FAUNA AND FLORA RECORDS (for groups other than birds)

The following reports have been compiled by the recorders for each group of taxa. The records summarised have been taken mainly from the LFS Logbook and Recording Sheets and are reproduced here in good faith. No attempt has been made to verify all of the records but unusual or particularly interesting entries will have been checked with the originators. For marine species other than cetaceans and seals, there was much less reporting in 2020 than previous years and so comparisons should be made with care. Thanks to Dean Jones for compiling records into spreadsheets.

WHALES, DOLPHINS AND PORPOISES

Keith Hiscock & Dean Jones

The most frequently seen cetaceans were Harbour Porpoise and Short-beaked Common Dolphin. Both species were seen through the year. Favoured locations were the tide races off the south and north coasts and, for dolphins, off the east coast. As with 2017, 2018 and 2019 the number of days with sightings from the island of Harbour Porpoise exceeded those of Common Dolphin (respectively 33 porpoises in 2017, 25 in 2018, 26 in 2019 and 40 in 2020; and 14 dolphins in 2017, 19 in 2018, 14 in 2019 and 25 in 2020).

Minke Whale *Balaenoptera acutorostrata*
14 May – one offshore from the Old Light heading north at 15:00 hrs (Dean Jones & Zoë Barton).
20 May – one on the crossing from Ilfracombe to Lundy (Andrew Bengey).
30 Jul – two travelling in tandem and seen from the Oldenburg just after Bull Point on the crossing to Lundy (Derek Green).
12 Aug – one travelling south to north just beyond Bull Point on the crossing from Ilfracombe (Richard Ware & Lee Langford).

Short-beaked Common Dolphin *Delphinus delphis*
The first recorded observation in 2020 was on 10 Jan when 10 were seen feeding off the Landing Bay (Dean Jones). Significant numbers (put arbitrarily at 20 or more seen in a day) were:

8 May – *c.*60 about 200m off the east coast at 10:30 hrs, including at least five small calves; the pod foraged for about 20 minutes before heading north (Dean Jones).
15 May – *c.*30 in three feeding pods offshore from St Mark's in the afternoon; at least four calves were present (Dean Jones).
16 May – 24 off the South West Point. Watched for one hour before they headed north along the west coast. (Dean Jones, Rosie Ellis & Rob Waterfield)
11 Jul – *c.*100 playing around the bow of the *Oldenburg* about 1 hour out of Bideford (Emily Trapnell & Mike Jones).
12 Jul – *c.*100 in multiple loose pods between Pilot's Quay and Battery along the west coast during the afternoon. Possibly the same animals seen during crossing the previous day. (Sue & Alice Waterfield).
21 Jul – *c.*50 off Rat Island; 30 offshore from the Quarries; *c.*20 offshore from Jenny's Cove; and *c.*20 off the East Side (Dean Jones & Zoë Barton).
22 Jul – several pods totalling up to 50 seen from the East Side path (Julia & Mark Webber).
22 Jul – 30 in two pods of 25 and five respectively (Sam Bosanquet).
24 Jul – 20 offshore from Quarry Beach (Rosie Ellis).

Minke Whale off the West Side, 14th May (photo: Dean Jones).

4 Aug – *c.*50 including one small calf were foraging off Rat Island before moving west (Jamie Dunning & Dean Jones).
6 Aug – 42 in four pods (20, 2, 10 & 10) between Lundy and Bideford (Dean Jones & Zoë Barton).

Thanks also to Chris & Sharron Blackmore, Richard Campey and C. Godfrey for their observations.

Bottlenose Dolphin *Tursiops truncatus*
17 Oct – one offshore of the Landing Bay (Dean Jones).

Harbour Porpoise *Phocoena phocoena*
Days on which there were sightings were spread through the year and were mostly of single individuals or two or three at a location. On 1 & 15 Apr five were seen on each day respectively off the South West Point and North End (Dean Jones). Chris & Sharron Blackmore made timed observations from Castle Parade and additional observations off the west coast from 6 to 16 Jul, recording as many as five or six together early in the morning from Castle Parade.

Thanks also to Chris Baillie, Zoë Barton, Richard Campey, Rosie Ellis, Tim Davis, Jamie Dunning, Tim Jones, Tony Taylor and Sophia Upton for their observations.

SEALS

Dean Jones

Grey Seal *Haliochoerus grypus*
The Atlantic Grey seal population has been monitored annually on Lundy since 2011 and to a varying degree beforehand. The highest count of seals in the 2020 survey, carried out by the Lundy Conservation Team on 24 Aug, was 218 (121 females, 17 males, 47 juveniles, one white-coat pup and 32 animals of undetermined sex) – the third highest number recorded around Lundy's shores (the highest count to date being 239 animals in August 2011). This compares with 206 in 2019 and 223 in 2018, and 42 more animals than the mean highest counts since 2006.

Similar to the surveys of 2017 to 2019, the majority of seals around the island were females, with some showing obvious signs of pregnancy in some of the popular haul-out areas, especially at the start of the land-based surveys. After the initial counts at the start of the season, the number of female seals dropped slightly, possibly due to some of the pregnant females moving into the island's inaccessible coastal caves to pup, or to other areas in South West England after conditioning themselves in Lundy

Seals hauled out at Mousehole & Trap, 4th August and (right) a seal pup in Devil's Kitchen, 21st August (photos: Dean Jones).

waters. As in previous years, an increase in males around the island was evident by mid-September compared to the start of August, likely to be turning up to patrol beaches for females in order to conceive next year's pups.

Notable haul-outs recorded outside of the main surveys included 30 seals in Gannets' Bay on 23 Feb (Martin Thorne), 38 in Threequarter Wall Bay on 9 Mar (Dean Jones), 104 between Gannets' Bay and North East Point on 9 Jun and 113 between Gannets' Bay and Halfway Wall Bay on 6 Jul (Michael Williams). All counts taken from the LFS logbook.

MARINE FISHES

Keith Hiscock

This report includes unusual or charismatic fish species, whilst those that are 'always present' are not generally recorded in the logbook or here. There were very few fish records in 2020, greatly reflecting the lack of activity by observers during Covid-19 restrictions. In particular, it is worth noting that there were no recorded sightings of Basking Sharks (reflecting continued low numbers throughout South West England) and no recorded sightings of Sunfish (although numbers in South West England were slightly higher in 2020 that in 2019).

There were significant observations of Blue-fin Tuna, which have shown a remarkable return to south-west waters in the past few years, and a sighting of a Thresher Shark. Brief views offshore of the Landing Bay of a medium-sized shark species on 24 Jan could have been a Porbeagle *Lamna nasus* or Tope *Galeorhinus galeus*. It had a pointed dorsal fin and caudal (tail) fin that breached the surface. It was seen giving chase, moving in a serpent-like fashion, to a shoal of fish for about 10 seconds before disappearing (Dean Jones).

