where all the records are from Harris and Lewis. Whilst not quite so uneven, Harris was the location for 65% of the flowering plant and fern records, and North Uist provided 55% of records of algae.

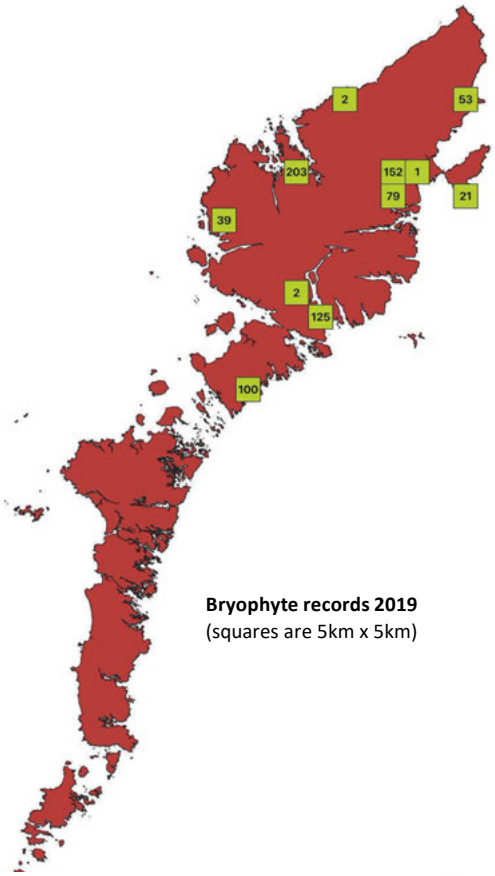
Plants, seaweeds & other algae

	Bryophytes		Algae		Flowering plants and ferns	
Lewis	550	71%	146	15%	271	13%
Harris	227	29%	55	5%	1335	65%
North Uist			554	55%	256	13%
Benbecula						
South Uist			251	25%	98	5%
Barra etc.					79	4%
Total	**777**		**1006**		**2039**	

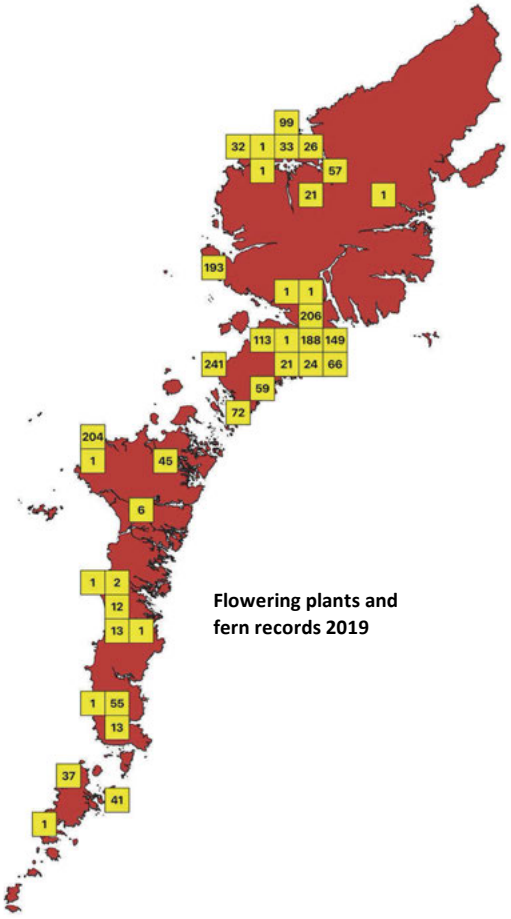
As the main recorders for algae are resident naturalists then it is likely that there will be an element of "gap filling" leading to a rather more even distribution of records in future years.

The reliance on visiting botanists for the more general records of flowering plants and ferns is disappointing. In 2018 it was a group of botanists from the Floodplain Meadows Partnership, in 2019 a single visiting botanist.

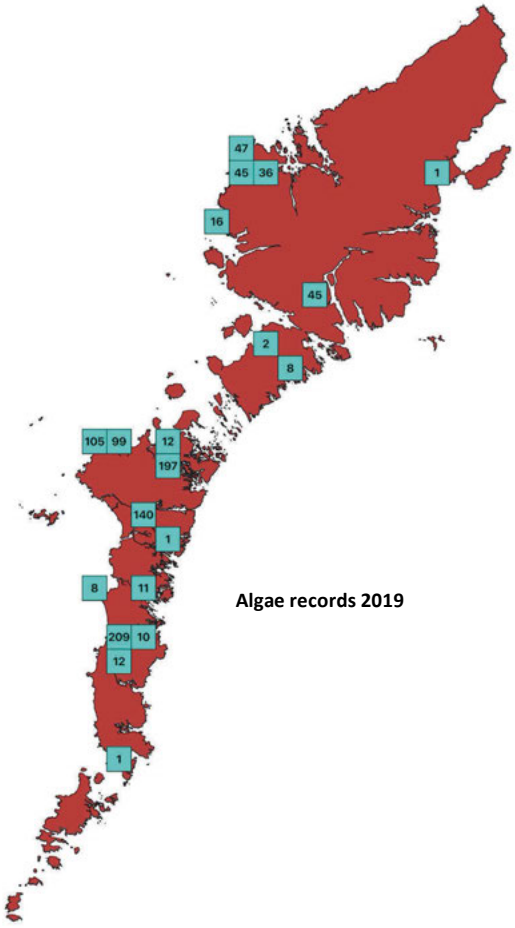
Even casual records of common species (as are submitted for other taxonomic groups) are valuable in building a picture of the current distribution of plants in the Outer Hebrides and providing a baseline for describing future changes.



Bryophyte records 2019
(squares are 5km x 5km)



Flowering plants and fern records 2019



Algae records 2019

Cyanobacteria - Blue-green bacteria

Identification of these requires specialist texts and microscopic examination. Three records of three species received in 2019 from two recorders.

Cyanobacteria species	Records
Chroococcus minutus	1
Cylindrospermum	1
Merismopedia elegans	1

Pelvetia canaliculata - Channel Wrack, no records of this distinctive brown seaweed were received in 2019.

Marine algae

A further reduction in the number of records received in 2019 when compared to 2017 and 2018 with just fourteen records of thirteen species being submitted. One of the records was of a species (**Sargassum muticum* – Wireweed) considered to be invasive.

Group	Records			Species		
	2017	2018	2019	2017	2018	2019
Red Seaweeds	68	13	2	40	12	2
Green Seaweeds	63	8	3	37	6	3
Brown Seaweeds	109	33	9	19	15	8
Total	**240**	**54**	**14**	**96**	**33**	**13**

Fucus vesiculosus - Bladder Wrack

PHYLUM Class	Species	Common Name	Records
CHLOROPHYTA			
Ulvophyceae	*Cladophora rupestris*	a green seaweed	1
	Ulva intestinalis	Gut Weed	1
	Ulva lactuca	Sea Lettuce	1
OCHROPHYTA			
Phaeophyceae	*Ascophyllum nodosum*	Egg Wrack	1
	Ectocarpus siliculosus	a brown seaweed	1
	Fucus serratus	Serrated Wrack	1
	Fucus vesiculosus	Bladder Wrack	2
	Halidrys siliquosa	Sea Oak	1
	Pylaiella littoralis	a brown seaweed	1
	Ralfsia verrucosa	Brown Limpet Paint	1
	**Sargassum muticum*	Wireweed	1
RHODOPHYTA			
Florideophyceae	*Rhodothamniella floridula*	Sand Binder	1
	Vertebrata fucoides	Black Siphon Weed	1
* Consideredto be Invasive Non-native Species		**Total**	**14**

The ease by which marine species can move between locations suggests that distribution changes as the result of climate change would be noticed more quickly in marine habitats than would corresponding changes in terrestrial systems. Systematic recording of marine species of algae around the shores of the Outer Hebrides would enable some of those changes to be identified.