There were egg cases, washed-up in the Landing Bay, of Thornback Ray *Raja clavata* on 31 Dec, Cuckoo Ray *Leucoraja naevus* on 31 Dec and 8 Apr, and Small-spotted Catshark *Scyliorhinus canicula* on 31 Dec (Rosie Ellis, Dean Jones & Matt Stritch).

Blue-fin Tuna *Thunnus thynnus*
28 Sep – one very large fish breaching off Rat Island (Dean Jones).
11 Oct – a large fish 200-300m off the Terrace (Dean Jones).

Thresher Shark *Alopias vulpinus*
21 Jul – one breaching three times offshore of Jenny's Cove (Dean Jones & Zoë Barton).

MARINE INVERTEBRATES

Keith Hiscock, Dean Jones & Rosie Ellis

Records of marine invertebrates have been separated into **Gelatinous plankton**, **Ocean surface drifters and strandings** and **Shore and seabed**.

GELATINOUS PLANKTON

Planktonic invertebrate species that are gelatinous are described colloquially as 'jellyfish'. They include species from the Classes Hydrozoa and Scyphozoa in the Phylum Cnidaria and from the Phylum Ctenophora. Gelatinous plankton may be abundant at Lundy and some sting. The larger jellyfish are seen frequently, but Dean Jones recognises and records many of the smaller species, especially at times of snorkel safaris (so that their reporting does not necessarily identify the time of year or specific dates they are most abundant). However, many records are from late May and early June.

CNIDARIA: HYDROZOA

Many-ribbed Jellyfish *Aequorea* sp.
21 Jun – six washed-up in the Landing Bay/Devil's Kitchen (Dean Jones).

A hydrozoan *Neoturris* sp.
9 May – one in Devil's Kitchen (Dean Jones).

CNIDARIA: SCYPHOZOA

Barrel Jellyfish *Rhizostoma octopus*
Recorded on 10 days off the east coast through the year, especially in Apr. Maximum of three in any one sighting (Dean Jones).

Blue Jellyfish *Cyanea lamarckii*
26 June – small numbers off the east coast (Dean Jones).
15 Jul – 10 washed-up (Dean Jones).

Moon Jellyfish *Aurelia aurita*
9 May – three in Devil's Kitchen (Dean Jones).
24 Jun – small numbers off the east coast (Dean Jones).
15 Jul – *c.*100 washed up (Dean Jones and Rosie Ellis).

Compass Jellyfish *Chrysaora hysoscella*
24 Jun – small numbers off the east coast (Dean Jones).
15 Jul – about 30 washed up at Hell's Gates (Dean Jones).

CTENOPHORA

Melon Comb Jelly *Beroë cucumis*
12 Jul – about 100 near the jetty (Dean Jones).

Northern Comb Jelly *Bolinopsis infundibulum*
3 Jun – small numbers near the jetty (Dean Jones & Mike Jones).
6 June – small numbers near the jetty (Dean Jones).
13 Jun – Landing Bay (Dean Jones).

Sea Gooseberry *Pleurobrachia pileus*
9 May – three in Devil's Kitchen (Dean Jones).
12 Jul – about 50 near the jetty (Dean Jones).

OCEAN SURFACE DRIFTERS AND STRANDINGS

CNIDARIA: HYDROZOA

By-the-wind Sailors *Velella velella*
30 Aug – 30 washed up at the jetty (Dean Jones).

Portugese Man O' War *Physalia physalis*
24 Jan – one washed up in the Landing Bay (Dean Jones).
3 Oct – one washed up at Hell's Gates (Dean Jones & Rosie Ellis).
8 Nov – six washed up at Hell's Gates (Dean Jones).
27 Nov – one washed up at Hell's Gates (Dean Jones).

[In 2020 this species was frequently stranded and for a much longer period than in previous years throughout South West England.]

CRUSTACEA

Common Goose Barnacle *Lepas anatifera*
14 Sep – about 50 on an old fishing crate with other goose barnacles (Dean Jones).

A goose barnacle *Lepas hillii*
14 Sep – c15 on an old fishing crate with other goose barnacles (Dean Jones).

A goose barnacle *Lepas pectinate*
14 Sep – two on an old fishing crate with other goose barnacles (Dean Jones).

Buoy Barnacle *Dosima fascicularis*
30 Aug – 30 small colonies washed up with between 2-6 animals per colony (Dean Jones).
14 Sep – one on an old fishing crate with other Lepadidae (Dean Jones).
21 Oct – seven washed up in the Landing Bay (Dean Jones).

SEASHORE AND SEABED

Sightings reported here from seashores and the shallow subtidal are of unusual species or that indicate breeding times or variations in abundance. The 2018 Annual Report provides an account of species that are (and were in 2020) normally encountered during 'rockpool rambles' and 'snorkel safaris', and those that had been reported from subtidal habitats. Here we feature only those records that are of unusual species, unusual abundances or of breeding and behaviour, and not of commonly occurring species.

There were two species where occurrence or behaviour were particularly notable. The first record for Lundy (by Rosie Ellis) of the Celtic Sea Slug *Onchidella celtica* represents a significant range extension and presence in a habitat (intertidal algae on a moderately exposed rocky shore) where not usually recorded. The nearest known population is at Croyde Bay on the North Devon mainland where this pulmonate mollusc occurs in a typical habitat amongst barnacles on rock outcrops on a sandy 'surf' beach. The observation, in the Landing Bay, of a moulting aggregation of Spiny Spider Crabs *Maja brachydactyla* in early July by Dean Jones, and further studied in late August by Keith Hiscock, is remarkable. Such aggregations are known to occur in late summer in the South West and seem to be becoming more common. See p.99.

The record of a Pacific Oyster *Magallana gigas* at the end of the jetty is of a species that, on the mainland, appears to recruit from nearby established populations. Since larval lifespan is believed to be about 14-18 days, its presence at Lundy was a surprise. The species is non-native and can take over intertidal areas in enclosed locations.

Rosie Ellis with her discovery of Lundy's first record of Celtic Sea Slug, 21st August (photos: Dean Jones).

ALGAE

During a visit at the end of August, rockpools at Devil's Kitchen were briefly investigated with a particular interest in the abundance of non-native species. Wireweed *Sargassum muticum* was of much lower abundance than in some previous years, and no *Asparagopsis armata* (the gametophyte – Harpoon Weed – stage) were found, having been common in some previous years. Six Wireweed plants were counted in rockpools at Devil's Kitchen by Dean Jones and Rosie Ellis on 8 Apr.

CNIDARIA: ANTHOZOA

Scarlet and Gold Star Coral *Balanophyllia regia*

20 Apr – counts at the two monitoring sites on the lowest shore at Devil's Kitchen recorded 57 at the eastern site and 101 at the western site; this compares to 32 and 72 in 2018, and 48 and 110 in 2020 (Dean Jones). At the lower midshore pool at Devil's Kitchen, where slate had fallen away in the 2013/14 storms, some 15 were counted, and there were a further 15 in photographs taken under overhanging rock that obscured counts by eye; *cf.* 20 in 2018, 19 in 2019 (Keith Hiscock). The populations on the lower shore below the foot of the jetty (where there is continuous shade) were healthy on 21 Aug.

Devonshire Cup Coral *Caryophyllia smithii*
20 Apr – Six (7 in 2019) at the eastern and three (1 in 2019) at the western monitoring sites (see above) (Dean Jones).

CRUSTACEA: DECAPODA

Spiny Spider Crab *Maja brachydactyla*
12 Jul – 1,000+ under the jetty (Dean Jones).
18 & 21 Aug – aggregations in the same area as on 12 Jul but many also present crouched in edges of intertidal gullies on 21 Aug, including 'soft' (recently moulted) individuals (Keith Hiscock).

MOLLUSCA: GASTROPODA: ONCHIDIIDAE

21 Aug – two amongst *Lomentaria articulata* on the lower midshore at Devil's Kitchen (Rosie Ellis).
16 Nov – six at Devil's Kitchen (Rosie Ellis).

MOLLUSCA: BIVALVIA: OSTREIDAE

Pacific Oyster *Magallana gigas*
12 Jul – one at the end of the jetty (Dean Jones). [Subsequent searches in 2021 confirmed the presence of Pacific Oysters – see the image (below) from Rat Island of an individual that most likely settled there in 2019.]

A Pacific Oyster Magallana gigas *attached to rock at Rat Island and recorded at Lundy for the first time in 2020. Pacific Oysters in Britain were first introduced to oyster farms where they have bred and produced larvae that have further established breeding populations away from the farms.*

SPINY SPIDER CRAB AGGREGATIONS AT LUNDY

Keith Hiscock (khis@mba.ac.uk)

Spiny Spider Crabs *Maja brachydactyla* are a common species in inshore areas around the southern part of Britain. They are large crabs with a carapace (shell) width of up to 20cm and arms of up to 50cm in length. The crabs have a hard protective shell and, to grow, need to moult their existing shell and expose a soft shell that hardens at its new, bigger, size. Large numbers (hundreds) of individuals aggregate to moult: a phenomenon that is known from many locations and an annual event in mid to late summer. However, such aggregations have not been reported or observed by the author and collaborators in more than 50 years of undertaking marine biological studies at Lundy. So, to see the strandline inshore of the jetty littered with cast shells on 18th August 2020 was a surprise to me and one that warranted further investigation.

I took photographs from the jetty and along the strandline, then donned my snorkelling gear to look underwater; planning to return the next day to make a more thorough investigation. 'Storm Ellen' swept-in as 19th August dawned and further observations were restricted to searching at low water on the subsequent four days.

A key question for me was ‘had such aggregations been seen at Lundy before?’. Enquiries were made of Ilfracombe and Appledore Sub-Aqua Club members, as those clubs visit Lundy regularly. High densities (but not aggregations) had been seen by Ilfracombe SAC (Margaret Ashton, pers. comm.) off the south-west coast in 2015 and a dense aggregation recorded on video during an Appledore SAC dive north of Gannets' Rock on 29th July 2017 (Mark Lavington, pers. comm.). The first record in 2020 was by Dean Jones (Warden) on 12th July when over a thousand were recorded huddled together around Rat Island, the jetty and the Landing Bay beach. The aggregation persisted and was videoed on 7th August by Rosie Ellis (Assistant Warden). That video was to provide evidence that I did not have about 'layering' within the aggregation.

The Spiny Spider Crab aggregation photographed from the jetty and (right) cast-off shells at low water on the south side of the Landing Bay, 18th August (photos: Keith Hiscock);

Part of the Spider Crab aggregation videoed on 7th August (photo: Rosie Ellis) and (inset) a soft crab picked up from the lower shore on 22nd August – the crab has 'decorated' itself with algae (photo: Keith Hiscock).

A count of live individuals clustered together photographed from the jetty at low tide on 18th August, came to 655. That figure is approximate and, allowing for the 'layering' of individuals two to three thick in places, there may have been a thousand or more. The width of cast shells was about 65-105mm. On 22nd August, a large number of 'soft' crabs were located crouched into the sides of gullies on the north-west side of Rat Island near to low water on a spring tide. The crabs had 'decorated' themselves with algae fastened to spines on the carapace and legs: a form of camouflage.

The aggregations known from other locations in Britain (and worldwide for some other spider crab species) seem to remain faithful to a location for a few years and then aggregations develop, perhaps a few kilometres away, in other years. Although the Lundy gathering was a large aggregation compared to the 'pods' reported off north-west Spain, a mound of about 50,000 individuals was reported by Dr Ken Collins off Burton Bradstock in Dorset (cited in María-Paz & González-Gurriaran 2004).

Corgos, Verísimo & Freire (2006) summarise the sequence of moulting and mating events: "Our results show that males carry out the terminal molt before females, the former having a peak in July and the latter in August. The onset of gonad maturity in females occurs two to three months after they have reached morphometric maturity (starting in October), coinciding with the periods prior to and during the mating migration to deep waters."

If you see such aggregations of Spiny Spider Crabs at Lundy, do take images if you can and do report them.

Acknowledgements

Thanks to Rosie Ellis for filming, Harry Dwyer for use of the GoPro camera on 7th August, and Margaret Ashton and Mark Lavington for information from previous years.

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FRESHWATER FISH

Jennifer George

Several species of fish have been recorded in the Lundy ponds since their introduction by Martin Coles Harman in the late 1920s. No detailed monitoring of the fish has taken place since their introduction, but the most frequently mentioned by observers are Golden Orfe *Leuciscus idus*, Crucian Carp *Carassius carassius* and Mirror Carp *Cyprinus carpio*. An early survey of the Mirror Carp in Rocket Pole Pond in 1981 showed that a very large population appeared to be present (LFS Annual Report 32).

In February, Golden Orfe with several juveniles were seen in Quarry Pond by Martin Thorne who also saw Crucian Carp, although in fewer numbers that he had seen previously.

In July, August and September, numbers of adult Golden Orfe in Quarry Pond seen by observers ranged from 18 to 40 at any one time, and 30-50 juveniles were also seen at various times during July.

A fairly detailed survey of the Mirror Carp in Rocket Pole Pond was carried out in early July by Alan & Sandra Rowland who threw in food and then counted the numbers of fish rising simultaneously to take it. Estimates of fish size were also made and photographs taken. Ten large carp, about 50cm in length and six which were 30cm in length were seen together with 100 or so juvenile fish.

It is interesting that both Quarry Pond and Rocket Pole Pond support a large fish population. The food of these carp consists of invertebrates, algae and plant material, and they may also take insects alighting on the pond surface. Previous studies have shown that neither pond has a large invertebrate population and they do not have many weed beds that would provide food. However, Rocket Pole Pond experiences large algal blooms at various times during the year. Cannabalism of very young fish by adults remains a distinct possibility.

Observers: Sam Bosanquet, Tim Davis, Chris & Mandy Dee, Tim Jones, Alan & Sandra Rowland and Martin Thorne.