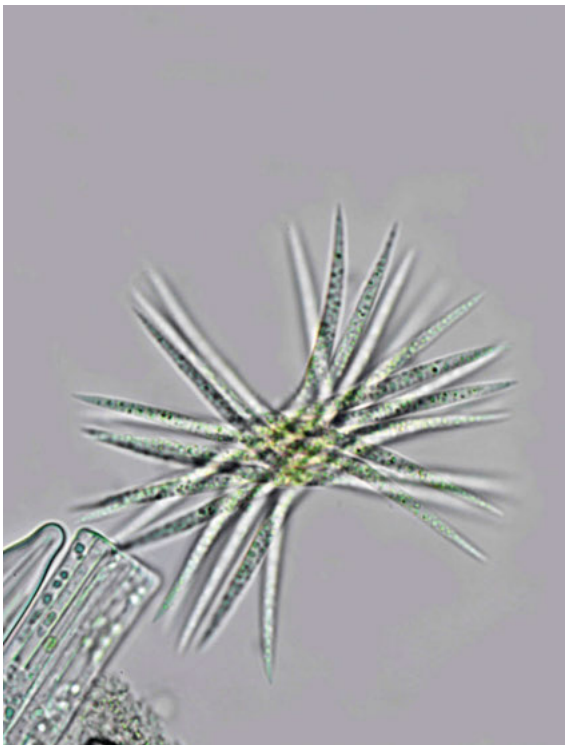
Kelp (*Laminaria* spp.) drying – South Uist, large scale collection of kelp and other brown seaweeds for use as a fertilizer on the machair still takes place. The collection and drying of kelp in heaps on the shore for use in pharmaceuticals, though, is rarely seen nowadays.

Terrestrial and freshwater algae

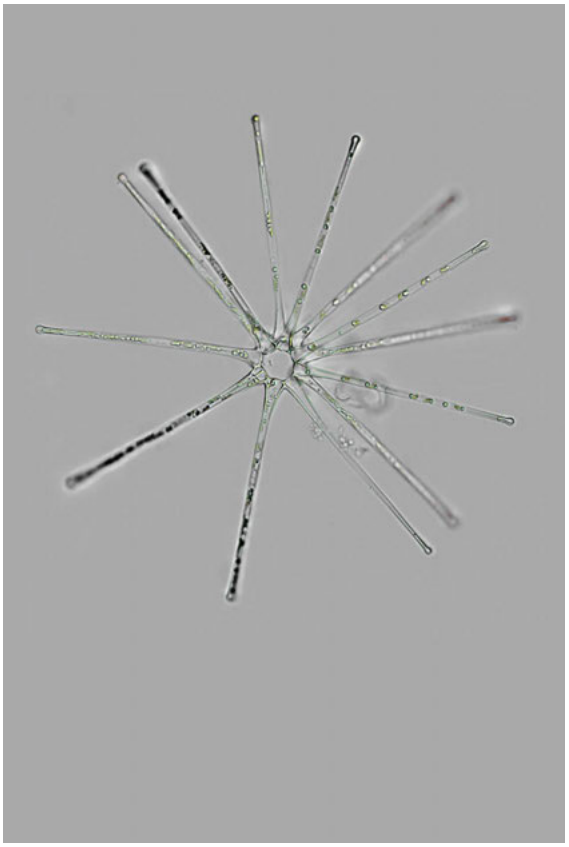
PHYLUM Class	Species	Records
CHLOROPHYTA – Green Algae (Kingdom Plantae)		
Chlorophyceae	*Ankistrodesmus falcatus*	2
	Coenococcus planctonicus	1
	Haematococcus pluvialis	1
	Microspora stagnorum	1
	Pandorina morum	1
	Pseudopediastrum boryanum	2
	Quadrigula pfitzeri	1
	Radiococcus planktonicus	1
Trebouxiophyceae	*Closteriopsis acicularis*	1
	Eremosphaera viridis	1
	Oocystis apiculata	1
	Oocystis naegelii	1
Ulvophyceae	*Trentepohlia abietina*	1
	Trentepohlia umbrina	2
RHODOPHYTA – Red Algae (Kingdom Plantae)		
Florideophyceae	*Batrachospermum turfosum*	1
OCHROPHYTA – Brown Algae (Kingdom Chromista)		
Bacillariophyceae	*Asterionella formosa*	1
	Navicula bottnica	1
Chrysophyceae	*Dinobryon sertularia*	2
	Uroglena americana	1
Raphidophyceae	*Gonyostomum semen*	1
Synurophyceae	*Mallomonas*	1
	Synura sphagnicola	3
	Synura spinosa	1
	Total	**29**

The records of terrestrial and freshwater algae were dominated by desmids (Phylum Charophyta, Class Zygnematophyceae, 959 records of 358 different taxa). These are covered later. In contrast only twenty-nine records of twenty-three species of other freshwater or terrestrial algae were received in 2019.

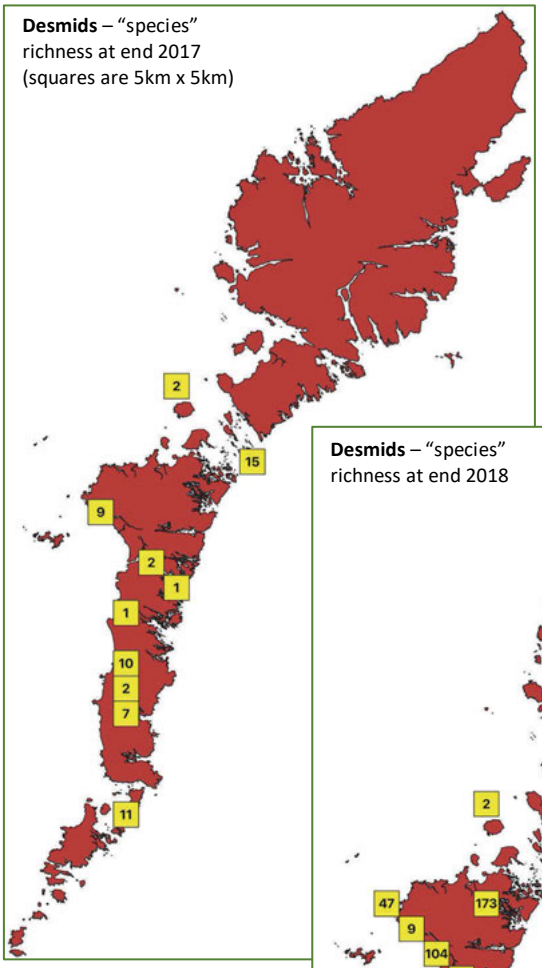
The Phyla Chlorphyta (green algae) and Rhodophyta (red algae) are both thought to be true plants, belonging to the Kingdom Plantae the Ochrophyta (brown algae), though, belong to the Kingdom Chromista. This distinction being made to a large extent on the structure of the walls surrounding the chloroplasts. Members of the Chromista have the chloroplasts surrounded by an extra wall compared to members of the Plantae.

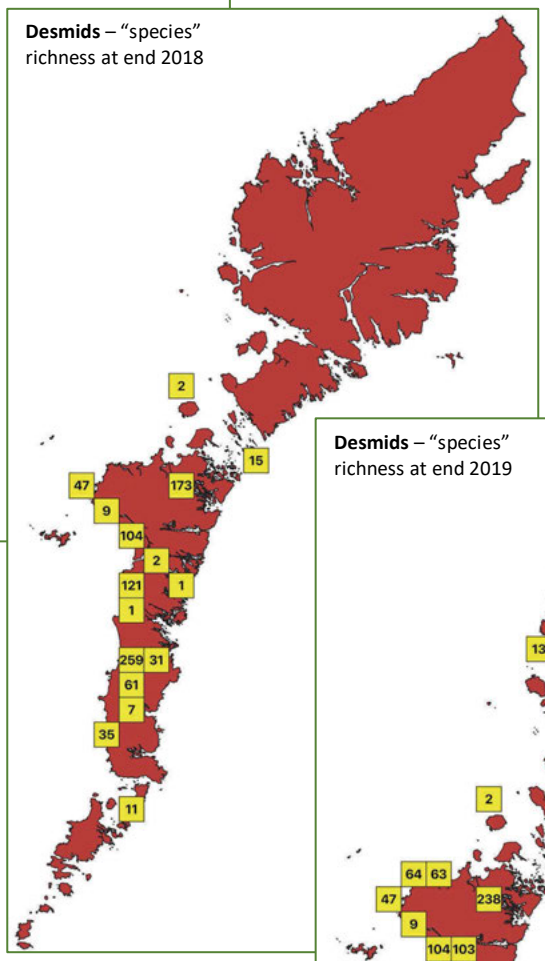


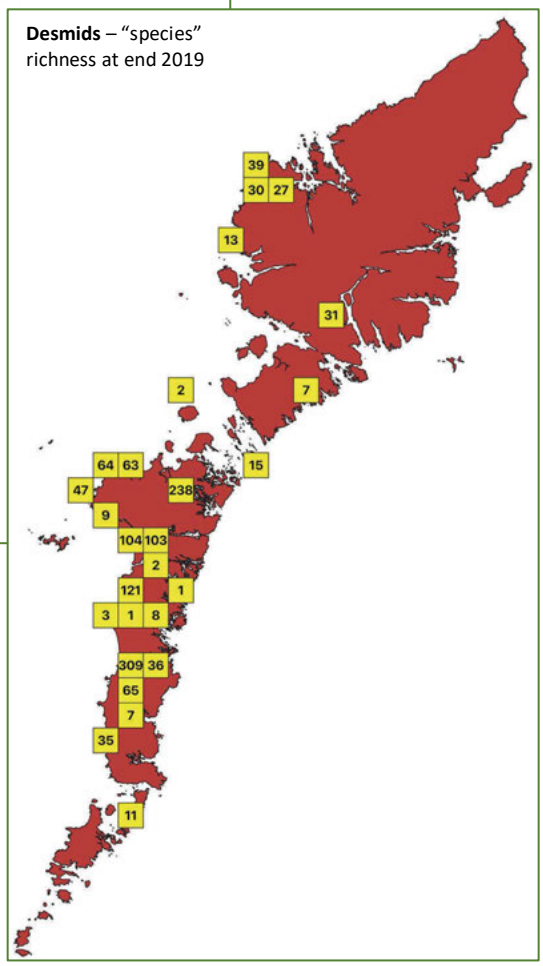
Ankistrodesmus falcatus – photo Chris Johnson



Asterionella formosa – photo Chris Johnson







As a result, records of these species can't yet be accepted by NBN Scotland.