Quarry Pond in July showing the Golden Orfe and (inset) a large Mirror Carp taking food at the surface of Rocket Pole Pond in July (photos: Alan Rowland).

INTRODUCED REPTILES / NATIVE & FERAL LAND MAMMALS / BATS

Chris Dee

Introduced Reptiles

There are no native reptiles on Lundy but **Slow-worms** *Anguis fragilis* were first observed in the gardens in Millcombe in November 2010. They are believed to have been accidentally introduced in compost imported from the mainland. One on the Terrace on 10 May, one in St Helen's Copse on 19 Sep measured at 32 cm, and one in Millcombe on 2 Oct were the only reports in 2020. However, the species is probably under-recorded and members are encouraged to note all sightings in the LFS Logbook (or the alternative recording arrangements in place due to Covid-19 precautions).

Native Land Mammals

Lundy has just one native terrestrial mammal, **Pygmy Shrew** *Sorex minutus* which is widely distributed across the island and can be found throughout the year. Probably associated with most properties, in 2020 it was reported only from Big St Johns and Bramble Villa East. The species is also found away from human habitation, but with reduced visitor numbers there were no sightings elsewhere.

Bats

Bats are occasionally observed on Lundy and are usually assumed to be one of the native pipistrelle species: **Common Pipistrelle** *Pipistrellus pipistrellus* or **Soprano Pipistrelle** *P. pygmaeus*. Only a single sighting of a pipistrelle species was reported, on the early date of 26 Feb at Quarry Pond (Pete Squire & Terese Hespher).

Feral Land Mammals

The populations of feral ungulates continue to be monitored and numbers controlled according to the terrestrial management plan. The island-wide stock count was undertaken in March. These early spring surveys provide the best estimation of numbers, but extra counts by visitors are useful for the record, particularly if some assessment of completeness of coverage is included.

Sika *Cervus nippon*
Around 40 were reported on the East Side at the end of January. The stock count in March estimated a population of 125 individuals (Peter Hamlyn), although no breakdown of age or sex was provided. No other double-figure counts were reported. A cull in April reduced the population by seven (5 hinds and 2 prickets) and two stags were culled in October.

Soay Sheep *Ovis aries*
The stock count in March estimated 220 individuals (Peter Hamlyn). The only other significant count was of 190 between Halfway Wall and the North End on 5 Jul, although six were at the South End in March. One ram was culled in April and a further 70 rams and 29 ewes were removed by the culls in September and October.

Goat *Capra aegagrus*
Goats continue to be actively discouraged south of Quarter Wall in order to reduce grazing pressure on Lundy Cabbage and the slow-growing woody vegetation in Millcombe. The stock count in March found 35 individuals (Peter Hamlyn). The culls in April, September and October reduced the population by three billies.

Rabbit *Oryctolagus cuniculus*
Rabbit numbers remain low as a result of disease (Rabbit Viral Haemorrhagic Disease or Myxomatosis). Individuals or small groups were reported from four locations across the island: Upper East Side Path, Rocket Pole, on the main track at Halfway Wall (at night) and at Paradise Row (photo right by Dean Jones). All records of this formerly common species would be welcome to allow its status to be fully assessed.

Garden Snail with Horse Leech on emergent vegetation in Millcombe Pond (photo: Dean Jones).

FRESHWATER INVERTEBRATES

Jennifer George

Alan Rowland continued his monitoring of freshwater invertebrates in the St John's Valley and Millcombe stream systems and the new Brambles Pond in the summer of 2020. Seventeen different species were recorded in these habitats. Apart from the above, only two observations of freshwater invertebrates were recorded in the LFS Logbook during the year.

On 8 May, Dean Jones found a Garden Snail with a **Horse Leech** *Haemopis sanguisuga* attached to it on plants emerging from Millcombe Pond (see photo above). Horse Leeches have been found previously in Millcombe Pond and they also occur elsewhere on the island, particularly in the puddles along the track near Quarter Wall gate. Unlike the related Medicinal Leech *Hirudo medicinalis*, Horse Leeches are not bloodsucking ectoparasites of mammals but feed on other freshwater invertebrates and can often leave a pond to feed on earthworms, molluscs, insects and carrion. The possible fate of the Garden Snail is unknown!

In July, **flatworms** of two species were found in St John's stream, the white *Phagocata vitta* and the black *Polycelis nigra*. The former is usually found in streams at high altitudes, for example in Snowdonia above 300 metres, but can occur in cold streams at lower altitudes.

Two species of Crustacea were recorded. The **Water Slater** *Proasellus meridianus*, which occurs in many of the island's ponds, was found in large numbers in St John's stream near Square Cottage (139) and in the Millcombe stream (171). The small **seed shrimp** of the Ostracoda group occurred throughout St John's stream and in Brambles Pond.

The most abundant invertebrate in St John's and Millcombe streams was the small mollusc, **Jenkins' Spire Snail** *Potamopyrgus antipodarum*, with over 100 found at each of the sites studied and 45 living in Brambles Pond (see photo overleaf). Two other molluscs were found in the stream: **Wandering Snail** *Lymnaea peregra* in St John's stream near Square Cottage, and a **pea mussel** of the Sphaeriidae group in Millcombe stream.

Pond skaters, Gerris *spp., are capable of flight and feed mainly on other insects that fall onto the water surface (photo: John Clegg). The diving beetle* Colymbetes fuscus *(top right) grows up to 18 mm in length and feeds mainly on other invertebrates, while Jenkins' Spire Shell is found in most of the Lundy streams, often in fairly large numbers (photos: Alan Rowland).*

Insects were well represented in the streams and Brambles Pond. A **pond skater**, *Gerris* sp., was seen on the water surface of St John's stream near Square Cottage, and a fairly large **diving beetle** of the Dytiscid family, *Colymbetes fuscus*, was also seen there. The caddis fly larva *Diplectrona felix* found on Lundy for the first time in 2019 in St John's stream at Millcombe occurred there again in 2020.

Small larvae of the Order Diptera (True flies) were dominant in the streams and Brambles Pond. Chironomid (non-biting midge) larvae occurred at all sampling sites, and the Thaumaleid (Trickle fly) larva that closely resembles the Chironomids was also found. An interesting find was the larva of the **Meniscus Midge** (Family Dixidae); it has a U-shaped body and lives in the meniscus amongst aquatic vegetation and pupates on emergent plants. Other larvae recorded by Alan Rowland were a **biting midge** (Ceratopogonidae) and a larger **crane fly** (Tipulidae). **Mosquito** pupae (Culicidae) were found in Brambles Pond and St John's stream at Millcombe. It is encouraging to see that Brambles Pond, which was less than a year old at the time of sampling, was showing a range of species from different biological groups.

On 9 Aug, Tim Jones and Chris Dee watched a very large adult diving beetle at the surface and diving down into the water of Quarter Wall Pond. It was thought to be the **Great Diving Beetle** *Dytiscus marginalis*. This species, which has a large predatory larva, has not previously been recorded on Lundy, although large beetles of the same family, Dytiscidae, have been found in Pondsbury (Clabburn 1993) and in Quarter Wall Pond (George, 1979, 1986, 2007). Precise identification, with a photograph if possible, is required before it can be definitely documented as a species new to Lundy.

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TERRESTRIAL INVERTEBRATES

Alan Rowland

Species reported through the year:

Slugs and Snails Gastropoda

Garden Snail *Cornu aspersum*, Brown-lipped Snail *Cephea nemoralis*, White-lipped Snail *Cephea hortensis* and Black Slug *Arion ater* agg.

Spiders, Harvestmen and Mites Arachnidae

Cave Orb Weaver *Meta menardi*, Copper Sun Jumper *Heliophanus cupreus*, Cellar Spider *Pholcus phalangioides*.

Woodlice Isopoda

Common Pill Woodlouse *Armadillidium vulgare*, Common Woodlouse *Oniscus asellus* and Ant Woodlouse *Platyarthrus hoffmannseggi*.

Centipedes and Millipedes Myriapoda

Banded Centipede *Lithobius variegatus*, julid millipede Cylindroiulus sp, Celtic Sea Slug *Onchidella celtica* (the first record for Lundy – see p.97).

Silverfish Thysanura

Lepisma saccharina.

Earwigs Dermaptera

Common or European Earwig *Forficula auricularia*.

Cockroaches Dictyoptera

Lesser Cockroach *Ectobius panzeri* (first sighting since 1983).

Grasshoppers and Crickets Orthoptera

Common Field Grasshopper *Chorthippus brunneus* and Meadow Grasshopper *Pseudochorthippus parallelus*.

True Bugs Hemiptera

Gorse Shieldbug *Piezodorus lituratus*, Meadow Froghopper *Philaenus spumarius* and Alder Spittlebug *Aphrophora alni* (found across the UK – the first record for Lundy).

Beetles Coleoptera

A soldier beetle *Marthinus seriepunctatus* and a dung beetle *Aphodius prodromus* were both first records for Lundy. Also recorded were: a water scavenger beetle *Sphaeridium scarabaeoides*, Green Tiger Beetle *Cicindela campestris*, a ground beetle *Carabus granulatus*, Bronze Carabid Beetle *Carabus nemoralis*, a ground beetle *Abax parallelepipedus*, Black Snail beetle *Silpha atrata*, Black Sexton Beetle *Nicrophorus humator*, Sexton Beetle *Nicrophorus investigator*, Devils's Coach Horse Beetle *Ocypus olens*, Minotaur Beetle *Typhaeus typhoeus*, Dor beetle *Geotrupes stercorarius*, Brown Chafer *Serica brunnea*, Rose Chafer *Cetonia aurata*, Common Red Soldier Beetle *Rhagonycha fulva*, Seven-spot Ladybird *Coccinella septempunctata* and Black Oil Beetle *Meloe proscarabaeus*.

Caddisflies Trichoptera

Beraea maurus (last seen as a larva in 1993).

Black Oil Beetle, near South Light, 30th March (photo: Dean Jones).

True Flies Diptera

Sam Bosanquet

Although no specialist Dipterists recorded on Lundy in 2020, 71 records of 38 species was a substantial increase on recent years. **Craneflies** (Limoniidae, Pediciidae and Tipulidae) led the way with 18 recorded species, many of which were last seen on the island in the 1970s and three of which were new. Most of the eight recorded species of **Hoverfly** (Syrphidae) were island regulars, such as **Marmalade Hoverfly** *Episyrphus balteatus* and **Pied Hoverefly** *Scaeva pyrastri*. Seven species of **Leaf Mining Fly** (Agromyzidae and Cecidomyiidae) included five new for Lundy, whilst one of the two recorded **Soldier Flies** (Stratiomyidae) was new. Two species of **Parasite Fly** (Tachinidae) included six sightings of the regular **Giant Tachinid Fly** *Tachina grossa*, but also the first Lundy record of *Linnaemya vulpina* since 1990. One record of *Mesembrina meridiana* was the only **House Fly** (Muscidae) identified in 2020. New species for the island were:

Erioptera flavata (Limoniidae): one netted in Millcombe and gen. det., 22 Jul (SB).
Limonia macrostigma (Limoniidae): swept from *Sphagnum* flush in Gannets' Coombe, 21 Sep (SB).
Tipula rufina (Tipulidae): resting by John O'Groats, 21 Sep (SB).
Agromyza alnivora (Agromyzidae): mines on *Alnus* in Quarter Wall Copse, 20 Sep (SB).
Aulagromyza hendeliana (Agromyzidae): mines on *Lonicera* in Millcombe, 13 Jun (DJ).
Phytomyza lappae (Agromyzidae): mines on *Arctium* in Millcombe, 20 Sep (SB).
Phytomyza spondylial pastinacae agg. (Agromyzidae): mines on *Heracleum* in Millcombe, 27 Jun (DJ).
Jaapiella veronicae (Cecidomyiidae): galls on *Veronica chamaedrys* in Millcombe, 20 Sep (SB).
Beris morrisii (Stratiomyidae): swept from tree branch in Millcombe, 20 Jul (SB).

The island Diptera total now stands at 471 species, but only 59 of these have been recorded since 2000! Specialist Diptera recording on Lundy is urgently needed.

The following observers recorded Diptera in 2020: Sam Bosanquet, Dean Jones and Alan Rowland.

Tipula cava *swept from wetland by Quarry Pond, 20th July, the first record since 1990 (photo: Sam Bosanquet) and (right) Giant Tachinid Fly, Tibbets, 16th June (photo: Dean Jones).*

Bees, Wasps & Ants Hymenoptera

Sam Bosanquet

The majority of the 48 Hymenoptera records from 2020 were bumblebees, accounting for 37 records and six of the 16 recorded species. Three records of **Heath Bumblebee** *Bombus jonellus* from September were the least common of those six. One **Yellow-legged Mining-bee** *Andrena flavipes* on 25 Jun was the only other recorded bee. 100 **Turnip Sawfly** *Athalia rosae* were noted at the North End on 30 May, whilst galls of *Xestophanes brevitarsis* (Cynipidae) on *Potentilla erecta* near Pondsbury on 29 Sep represented a new sawfly for Lundy. Seven assorted wasp species were noted during the

year, although some were only identified to genus level; a **Hornet** *Vespa crabro* that flew south near Old Light on 21 Sep was only the second island record. It appears that nobody identified any ants on Lundy during the year.