Our understanding of the taxonomy of the group lags well behind Europe. There is a clear and urgent need for an update to the UK species list for this group of algae.

A couple of local recorders continued their work on Desmids in 2019 and have added to the number of records for exisiting sites and sampled a number of new sites in the Uists and on Harris and Lewis. At the end of 2019 there are now 2365 records of 517 taxa of Desmids in the Outer Hebrides.

Charophyta – Class Charophyceae (stoneworts)

In contrast to the desmids the stoneworts have been well recorded in the past. NBN Scotland has 1062 records for 24 species. No records were received by OHBR in 2019.

Charophyta – Class Zygnematophyceae (desmids)

Prior to 2017 there were no records of Desmids in the NBN Scotland database. A few local recorders started recording this group in 2017. By the end of that year they had accumulated 62 records of 47 taxa. The taxonomy of Desmids includes a large number of named varieties and forms of species. On the accompanying maps we use "species" to indicate that this includes varieities and forms as well as species in the strict sense.

A visit to the Outer Hebrides in 2018 by one of the leading European experts on Desmids led to some very intense sampling of freshwater habitats on South Uist, Benbecula and Noth Uist and by the end of 2018 there 1567 records of 399 taxa of Desmid on the OHBR database. Many of these were new species not just to VC110 but to the UK and have still not made it onto the UK Species Inventory.

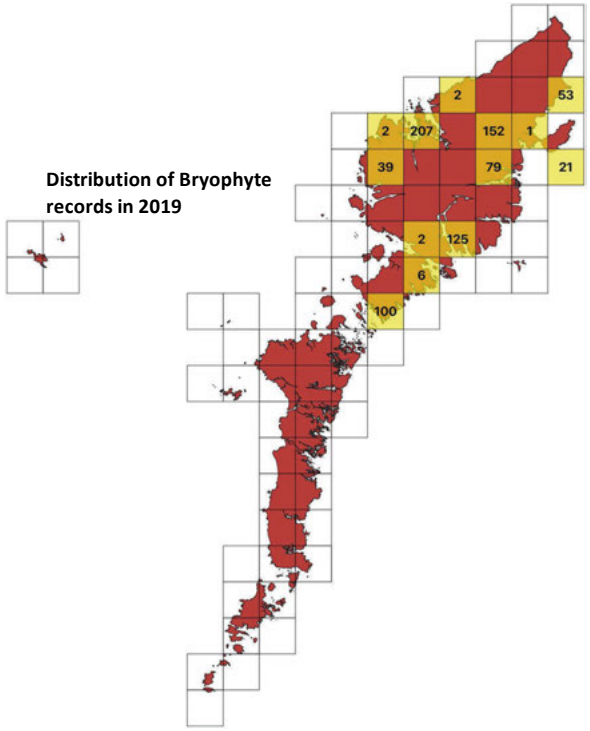
Anthocerophyta (Hornworts), Marchantiophyta (Liverworts) and Bryophyta (Mosses)

In 2019 there were 789 records of 220 species of bryophytes submitted to OHBR. Unlike any other taxonomic group in 2019, all the records were from Harris and Lewis. The vast majority (98%) were the work of a single recorder.

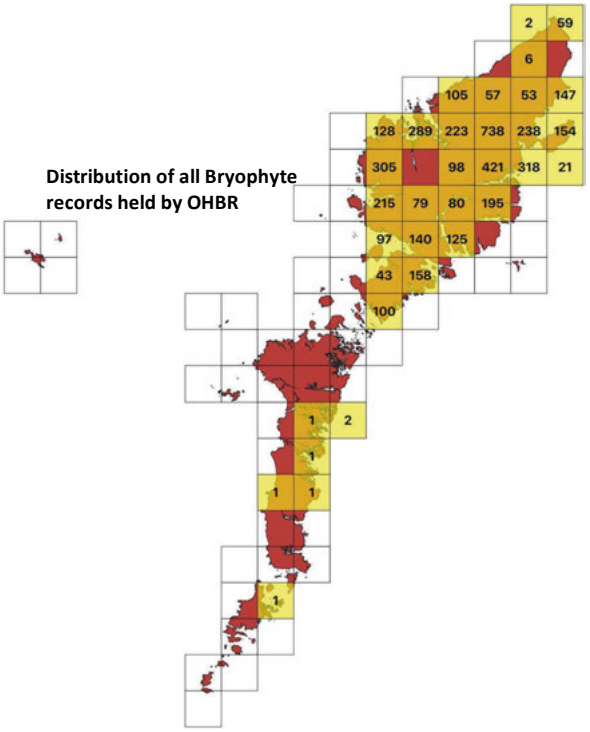
This same recorder has been working systematically on Bryophytes for a number of years and has provided OHBR with many records so that in total they now hold 4601 records of 358 species of bryophyte. Almost all are from Harris and Lewis and there is very little recording by OHBR recorders outside of this area.

Type - Phylum		Number of:	
Class	Order	Species	Records
Hornworts - Phylum Anthocerophyta			
Anthocerotopsida	Anthocerotales	1	1
Liverworts – Phylum Marchantiophyta			
Jungermanniopsida	Jungermanniales	54	146
	Metzgeriales	5	16
	Pelliales	2	8
	Pleuroziales	1	7
	Porellales	9	28
Marchantiopsida	Blasiales	1	2
	Marchantiales	2	2
Mosses – Phylum Bryophyta			
Andreaeopsida	Andreaeales	4	14
Bryopsida	Archidiales	1	2
	Bryales	14	58
	Dicranales	23	88
	Funariales	3	6
	Grimmiales	17	70
	Hedwigiales	1	6
	Hookeriales	1	4
	Hypnales	38	160
	Orthotrichales	4	10
	Pottiales	13	31
Polytrichopsida	Polytrichales	10	45
Sphagnopsida	Sphagnales	15	85
Total		**220**	**789**

Distribution of Bryophyte records in 2019



Distribution of all Bryophyte records held by OHBR



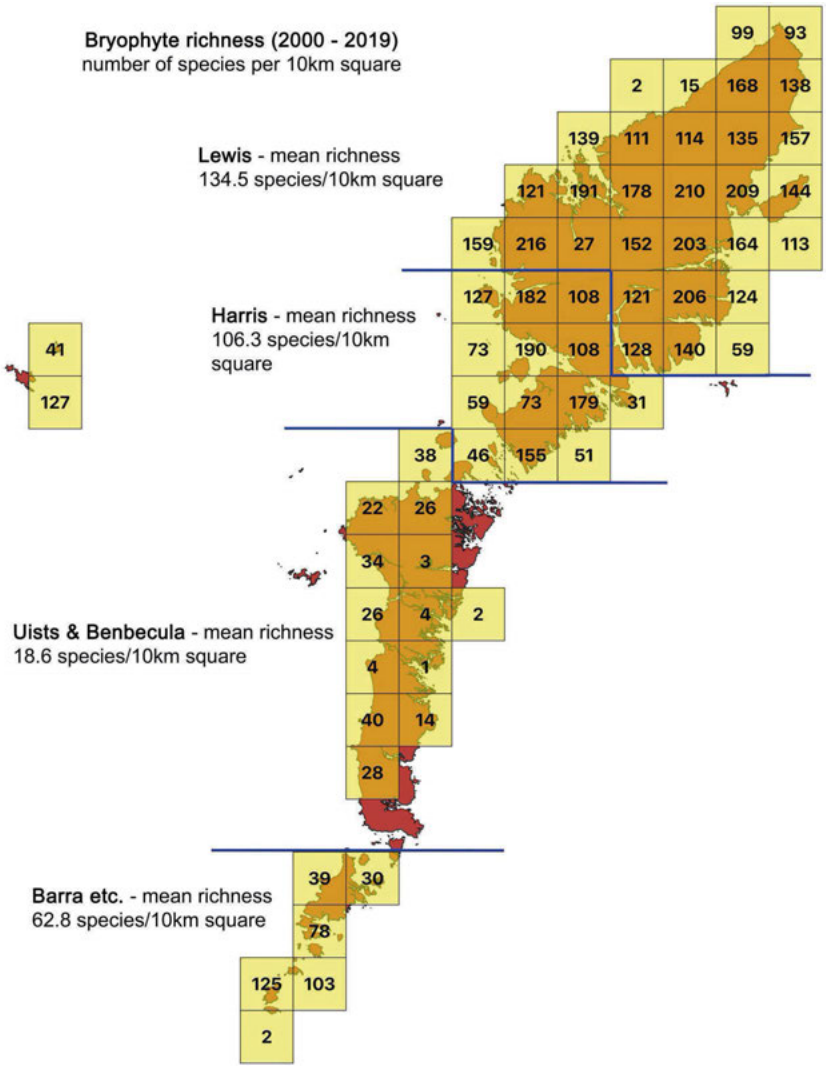
Rhizomnium punctatum - Dotted Thyme-moss

Plants, seaweeds etc

The British Bryological Society's latest Interim Census Catalogue (2018, compiled by T.L. Blockeel and N.G. Hodgetts) lists 501 bryophyte species for VC110. Adding in *Cephaloziella elachista*, a new record for VC110 in 2019, and additional varieties and sub-species brings the total to 519 taxa for the area. This is about 45% of the UK's c.1150 bryophyte taxa. The records of 220 species submitted to OHBR in 2019, represent c.42% of the taxa known to be present in the Outer Hebrides. A remarkable achievement for the work, largely, of a single recorder.

Phylum	Type	VC110 (BBS)	2019 Species	2019 Records
Anthocerophyta	Hornwort	2	1	1
Marchantiophyta	Liverwort	169	74	209
Bryophyta	Moss	348	145	579
	Total	**519**	**220**	**789**

Adding the latest OHBR records to those held by NBN for the period 2000-2019 shows a still marked variation in the level of recording has been across the Outer Hebrides in recent years.



The Outer Hebrides don't divide into their island components easily by 10km square, especially in the Sound of Harris and along the Harris/Lewis border.

By making some arbitrary decisions about where certain 10km squares belong it's easy to see that the Uists and Benbecula are significantly poorer in recorded species than are the other islands in the group. The mean richness of only 18.6 species per 10km square is far lower than comparable figures for Barra and the southern isles, 62.8 species/10km square. Even richer is Harris, 106.3 species/10km square and Lewis is up at 134.5 species per 10km square.

Recording of any plant or animal grouping in the Outer Hebrides is carried out by a mixture of resident and visiting recorders.

In recent years resident naturalists have paid little attention to the bryophytes found on the Uists and Benbecula. To record bryophytes requires some expertise and the little recording that has taken place has been carried out largely by visiting experts. This is in marked contrast, for example, to the situation for most animal groups where there tends to be a concentration of recorders and records from the Uists in particular.

Recording of bryophytes on the Uists in the past has been more intense. After combining all available NBN and OHBR records from all years, the Uists have a mean richness of 79.3 species per 10km square. Still well below the corresponding figures for the other islands.

Island	Mean Richness (Species/10km square)	
	All years	2000-2019
Lewis	157.6	134.5
Harris	177.1	106.3
Uists & Benbecula	79.3	18.6
Barra & southern isles	117.3	62.8

Included in the records are ones going back into the 1800s. Not all of the species recorded in the early years have been seen in recent years. The British Bryological Society's Census Catalogue for VC110 highlights a number of "old" species, ones where the last known record was pre-1960. The true status of these species is still unknown. It is clear that there is still scope for meaningful recording of bryophytes in the Outer Hebrides but that there is a rather limited supply of recorders with the skills and interest to make a start.

Species recorded > 50 times (OHBR)	
Sphagnum denticulatum	56
Racomitrium fasciculare	56
Racomitrium lanuginosum	55
Dicranum scoparium	55
Diplophyllum albicans	55
Mnium hornum	55
Hypnum jutlandicum	54
Hylocomium splendens	54
Sphagnum capillifolium rubellum	53
Rhytidiadelphus loreus	53
Polytrichum commune commune	52
Thuidium tamariscinum	52
Rhytidiadelphus squarrosus	51
Scapania gracilis	51
Sphagnum subnitens subnitens	50
Cephalozia bicuspidata	50
Plagiothecium undulatum	50

Bryophytes are often considered to be a difficult group and to identify some specimens to species level will require the use of a microscope to examine the fine detail of the leaves and so on. Some species though can be safely identified in the field. The British Bryological Society's Field Guide published in 2010 (ISBN 9780956131010) has revolutionised the field identification of Bryophytes and many of the species recorded more than 50 times in the OHBR data can be readily identified in the field with the aid of a good hand lens. People wanting to start identifying or recording bryophytes in VC110 could probably start relatively easily with these.

Rhytidiadelphus squarrosus - Springy Turf-moss

Try *Rhytidiadelphus squarrosus* as a starter, you'll find it in your lawn or almost any grassland or heathland habitat. The key characteristics are the reddish stem and leaves that bend sharply almost at a right-angle to the stems. They do this equally all the way around the stem giving it a prickly, barbed-wire like, appearance.

The *squarrosus* bit of its name refers to the right-angle bend in the leaves. *Juncus squarrosus* (Heath Rush) is similarly named because of the right-angle bend in its leaves.

Rhytidiadelphus squarrosus has a recently made-up common name, Springy Turf-moss. As a descriptor I feel that this name could apply to a number of grassland species. If we have to have common names I'd have preferred a slightly more helpful name, perhaps Red-stemmed Barbed-wire Moss.

For the keen recorder wanting to stay busy over the winter months bryophytes have the advantage of being present at all seasons and there is still much work needed to be done on this group.

Pteridophyta - Ferns, horsetails etc

The NBN Atlas lists 42 species of ferns, horsetails, etc. from VC110. Two of these species, Alpine Lady Fern and Intermediate Polypody are considered dubious records and are ignored here. There are also a number of hybrids recorded that are not listed below. At the top, in descending order of frequency, are Hard Fern and Water Horsetail with over 1000 records of each.

VC 110 species (in descending frequency)	Common Name (**bold** >200 records)	2019 records
Blechnum spicant	**Hard Fern**	12
Equisetum fluviatile	**Water Horsetail**	4
Dryopteris dilatata	**Broad Buckler-fern**	3
Athyrium filix-femina	**Lady Fern**	11
Polypodium vulgare	**Polypody**	4
Pteridium aquilinum	**Bracken**	6
Equisetum arvense	**Common Horsetail**	14
Equisetum palustre	**Marsh Horsetail**	2
Asplenium marinum	**Sea Spleenwort**	1
Osmunda regalis	**Royal Fern**	2
Oreopteris limbosperma	**Lemon-scented Fern**	
Dryopteris aemula	**Hay-scented Buckler-fern**	
Asplenium adiantum-nigrum	**Black Spleenwort**	2
Ophioglossum vulgatum	**Adder's Tongue**	
Dryopteris affinis	**Scaly Male Fern**	1
[1]*Hymenophyllum wilsonii*	[1]**Wilson's Filmy Fern**	2
Dryopteris filix-mas	**Common Male Fern**	7
Asplenium trichomanes	**Maidenhair Spleenwort**	4
[1]*Phegopteris connectilis*	[1]**Beech Fern**	1
Botrychium lunaria	Moonwort	
Equisetum sylvaticum	Wood Horsetail	
Phyllitis scolopendrium	Hart's-tongue	1
Dryopteris carthusiana	Narrow Buckler-fern	
Cystopteris fragilis	Brittle Bladder-fern	
Asplenium ruta-muraria	Wall-rue	2
Equisetum variegatum	Variegated Horsetail	
Ophioglossum azoricum	Small Adder's-tongue	
Dryopteris expansa	Northern Buckler-fern	
Pilularia globulifera	Pillwort	
Cryptogramma crispa	Parsley Fern	
Dryopteris borreri	Borrer's Scaly Male Fern	
Polystichum aculeatum	Hard Shield-Fern	
Equisetum pratense	Shady Horsetail	
Dryopteris cambrensis	Narrow Scaly Male Fern	
Dryopteris oreades	Mountain Male Fern	
Gymnocarpium dryopteris	Oak Fern	
Asplenium viride	Green Spleenwort	
Ceterach officinarum	Rusty-back Fern	
Equisetum telmateia	Giant Horsetail	
Polystichum setiferum	Soft Shield-fern	
[1] late records from 2018	**Total Records**	**79**

In 2019 seven recorders sent in seventy-nine records of eighteen species. This is almost identical to 2018 when eleven recorders submitted 81 records of eighteen species.