A gall of the sawfly Xestophanes brevitarsis *near Pondsbury – the first island record (photo: Sam Bosanquet) and (right) a nocturnal ichneumon wasp* Enicospilus ramidulus *near Rocket Pole, 10th September (photo: Martyn Roper).*

Dragonflies & Damselflies Odonata

Tim Davis

Six species were recorded during the year: **Common Blue Damselfly** *Enallagma cyathigerum* – first of the year on 27 May at Quarter Wall Pond; also present at Pondsbury. **Blue-tailed Damselfly** *Ischnura elegans* – first of the year on 21 May at Quarter Wall Pond, max 10 there on 20 Jul. **Migrant Hawker** *Aeshna mixta* – four records: Terrace, 10 Jul, St Helen's Combe, 8 Aug; North End, 9 Aug; Earthquake, 20 Sep. **Emperor Dragonfly** *Anax imperator* – noted on 10 days between 1 Jul and 11 Aug at Quarter Wall Pond, Quarry Pond, Pondsbury (two on 9 Aug) and Widow's Tenement, and a female ovipositing in Quarter Wall Pond on 20 Jul. **Vagrant Emperor** *Anax ephippiger* – one on the main track between Tibbets and Threequarter Wall, 11 Oct; and **Common Darter** *Sympetrum striolatum* – one in Millcombe, 13 Oct.

Observers: Sam Bosanquet, Tim Davis, Dean Jones, Tim Jones, and Michael, Jennie & Bill Williams.

Vagrant Emperor resting by the main track between Tibbets and Threequarter Wall on 11th October (photo: Jennie Williams).

Small Heath and (right) Small Copper (photos: Dean Jones).

Butterflies Lepidoptera

Anthony John

Sixteen species of butterflies were recorded in 2020, two fewer than in the previous year. It was a better year for Small and Green-veined Whites and Small Tortoiseshell, but most other species were recorded in smaller numbers than in 2019. Very few Painted Lady butterflies were seen (see table below). The reduction in records may have been partly caused by fewer observers due to coronavirus restrictions. Only four scarcer species of butterflies were seen on Lundy in 2020. They included Gatekeeper *Pyronia tithonus* on five dates between 5 Jul and 18 Aug, including five on 18 Aug, Grayling *Hipparchia semele* on nine dates from 29 May to 31 Aug (max five on 19 Jul), single Commas *Polygonia c-album* on 6 Jul and 11 Oct, and single Holly Blues *Celastrina argiolus* on 8 & 16 April and 21 Jul (one male on the Landing Bay). However, there were no records of Orange-tip *Anthocharis cardamines*, Clouded Yellow *Colias croceus*, Wall Brown *Lasiommata megera* or Speckled Wood *Parage aegeria* in 2020.

Species	First date	Last date	Maximum count & date	Butterfly-days 2020	Butterfly-days 2019
Large White	10 Apr	27 Sep	6 on 2 days in Sep	116	144
Small White	27 Apr	15 Oct	5 on 8 Aug	182	77
Green-veined White	2 Apr	14 Sep	20 on 3 Aug	214	109
Small Heath	10 May	12 Sep	27 on 1 Jun	237	456
Ringlet	25 Jun	21 Jul	4 on 10 & 12 Jul	21	163
Meadow Brown	30 May	5 Sep	123 on 25 Jun	1243	2517
Red Admiral	3 Jan	22 Oct	97 on 13 Jun	801	1092
Painted Lady	5 Jun	12 Sep	3 on 4 days in Jul, Aug & Sep	27	3226
Peacock	29 Jan	18 Aug	4 on 6 & 7 Apr	32	29
Small Tortoiseshell	13 Mar	1 Dec	27 on 16 Sep	104	68
Small Copper	12 May	22 Oct	5 on 21 Sep	30	49
Common Blue	9 May	6 Sep	6 on 13 Aug	48	69

Top (l-r): Oak Eggar, Barrett's Marbled Coronet, Brindled Ochre.
Bottom (l-r): Cream-spot Tiger, Peppered Moth, Fox Moth (photos: Dean Jones).

Moths Lepidoptera

Anthony John

In 2020, 227 species of moths were recorded (*cf.* 134 species in 2019): 89 micromoths and 138 macromoths. Of these, 26 species were new to Lundy, 16 micromoths and 10 macromoths. Light traps were set on 36 dates during the year. The Millcombe Heath Trap (MHT) was set on 31 dates between 4 Apr and 24 Oct: one trap was set in April, eight in May, nine in June, five in July, four in August, two in September and two in October. The Heath Trap was deployed at five other locations: Benjamin's Chair on 20 May, Tibbetts on 9 Jun, Tent Field on 15 Jun, the Ugly on 18 Jun and at North End on 17 Jul.

New micromoths (16 species – in the order recorded): *Tinea semifulvella*, *Acrobasis suavella*, *Neofaculta ericetella*, *Argyresthia spinosella*, *Eucosma compoliliana*, *Anarsia spartiella*, *Batrachedra praeangusta*, *Anacampsis populella*, *Stigmella hybnerella*, *Parornix anglicella*, *Cnephasia conspersana*, *Monochroa tenebrella*, *Celypha striana*, *Dichrorampha acuminatana*, *Mecyna asinalis* and *Acleris hyemana*.

New macromoths (10 species – in the order recorded): Grey Arches *Polia nebulosa* (two records), Sycamore *Acronicta aceris*, Marbled White Spot *Deltote pygarga*, Cream Wave *Scopula floslactata*, Lunar Hornet Moth *Sesia bembeciformis*, Dot Moth *Melanchra persicariae*, Gold Spot *Plusia festucae*, Pinion-streaked Snout *Schrankia costaestrigalis* (netted in flight at night near Millcombe House), Dark Spectacle *Abrostola triplasia* and Scarce Bordered Straw *Helicoverpa armigera*.

There were second records for 12 micromoths: *Micropterix aruncella* (first recorded in 1993), *Tinea pellionella* (2018), *Psychoides filicivora* (2018), *Glyphipterix thrasonella* (2018), *Argyresthia albistria* (1988), *Lyonetia clerkella* (2011, mines on *Betula*), *Borkhausenia fuscescens* (2018), *Agonopterix yeatiana* (2019), *Blastobasis adustella* (2018), *Aphelia paleana* (2019), *Acleris sparsana* (2016) and *Lobesia abscisana* (2018). There were also second records for six macromoths: Pale-shouldered Brocade

Day-flying moths	Recorded on	First date	Last date	Maximum count & date
Emperor Moth	8 days	26 Apr	20 May	15 on 26 Apr
Humming-bird Hawk-moth	13 days	31 May	18 Oct	2 on 22 Jul & 5 Sep
Silver Y	37 days	11 Apr	27 Oct	17 on 9 & 31 Aug
Fox Moth caterpillars	18 days	31 May	19 Oct	22 on 14 Oct

Top (l-r): Vine's Rustic, Mecyna asinalis, Tinia semifulvella.
Bottom (l-r): Grey Arches, Vestal, Esperia sulphurella *(photos: Dean Jones).*

Lacanobia thalassina (first recorded in 1986), Vine's Rustic *Hoplodrina ambigua* (1990), Nutmeg *Discestra trifolii* (2011), Grey Pug *Eupithecia subfuscata* (2018), Broad-bordered Yellow Underwing *Noctua fimbriata* (2018) and Vestal *Rhodometra sacraria* (2019) – one flushed near Smelly Gully!