Most (80%) of the 2019 records came from a single recorder who was spending a week on Harris with a study group from the Field Studies Council.

Polypodium vulgare – Polypody

Dryopteris sp. – young crozier

Tracheophyta - Lycopodiopsida
(Clubmosses & Quillworts)

Six species of Clubmoss and Quillwort have been recorded from VC110. Of these, three are common, Lesser Clubmoss, Fir Clubmoss and Quillwort, and the other three are infrequently recorded.

Species	Common Name	Records VC110	2019
Selaginella selaginoides	Lesser Clubmoss	767	2
Huperzia selago	Fir Clubmoss	434	-
Isoetes lacustris	Quillwort	388	1
Diphasiastrum alpinum	Alpine Clubmoss	16	-
Lycopodium clavatum	Stag's-horn Clubmoss	10	-
Lycopodiella inundata	Marsh Clubmoss	4	-
		Total	**3**

Just two species were recorded in 2019. There were two records of Lesser Clubmoss (*Selaginella selaginoides*) one from Great Bernera and the other from Harris. There was also a single record of Quillwort (*Isoetes lacustris*) from Loch Druidibeg, South Uist.

Selaginella selaginoides - Lesser Clubmoss

Tracheophyta – Pinopsida (Conifers)

Species	Common Name	2019 records
Juniperus communis	Juniper	3
Pinus contorta	Lodgepole Pine	1
Pinus sylvestris	Scots Pine	1
	Total	**5**

There were only five records of Conifers in 2019. Three were of Juniper (*Juniperus communis*) with records from Great Bernera, Harris and South Uist (Loch Druidibeg).

Single records of Lodgepole Pine (*Pinus contorta*) and Scots Pine (*Pinus sylvestris*) from Tarbert, Harris complete the conifer records.

Tracheophyta – Magnoliopsida
(Flowering Plants)

In 2019 there were 1949 records of 298 taxa of flowering plants submitted to OHBR. This was the work of fourteen individual recorders. A visiting botanist visiting for a week in mid-July with a study group from the Field Studies Council contributed 1458 (75%) of the records including almost all of those from Harris, Scalpay and Great Bernera.

Number of flowering plants recorded by island	
Island	**Records**
Lewis	142
Great Bernera	118
Harris	1072
Scalpay	200
North Uist	251
South Uist	91
Barra	36
Gighay	38
Vatersay	1
Grand Total	**1949**

Bellis perennis – Daisy, with 30 records the most frequently recorded flowering plant in 2019.

Plants, seaweeds etc

Family	Type of plant	Spp.	Rec's
Poaceae	Grasses	32	232
Asteraceae	Daisies, Thistles etc.	31	224
Cyperaceae	Sedges	26	130
Fabaceae	Vetches, Clovers, Trefoils	11	108
Rosaceae	Rose, Cinquefoils, Tormentil	14	105
Plantaginaceae	Plantains, Speedwells	12	97
Ranunculaceae	Buttercups	6	94
Orobanchaceae	Rattles, Eye-brights	10	76
Juncaceae	Rushes, Wood-rushes	10	74
Caryophyllaceae	Campions, Chickweeds	9	70
Polygonaceae	Docks & Sorrels	6	61
Lamiaceae	Selfheal, Thymes, Mints	9	55
Ericaceae	Heathers	5	53
Orchidaceae	Orchids	10	45
Rubiaceae	Bedstraws	4	43
Apiaceae	Umbellifers	7	42
Brassicaceae	Scurveygrass, Charlock	8	29
Onagraceae	Willowherbs	8	27
Primulaceae	Primroses, Bog Pimpernel	5	25
Salicaceae	Willows	5	24
Iridaceae	Irises	1	22
Polygalaceae	Milkworts	2	21
Boraginaceae	Bugloss, Forget-me-nots	5	19
Lentibulariaceae	Butterworts, Bladderworts	4	19
Urticaceae	Nettles	1	18
Caprifoliaceae	Devil's-bit Scabious	2	16
Potamogetonaceae	Pondweeds	3	15
Plumbaginaceae	Thrift	1	15
Nartheciaceae	Bog Asphodel	1	15
Crassulaceae	Stonecrops, Roseroot	3	13
Araliaceae	Ivy	2	13
Menyanthaceae	Bogbean	1	13
Nymphaeaceae	White Water Lilly	1	13
Linaceae	Fairy Flax	1	13
Hypericaceae	St Johns Worts	2	10
Violaceae	Violets, Pansies etc.	2	9
Droseraceae	Sundews	1	8
Gunneraceae	Gunnera	1	8
Sapindaceae	Sycamore	1	8
Gentianaceae	Centuary, Field Gentian	2	7
Betulaceae	Birch, Hazel etc.	3	6
Amaranthaceae	Oraches, Glasswort	2	6
Geraniaceae	Crane's-bills, Stork's-bills	3	5
Campanulaceae	Harebell	2	5
Fagaceae	Beech	1	4
Montiaceae	Blinks	1	4
Papaveraceae	Poppies	2	3
Amaryllidaceae	Daffodill, Narcissi etc	1	3
Juncaginaceae	Arrowgrasses	1	3
Saxifragaceae	Saxifrages	2	2
Asparagaceae	Bluebell, Squill	1	2
Convolvulaceae	Bindweeds	1	2
Oleaceae	Ash	1	2
Ulmaceae	Elms	1	2
Berberidaceae	Berberis	1	1
Alismataceae	Water Plantains	1	1
Arecaceae	Coconut	1	1
Balsaminaceae	Indian Balsam	1	1
Adoxaceae	Elderberry	1	1
Solanaceae	Bindweeds etc.	1	1
Haloragaceae	Water-milfoil	1	1
Aquifoliaceae	Holly	1	1
Myricaceae	Bog Myrtle	1	1
Scrophulariaceae	Buddleja	1	1
Malvaceae	Mallows	1	1
Total		**298**	**1949**

298 Species of plant belonging to 65 different families were recorded in 2019. As in previous years the most frequently recorded families were the Poaceae (grasses), Asteraceae (daisies, thistles, dandelions) and Cyperaceae (sedges).

Species	Common Name	Records
Bellis perennis	Daisy	30
Potentilla erecta	Tormentil	28
Prunella vulgaris	Selfheal	28
Trifolium repens	White Clover	28
Ranunculus acris	Meadow Buttercup	27
Potentilla anserina	Silverweed	26
Plantago maritima	Sea Plantain	24
Holcus lanatus	Yorkshire-fog	24
Cirsium vulgare	Spear Thistle	24
Plantago lanceolata	Ribwort Plantain	24
Trifolium pratense	Red Clover	23
Rumex acetosa	Common Sorrel	23
Eriophorum angustifolium	Common Cottongrass	23
Iris pseudacorus	Yellow Iris	22
Lotus corniculatus	Bird's-foot-trefoil	22
Ranunculus flammula	Lesser Spearwort	22
Cerastium fontanum	Common Mouse-ear	22
Juncus effusus	Soft-rush	22
Ranunculus repens	Creeping Buttercup	20
Cirsium arvense	Creeping Thistle	20
Rumex crispus	Curled Dock	20
Calluna vulgaris	Heather	20
Plantago major	Greater Plantain	20
Senecio jacobaea	Common Ragwort	19
Erica cinerea	Bell Heather	18
Urtica dioica	Common Nettle	18
Lolium perenne	Perennial Rye-grass	17
Achillea millefolium	Yarrow	16
Anthoxanthum odoratum	Sweet Vernal-grass	16
Galium verum	Lady's Bedstraw	16
Festuca rubra	Red Fescue	16
Dactylorhiza maculata	Heath Spotted-orchid	16
Narthecium ossifragum	Bog Asphodel	15
Armeria maritima	Sea Pink	15
Plantago coronopus	Buck's-horn Plantain	15
Caltha palustris	Marsh-marigold	15
Polygala serpyllifolia	Heath Milkwort	15

Thirty-seven species were recorded fifteen times or more including many species familiar to all of us. The value of recording common things is often underestimated. It's easy to get seduced by a showy saxifrage but ignore the common but equally attractive selfheal.