On 7 May at least 200 Cocksfoot Moths *Glyphipterix simpliciella* were seen in Millcombe and on the Beach Road. Later in May around 100 *Cydia ulicetana* (the larvae feed on gorse) were observed in Millcombe and along the Lower East Side Path on 24th. On 3 Jun a Heath trap in Millcombe caught three species new to Lundy – *Acrobasis suavella*, Sycamore *Acronicta aceris* and Marbled White Spot *Deltote pygarga* – as well as 186 Bright-line Brown-eye *Lacanobia oleracea* and 117 Heart and Dart *Agrotis exclamationis*. On 16 Jun over 100 *Celypha lacunana* were flushed from the Lower East Side Path. Three further new species were found on 6 & 7 Jul, all of them on old willow on the Terrace; two of them were micromoths – *Batrachedra praeangusta* and *Anacampsis populella* – and the third was the Lunar Hornet Moth *Sesia bembeciformis* (empty pupal cases found).

Three Nationally Rare/Scarce species were recorded in the Millcombe Heath trap, Devonshire Wainscot *Mythimna putrescens* and *Nothris congressariella* in June, and Double Line *Mythimna turca* in August. Close examination of hawthorn leaves in Millcombe on 2 Jul revealed vacated mines of the leafminer moths *Stigmella hybnerella* and *Parornix anglicella*. On the same day the micromoth *Cnephasia conspersana* was swept from coastal heath at the North End. All three micromoths are new to the island. Fifty Five-spot Burnet moths were present near John O'Groats on 20 Jul and 100+ Six-spot Burnet moths were seen near Tibbetts Hill on 22 Jul. Two Humming-bird Hawk-moths were nectaring on Ivy-leaved Toadflax at the Farm on 22 Jul.

On 20 Sep, 11 species were found at night on ivy flowers near the Old School. The next day two further new species were found in a Heath trap in Millcombe – *Dichrorampha acuminatana* and *Mecyna asinalis*; on 24th a Scarce Bordered Straw *Helicoverpa armigera*, a scarce migrant new for Lundy, turned up in the Lundy Shop! Another scarce migrant, a Convolvulus Hawk-moth, was found earlier in the summer in the Shop on 1 Aug.

Ten species of migrant moths logged were Diamond-back Moth *Plutella xylostella*, Rusty-dot Pearl *Udea ferrugalis*, Rush Veneer *Nomophila noctuella*, Convolvulus Hawk-moth *Agrius convolvuli*, Humming-bird Hawk-moth *Macroglossum stellatarum*, Vestal, Silver Y *Autographa gamma*, Scarce Bordered Straw (new), Delicate *Mythimna vitellina* (on 21 & 28 Sep) and Dark Sword-grass *Agrotis ipsilon*.

Many thanks to all the observers who noted records of Lepidoptera in 2020: Zoë Barton, Sam Bosanquet, Tim Davis, James Diamond, Chris & Mandy Dee, Richard Goodman, Dean Jones, Tim Jones, Malcolm Lee, Patrick Penny, Alan Rowland and Sue Waterfield. Particular thanks are due to Dean Jones, who generated the great majority of the moth records.

BRYOPHYTES (MOSSES, LIVERWORTS & HORNWORTS)

Sam Bosanquet

Recording during a family visit from 18th to 22nd July produced 211 records of 73 bryophyte taxa. I returned on my own between 17th and 22nd September to continue dedicated bryophyte recording on the island using a 200x200m Ordnance Survey grid. This trip generated 907 records of 140 taxa (1 hornwort, 44 liverworts and 95 mosses). Full data are given in Excel format on the LFS website, have been sent to the British Bryological Society Recorder for Devon, and will be available on the National Biodiversity Network (NBN).

To date, 120 of the 125 potentially searchable 200x200m squares now have bryophyte records, and 110 of these have been pretty thoroughly recorded. Return visits to some squares that were partly recorded in previous years significantly boosted their totals, most notably around Queen Mab's Cave and the Punchbowl Valley.

Twenty-one bryophyte taxa (9 liverworts and 12 mosses) were newly recorded for Lundy in 2020, taking the island's tally of bryophytes to 220 taxa (2 hornworts, 63 liverworts and 155 mosses). The most notable discoveries in 2020 were all liverworts: the bog specialist *Cladopodiella fluitans*, the Hyperoceanic *Plagiochila punctata*, the non-natives *Lophocolea bispinosa* and *L. semiteres*, and the Nationally Scarce *Scapania lingulata*, the last of which was new for South West England.

The list below covers the notable bryophytes recorded in 2020. An asterisk indicates a newly discovered species for Lundy.

Hornworts

Anthoceros punctatus: five records from stream valleys on the west coast and one from the Queen Mab's Cave area; this uncommon species is now known from seven sites on Lundy.

Liverworts

Blasia pusilla: three large patches with both forms of gemmae on slumped soil in a coastal gully east of Jenny's Cove – the second Lundy record.

Cephaloziella hampeana: noted on coastal soil at Earthquake and Mousehole & Trap as well as around Pondsbury, whereas the previous records were from *Sphagnum* in the Pondsbury area.

Chiloscyphus pallescens: a colony in mire vegetation by Quarry Pond – the third island record.

Chiloscyphus polyanthos: recorded by Punchbowl Stream – the fifth Lundy site.

**Cladopodiella fluitans*: a few shoots in a damp peaty rut with *Cephalozia bicuspidata*, south of Pondsbury – the first Lundy record of this uncommon bog liverwort.

Fossombronia maritima: collected with sporophytes from a coastal spring east of Jenny's Cove – the second record.

**Fossombronia wondraczekii*: several fruiting patches on a peaty track edge north of the Quarries, confirming the presence of this common Frillwort on the island (see photo overleaf).

Frullania teneriffae: a few patches on a tor on Long Roost – the fourth record and the first from the west coast.

Kurzia sylvatica: a small colony north of Pondsbury – the fourth record of this uncommon liverwort.

Lejeunea lamacerina: found new for the west coast by Punchbowl Stream as well as on rocks by Government House Pond and in the Ugly ravine – the third to fifth known sites.

**Lophocolea bispinosa*: collected new for Lundy from Punchbowl Stream and then found in five localities along the island's north-west coast. Dense patches of this non-native liverwort, which originates from New Zealand, occupy various habitats on Lundy, including coastal heath, peat below tors, and coastal stream gullies. It may have been overlooked previously as *L. bidentata*, which is widespread on the east coast of the island.

**Lophocolea heterophylla*: a patch collected from under a boulder on Puffin Slope – the first Lundy record of this acid-loving liverwort, which is common on the mainland.