Prunella vulgaris - Selfheal

Family Cyperaceae, Sedges – the number of records and species recorded in 2019 was broadly similar to previous years. Most of the common species (ranked according to the number of NBN Atlas Scotland records) were found in 2019 as they were in previous years.

Targeting those species, such as Curved Sedge (*Carex maritima*), that have many older records but are rarely recorded now. Or looking for rarer species such as White Sedge (*Carex canescens*) would help confirm the current distribution of sedges in VC110.

Species	Common Name	NBN	2017	2018	2019
Carex nigra	Common Sedge	2183	28	8	4
Trichophorum germanicum	Deergrass	2006	22	1	5
Eriophorum angustifolium	Common Cottongrass	1983	49	24	23
Carex panicea	Carnation Sedge	1657	30	8	6
Carex echinata	Star Sedge	1418	20	5	10
Eleocharis palustris	Common Spike-rush	1408	10	9	2
C.viridula subsp. oedocarpa	Common Yellow Sedge	1386	7	5	10
Eleocharis multicaulis	Many-stalked Spike-rush	1218	3	2	8
Carex flacca	Glaucous Sedge	1192	3	5	7
Carex binervis	Green-ribbed Sedge	1034	11	3	9
Carex pulicaris	Flea Sedge	917	7	5	7
Schoenus nigricans	Black Bog-rush	898	7	7	7
Carex arenaria	Sand Sedge	715	10	10	7
Eriophorum vaginatum	Hare's-tail Cottongrass	714	19	5	5
Carex rostrata	Bottle Sedge	701	6	2	3
Eleogiton fluitans	Floating Club-rush	699	2	5	-
Carex pilulifera	Pill Sedge	533	4	1	1
Carex leporina	Oval Sedge	531	1	1	5
Eleocharis quinqueflora	Few-flowered Spike-rush	502	2	3	1
Carex dioica	Dioecious Sedge	438	1	4	-
C. viridula subsp. viridula	Small-fruited Yellow Sedge	417	-	-	1
Carex hostiana	Tawny Sedge	389	1	-	-
Rhynchospora alba	White Beak-sedge	323	1	1	1
Carex limosa	Bog-sedge	306	1	-	1
Isolepis setacea	Bristle Club-rush	272	-	1	-
Blysmus rufus	Saltmarsh Flat-sedge	265	-	1	2
Schoenoplectus tabernaemontani	Grey Club-rush	263	-	2	-
Eleocharis uniglumis	Slender Spike-rush	220	-	4	1
Carex maritima	Curved Sedge	202	-	-	-
Carex distans	Distant Sedge	179	1	-	2
Carex paniculata	Greater Tussock Sedge	151	-	-	-
Bolboschoenus maritimus	Sea Club-rush	150	-	1	-
Schoenoplectus lacustris	Common Club-rush	131	-	3	-
C.viridula subsp. brachyrrhyncha	Long-stalked Yellow Sedge	125	-	1	1
Carex diandra	Lesser Tussock Sedge	123	-	1	-
Carex bigelowii	Stiff Sedge	109	-	-	-
Carex extensa	Long-bracted Sedge	99	-	-	-
Carex pauciflora	Few-flowered Sedge	74	1	-	-
Cladium mariscus	Great Fen Sedge	72	-	-	-
Carex otrubae	False Fox Sedge	69	-	-	-
Carex canescens	White Sedge	53	1	-	-
Isolepis cernua	Slender Club-rush	53	-	-	-
Carex pallescens	Pale Sedge	38	-	-	-
Carex lasiocarpa	Slender Sedge	36	-	-	-
Carex disticha	Distant Sedge	29	-	4	-
Carex caryophyllea	Spring Sedge	18	-	-	-
Eriophorum latifolium	Broad-leaved Cottongrass	18	-	-	-
Carex acutiformis	Lesser Pond Sedge	6	-	-	-
Carex hirta	Hairy Sedge	6	-	-	-
Carex sylvatica	Wood Sedge	6	-	1	1
Blysmus compressus	Flat-headed Sedge	4	-	-	-
Carex aquatilis	Water Sedge	3	-	-	-
Carex pendula	Pendulous Sedge	3	-	-	-
Carex vesicaria	Bladder Sedge	2	-	-	-
	Total records		**248**	**133**	**130**
	Number of species		**26**	**31**	**26**

Carex canescens - White Sedge

Carex hirta - Hairy Sedge

Carex acutiformis - Lesser Pond Sedge

Family Juncaceae, **Rushes** – the number of species recorded has dropped again in 2019 even though the number of records nearly doubled when compared to 2018.

Soft Rush (*Juncus effusus*), Bulbous Rush (*Juncus bulbosus*) and Jointed Rush (*Juncus articulatus*) were the three most frequently recorded species and are by far the most commonly recorded species in VC110. Once again Sharp-flowered Rush (*Juncus acutiflorus*) and a number of other species seem under-recorded in comparison.

Species	Common Name	NBN	2017	2018	2019
Juncus acutiflorus	Sharp-flowered Rush	546	-	1	-
Juncus ambiguus	Frog Rush	9	-	-	-
Juncus articulatus	Jointed Rush	1575	11	5	10
J. articulatus x acutiflorus = J. x surrejanus		2	-	-	-
Juncus balticus	Baltic Rush	269	-	2	-
Juncus bufonius	Toad Rush	642	7	5	6
J. bufonius agg.	Toad Rush agg.	414	-	-	-
Juncus bulbosus	Bulbous Rush	1997	15	7	13
Juncus conglomeratus	Compact Rush	553	4	-	3
J. conglomeratus var. subuliflorus		7	-	-	-
Juncus effusus	Soft-rush	1565	78	8	22
J. effusus var. effusus		132	-	-	-
J. effusus var. spiralis		193	-	-	-
J. effusus var. subglomeratus		32	-	-	-
Juncus filiformis	Thread Rush	19	-	-	-
Juncus gerardii	Saltmarsh Rush	664	3	1	4
Juncus inflexus	Hard Rush	1	-	-	-
Juncus maritimus	Sea Rush	44	1	-	-
Juncus squarrosus	Heath Rush	884	6	1	4
Juncus tenuis	Slender Rush	5	1	-	-
Juncus trifidus	Three-leaved Rush	7	1	-	-
Luzula campestris	Field Wood-rush	689	6	3	-
Luzula multiflora	Heath Wood-rush	920	2	2	8
L. multiflora subsp. congesta		124	2	1	1
L. multiflora subsp. multiflora		129	1	-	-
Luzula pilosa	Hairy Wood-rush	160	-	1	-
Luzula spicata	Spiked Wood-rush	16	-	-	-
Luzula sylvatica	Great Wood-rush	532	6	1	3
	Total records		**144**	**38**	**74**
	Number of species		**15**	**13**	**10**

They are a group that is often ignored but a good range of species are known from the Outer Hebrides. In terms of identification the rushes are a more accessible group than are either grasses or sedges. The excellent FSC fold-out key to Rushes (ISBN 9781908819383) provides a handy field guide to the group.

There are some difficulties, separating Sharp-flowered Rush (*Juncus acutiflorus*) from Jointed Rush (*Juncus articulatus*) is not always easy. A number of varieties of some of the commoner species can also cause an element of confusion. For example, *Juncus effusus var. subglomeratus* can be confused with *Juncus conglomeratus* at first sight but in practice are fairly easy to separate. The trick is to examine closely the size and spacing of ridges on the stems.

Juncus bulbosus - Bulbous Rush

Juncus effusus - Soft-rush

Juncus conglomeratus - Compact Rush

Family Orchidaceae, Orchids – these were rather poorly recorded in 2019. The number of records fell from 80+ in 2017 and 2018 to 45 and the number of species covered went down to ten. No Pyramidal Orchids (*Anacamptis pyramidalis*) were noted even though, anecdotally at least, this species is said to have spread in recent years.

The most frequently recorded species were Common Spotted-orchid (*Dactylorhiza fuchsii*), Heath Spotted-orchid (*Dactylorhiza maculata*) and Northern Marsh-orchid (*Dactylorhiza purpurella*). Two of the rather more unusual species Irish Lady's-tresses (*Spiranthes romanzoffiana*) and Bog Orchid (*Hammarbya paludosa*) are known to have been sighted but the records not submitted to OHBR. The real VC110 specialist Hebridean Marsh Orchid (*Dactylorhiza ebudensis*) was missed also. Now considered a variety of Narrow-leaved Marsh Orchid perhaps the length of its latest official name puts people off - *Dactylorhiza traunsteinerioides* subsp.*francis-drucei* var.*ebudensis*.

Species	Common Name	NBN	2017	2018	2019
Anacamptis pyramidalis	Pyramidal Orchid	71	1	11	-
Coeloglossum viride	Frog Orchid	308	1	8	3
C. viride x D. fuchsii		20	-	-	-
C. viride x D. purpurella		6	-	-	-
Dactylorhiza ebudensis	Hebridean Marsh-orchid	21	1	2	-
Dactylorhiza fuchsii	Common Spotted-orchid	340	18	20	5
D. fuchsii x incarnata		14	-	1	-
D. fuchsii x maculata		11	-	-	-
D. fuchsii x purpurella		17	-	1	-
D. fuchsii x traunsteinerioides		5	-	-	-
Dactylorhiza incarnata	Early Marsh-orchid	140	9	5	4
D. incarnata subsp. coccinea		142	3	6	2
D. incarnata subsp. incarnata		56	-	3	-
D. incarnata subsp. pulchella		12	-	-	1
D. incarnata x purpurella = D. x latirella		26	-	1	-
D. incarnata x traunsteinerioides		2	-	-	-
Dactylorhiza maculata	Heath Spotted-orchid	500	28	7	16
D. maculata subsp. ericetorum		152	-	2	-
D. maculata x occidentalis		1	-	-	-
D. maculata x purpurella		62	-	-	-
Dactylorhiza purpurella	Northern Marsh-orchid	337	8	15	11
D. purpurella x majalis		8	-	-	-
Dactylorhiza traunsteinerioides	Narrow-leaved Marsh-orchid	5	-	-	-
D. traunsteinerioides subsp. francis-drucei	Lapland Marsh-orchid	23	-	-	-
Dactylorhiza x jenensis		3	-	-	-
Gymnadenia borealis	Heath Fragrant-orchid	3	-	-	-
Gymnadenia conopsea	Fragrant Orchid	13	-	1	-
Gymnadenia conopsea subsp. conopsea		3	-	-	-
G. conopsea x D. fuchsii		2	-	-	-
Gymnadenia densiflora	Marsh Fragrant-orchid	6	-	-	-
Hammarbya paludosa	Bog Orchid	173	-	-	-
Neottia cordata	Lesser Twayblade	216	7	1	1
Neottia ovata	Common Twayblade	135	2	7	1
Orchis mascula	Early-purple Orchid	70	-	2	-
Platanthera bifolia	Lesser Butterfly-orchid	141	4	6	1
Platanthera chlorantha	Greater Butterfly-orchid	21	-	-	-
Spiranthes romanzoffiana	Irish Lady's-tresses	144	-	-	-
	Records		**82**	**99**	**45**
	Number of species		**11**	**18**	**10**

D. fuchsia - Common Spotted-orchid

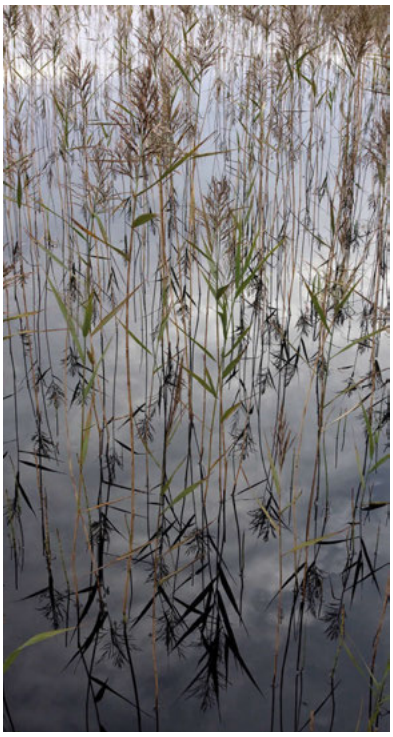
D. maculata - Heath Spotted-orchid

D. purpurella - Northern Marsh-orchid

Family Poales, Grasses

Species	Common Name	NBN	2017	2018	2019
Agrostis stolonifera	Creeping Bent	1985	5	3	3
Holcus lanatus	Yorkshire-fog	1525	36	8	24
Festuca rubra agg.	Red Fescue	1448	5	2	16
Molinia caerulea	Purple Moor-grass	1387	25	6	11
Anthoxanthum odoratum	Sweet Vernal-grass	1188	11	2	16
Nardus stricta	Mat-grass	917	7	-	7
Aira praecox	Early Hair-grass	843	7	2	11
Festuca vivipara	Viviparous Sheep's-fescue	767	15	8	11
Poa annua	Annual Meadow-grass	751	5	-	8
Cynosurus cristatus	Crested Dog's-tail	746	17	5	13
Agrostis capillaris	Common Bent	709	4	-	13
Glyceria fluitans	Floating Sweet-grass	690	2	3	3
Danthonia decumbens	Heath-grass	648	3	5	3
Deschampsia flexuosa	Wavy Hair-grass	635	7	-	4
Lolium perenne	Perennial Rye-grass	617	1	1	17
Poa trivialis	Rough Meadow-grass	563	-	1	8
Ammophila arenaria	Marram	529	7	7	9
Phragmites australis	Common Reed	487	6	7	6
Poa humilis	Spreading Meadow-grass	434	3	3	6
Alopecurus geniculatus	Marsh Foxtail	432	-	2	1
Arrhenatherum elatius	False Oat-grass	406	1	1	14
Dactylis glomerata	Cock's-foot	387	14	3	5
Agrostis canina	Velvet Bent	370	6	-	3
Puccinellia maritima	Common Saltmarsh-grass	361	-	-	-
Elytrigia juncea	Sand Couch	266	-	1	-
Elytrigia repens	Common Couch	258	-	-	-
Bromus hordeaceus	Soft-brome	241	-	2	2
Deschampsia setacea	Bog Hair-grass	210	1	-	-
Deschampsia cespitosa	Tufted Hair-grass	207	-	-	3
Holcus mollis	Creeping Soft-grass	204	-	-	4
Koeleria macrantha	Crested Hair-grass	166	-	6	-
Agrostis vinealis	Brown Bent	162	-	-	-
Festuca ovina agg.	Sheep's Fescue agg.	157	1	-	-
Catabrosa aquatica	Whorl-grass	154	-	1	-
Helictotrichon pubescens	Downy Oat-grass	151	-	5	-
Phleum pratense	Timothy	115	-	-	-
Aira caryophyllea	Silver Hair-grass	104	-	-	1
Bromus hordeaceus	Common Soft-brome	95	-	-	-
Avena strigosa	Bristle Oat	90	-	2	-
Catapodium marinum	Sea Fern-grass	84	-	-	-
Poa pratensis	Smooth Meadow-grass	77	-	1	6
Alopecurus pratensis	Meadow Foxtail	69	-	1	1
Brachypodium sylvaticum	False-brome	60	-	-	-
Leymus arenarius	Lyme-grass	53	2	1	1
Phalaris arundinacea	Reed Canary-grass	49	-	-	1
Festuca arundinacea	Tall Fescue	41	-	1	-
Hierochloe odorata	Holy-grass	40	-	3	-
Glyceria declinata	Small Sweet-grass	38	-	-	-
Vulpia bromoides	Squirreltail Fescue	37	-	-	-
Phleum bertolonii	Smaller Cat's-tail	36	-	-	-
Cortaderia richardii	Early Pampas-grass	32	-	-	-
Festuca pratensis	Meadow Fescue	32	-	-	-
Poa palustris	Swamp Meadow-grass	27	-	-	-
Agrostis gigantea	Black Bent	25	-	-	-
Briza media	Quaking-grass	24	-	-	-
Lolium multiflorum	Italian Rye-grass	17	-	-	-
Festuca arenaria	Rush-leaved Fescue	13	-	-	-
Avena fatua	Wild-oat	11	-	-	-
Cortaderia selloana	Pampas-grass	11	-	1	-
Catapodium rigidum	Fern-grass	10	-	-	-
Hordeum distichon	Two-rowed Barley	10	-	-	-
Poa nemoralis	Wood Meadow-grass	8	-	-	-
Secale cereale	Rye	7	-	1	-
Spartina anglica	Common Cord-grass	7	-	-	-
Avena sativa	Oat	6	-	-	1
Poa chaixii	Broad-leaved Meadow-grass	6	-	-	-

At 232 records of 32 species in 2019, the grasses are the family with both the highest number of species and the most frequently recorded family. This is a lot more records and a higher number of species than in either 2017 or 2018.



Phragmites australis - Common Reed

In 2018 it was noted that a lack of records of species such as Mat-grass (*Nardus stricta*), Wavy-hair Grass (*Deschampsia flexuosa*) and Velvet Bent (*Agrostis canina*) indicated a lack of recording time in more acidic habitats. In 2019 those species were back on the list indicating a rather more balanced pattern of recording.

Those 32 species recorded in 2019 represent c.39% of the grass species found in VC110.

The percentage of "taxa" recorded in 2019 varied with family. Grasses, Sedges and Rushes were well covered with 39%, 48% and 36%, respectively, of those families being recorded.

Species	Common Name	NBN	2017	2018	2019
Hordeum vulgare	Six-rowed Barley	5	-	-	-
Phalaris canariensis	Canary-grass	5	-	-	-
Bromus lepidus	Slender Soft-brome	4	-	-	-
Catabrosa aquatica var. uniflora	Whorl-grass	4	-	-	-
Bromus sterilis	Barren Brome	3	-	-	-
Festuca brevipila	Hard Fescue	3	-	-	-
Trisetum flavescens	Yellow Oat-grass	3	-	3	-
Triticum aestivum	Bread Wheat	3	-	-	-
Avena sterilis	Winter Wild-oat	2	-	-	-
Bromus racemosus	Smooth Brome	2	-	-	-
Festuca gigantea	Giant Fescue	2	-	-	-
Hordeum secalinum	Meadow Barley	2	-	-	-
Puccinellia distans	Reflexed Saltmarsh-grass	2	-	-	-
Vulpia myuros	Rat's-tail Fescue	2	-	-	-
Alopecurus myosuroides	Black-grass	1	-	-	-
Festuca filiformis	Fine-leaved Sheep's-fescue	1	-	-	-
Spartina townsendii	Townsend's Cord-grass	1	-	-	-
	Records		**191**	**98**	**232**
	Number of species		**24**	**32**	**32**

Yellow compositae all look the same?

		No. of taxa[1]		"Hit rate"
Family	**Type of plant**	**NBN**	**2019**	**%**
Cyperaceae	Sedges	54	26	48
Poaceae	Grasses	83	32	39
Juncaceae	Rushes, Wood-rushes	28	10	36
Plantaginaceae	Plantains, Speedwells	37	12	32
Orobanchaceae	Rattles, Eye-brights	59	19	32
Fabaceae	Vetches, Clovers, Trefoils	35	11	31
Ranunculaceae	Buttercups	23	6	26
Lamiaceae	Selfheal, Thymes, Mints	35	9	26
Orchidaceae	Orchids	39	10	26
Apiaceae	Umbellifers	29	7	24
Boraginaceae	Bugloss, Forget-me-nots	21	5	24
Caryophyllaceae	Campions, Chickweeds	41	9	22
Polygonaceae	Docks & Sorrels	33	6	18
Brassicaceae	Scurveygrass, Charlock	52	8	15
Asteraceae	Daisies, Thistles etc.	219	31	14
Salicaceae	Willows	36	5	14
Rosaceae	Rose, Cinquefoils, Tormentil	112	14	13
Potamogetonaceae	Pondweeds	26	3	12
Amaranthaceae	Oraches, Glasswort	21	2	10

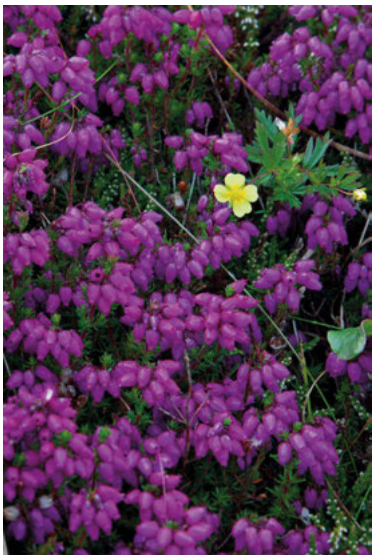
[1]It is often difficult to say how many species there are in a family as different experts will consider things differently. Quite a lot of records are also made at a sub-species or variety level so for this comparison we use the term "taxa" rather than species.

Salix spp. all hybridise with each other?

At the other end of the success rate scale we have families such as:

Family	"Hit rate"
Amaranthaceae (oraches, glasswort etc.)	10%
Potamogetonaceae (pondweeds)	12%
Rosaceae (roses, cinquefoils, tormentil etc.)	13%
Salicaceae (willows and osiers)	14%
Asteraceae (daisies, thistles etc.)	14%

These are known as difficult families for a variety of reasons. Quite how many *Taraxacum* spp. dandelions there are is any ones guess outside of a small group of experts. Willows all hybridise with each other. All *Potamogeton* spp. look the same. Whether true of not these are common excuses for under-recording these families.



Potentilla erecta – Tormentil, an easy member of the Rosaceae to identify?

Invasive Non-native Species

Forty-two records of INNS (Invasive Non-native Species) were sent to OHBR in 2019. The majority (32) were of Hedgehogs, these have already been considered in the mammal section. The remaining records included a single one of Wireweed (*Sargassum muticum*) from South Glendale, South Uist. There were six of Montbretia (*Crocosmia*), most of these were from Harris with a single record from Daliburgh on South Uist. The three remaining records were of; the garden variety of Lady's Mantle (*Alchemilla mollis*) recorded from Uig on Lewis, Japanese Knotweed (*Fallopia japonica*) at Callanish again on Lewis, and finally Monkeyflower (*Mimulus* sp.) at Tarbert on Harris.

Kingdom Phylum	Type	Species	Common name	Total
Animalia				
Chordata	Mammal	*Erinaceus europaeus*	Hedgehog	32
Chromista				
Ochrophyta	Brown seaweed	*Sargassum muticum*	Wireweed	1
Plantae				
Tracheophyta	Flowering plant	*Alchemilla mollis*	Garden Lady's-mantle	1
		Crocosmia	Montbretia	1
		Crocosmia pottsii x aurea = C. x crocosmiiflora	Montbretia	5
		Fallopia japonica	Japanese Knotweed	1
		Mimulus guttatus x luteus = M. x robertsii	Hybrid Monkeyflower	1
			Total	**42**

Type	Species	Common name	Total
Brown Seaweed	*Colpomenia peregrina*[1]	OysterThief	2
	Sargassum muticum[1]	Wireweed	6
Green Seaweed	*Codium fragile atlanticum*	Green Sea Fingers	5
	Codium fragile fragile[1]	Green Sea Fingers	2
Red Seaweed	*Asparagopsis armata*[1]	Harpoon Weed	7
	Bonnemaisonia hamifera[1]	Bonnemaison's Hook Weed	2
Flowering Plant	*Acaena novae-zelandiae*	Pirri-pirri-bur	2
	Alchemilla mollis	Garden Lady's-mantle	1
	Buddleja	Butterfly Bush	1
	Cortaderia spp.	Pampas Grass	30
	Crocosmia sp.	Montbretia	62
	Elodea canadensis	Canadian Waterweed	4
	Elodea nuttallii	Nuttall's Waterweed	1
	Fallopia japonica	Japanese Knotweed	7
	Gunnera sp.	Giant-rhubarb	76
	Impatiens glandulifera	Himalayan Balsam	1
	Mimulus spp.	Monkeyflower Species	3
	Petasites albus	White Butterbur	1
	Petasites fragrans	Winter Heliotrope	3
	Prunus laurocerasus	Cherry Laurel	1
	Rhododendron sp.	Rhododenron	16
	Rosa rugosa	Japanese Rose	5
	Rubus spectabilis	Salmonberry	1
Barnacle	*Austrominius modestus*[1]	a NZ acorn barnacle	1
Flatworm	*Arthurdendyus triangulatus*	New Zealand Flatworm	16
Mammal	*Erinaceus europaeus*	West European Hedgehog	166
	Mustela putorius subsp. furo	Feral Ferret	31
	Neovison vison	American Mink	1
		Grand Total	**454**

The number of records of these species does not reflect the current distribution of these species in the Outer Hebrides. Anyone who drives along the roads on Harris, for example, in the summer can't help but notice bright green swathes of escaped garden Lady's Mantle.

OHBR currently holds 454 records for twenty-eight species classified as INNS. These include five seaweeds[1] and a barnacle[1] which feature on a Marine Non-native Species leaflet produced by OHBR. Wireweed (*Sargassum muticum*) is thought to be the species most likely to be a problem around the coasts of the Outer Hebrides. The others are not yet considered to be a problem though this may require monitoring and a re-appraisal in the future.

The three species of mammal are of concern for similar reasons. Mink and Ferret are carnivores that are known to have a devastating effect on populations of ground nesting birds such as seabirds, waders and waterfowl. Hedgehogs are egg predators that are also strongly implicated in the decline of waders in machair habitats. Control programmes with varying degrees of success have been implemented for all three. Continued recording will show the long-term success, or otherwise, of those measures. The invasive flowering plant species such as *Gunnera*, Japanese Knotweed and Monkeyflower are under-recorded and our knowledge of the distribution of these species would benefit from an organised, island wide survey.

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