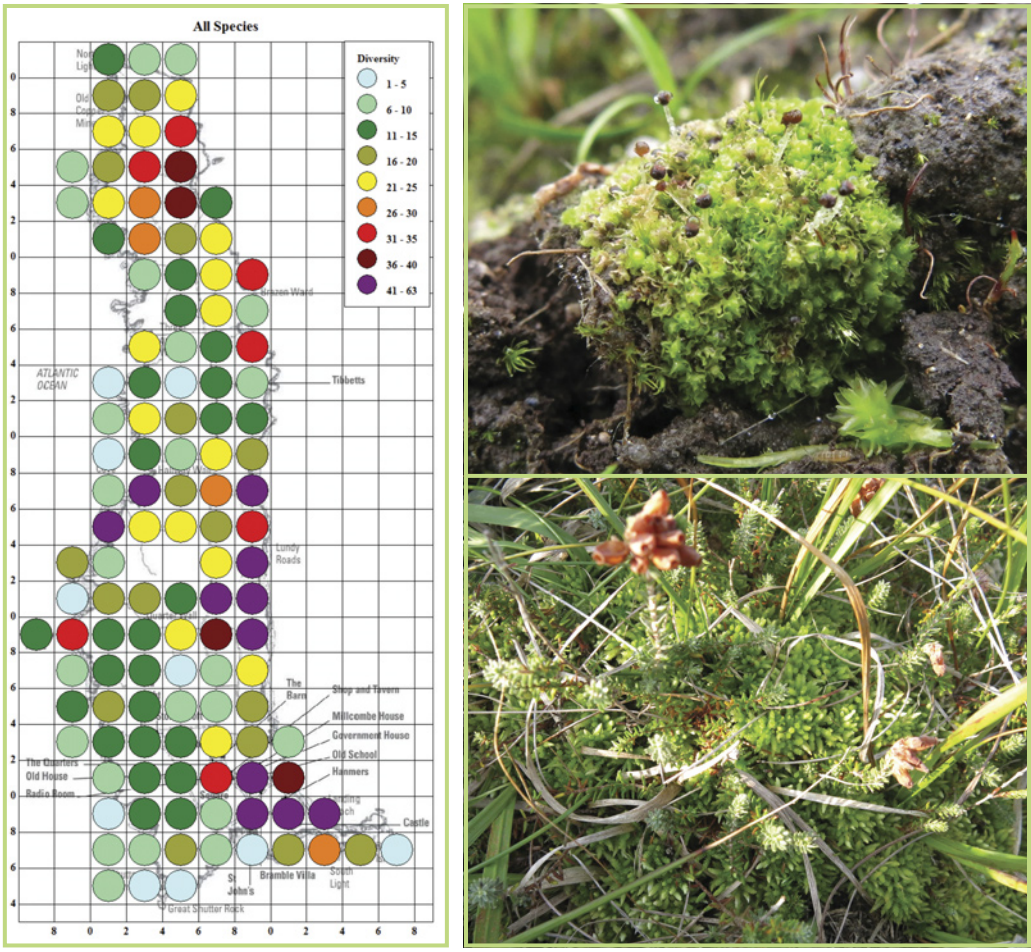


Figure 1. Recorded bryophyte diversity on Lundy after the 2020 visits. Top: fruiting Fossombronia wondraczekii*, a new liverwort for Lundy, from a trackside north of the Quarries. Bottom: a cushion of* Sphagnum papillosum *supporting* Erica tetralix *near Pondsbury (photos: Sam Bosanquet).*

**Lophocolea semiteres*: a 15cm patch of male plants on the side of a peaty path through heathland east of John O'Groats is the first North Devon record of this non-native liverwort, which originates from New Zealand like *L. bispinosa*. It may have arrived on Lundy as fragments on walkers' boots, although the lack of records further south on the island is surprising.

**Lunularia cruciata*: abundant juvenile thalli and a few mature plants were found on disturbed ground behind the Rocket Shed. This is a common garden liverwort in most of southern Britain.

**Odontoschisma sphagni*: 15x5 & 5x5cm patches with *Eriophorum angustifolium* and *Erica tetralix* in wet heath south of Pondsbury – the first Lundy record of this moderately common bog liverwort.

Pellia endiviifolia: the fourth Lundy record came from a dripping sea-cliff behind Ladies Beach.

Pellia neesiana: noted twice on the west coast, taking the number of known colonies to five.

**Plagiochila punctata*: ten small cushions growing alongside the scarce lichen *Parmotrema crinitum* on rockface in a deep chasm in Earthquake are particularly noteworthy because this Hyperoceanic liverwort is very uncommon in South West England.

Riccardia chamedryfolia: a small population with *Pellia neesiana* in a coastal gully east of Jenny's Cove – the third Lundy record.

Riccardia latifrons: a few patches growing on *Sphagnum papillosum* south of Pondsbury – the first record since 1975.

**Scapania lingulata*: collected from coastal heath above Long Roost and identified microscopically by virtue of its abundant oil bodies. This is the first record for South West England, although *S. lingulata* occupies similar habitats in Pembrokeshire and Anglesey, so it is not unexpected.

Mosses

**Bryum tenuisetum*: this uncommon moss was collected from the edge of Ackland's Pond and identified by its yellow rhizoidal tubers.

**Campylopus pyriformis*: confirmed microscopically from thin peat over granite by Quarry Pond and subsequently noted at two more localities on the island.

Cryphaea heteromalla: small colonies on Elder in Millcombe Walled Gardens and VC Quarry – the fourth and fifth Lundy records.

Dicranella rufescens: noted in 2020 by Quarry Pond and in a gully north of Gannets' Combe, following the first Lundy record in 2019.

**Dicranella varia*: a few shoots alongside *Funaria hygrometrica* from the fire site by the Stonecrusher in Tent Field.

Dicranum scottianum: four small cushions in Earthquake are the first west coast record of a moss which is scattered on sheltered east coast tors from Gannets' Combe to the Quarries.

**Ditrichum* (*Trichodon*) *cylindricum*: a few shoots on dried out mud of Brambles Pond.

**Ephemerum* (*serratum* var.) *minutissimum*: fruiting patches on poached area between wall and fence at west end of Quarter Wall.

Eurrhynchium (*Oxyrrhynchium*) *hians*: the second and third Lundy records came from dripping coastal rocks at Ladies Beach and near Queen Mab's Cave.

**Eurrhynchium* (*Oxyrrhynchium*) *speciosum*: confirmed microscopically from dripping coastal rocks near Queen Mab's Cave.

**Funaria hygrometrica*: abundant at the bonfire site by the Stonecrusher in Tent Field and also present at Brambles Pond and by St Helen's Church – this 'Bonfire Moss' is common on the mainland.

**Grimmia lisae*: confirmed microscopically from Castle Hill and the slopes above the Landing Bay, although previous records of *Grimmia trichophylla s.l.* may include some colonies of *G. lisae*.

**Grimmia trichophylla s.str.*: confirmed microscopically from rocks by Punchbowl Stream and a stream east of Jenny's Cove, although *G. trichophylla s.l.* is scattered elsewhere on Lundy.

Heterocladium wulfsbergii: recorded by three cascades on Punchbowl Stream, downstream of the Grid Reference given for the 2006 first Lundy record but clearly representing the same colony. This Hyperoceanic moss is locally frequent in Wales, Scotland and South West England but is very localised.

Hookeria lucens: found new for the west coast by Punchbowl Stream; there are four colonies on the sheltered east coast.

**Leptobryum pyriforme*: identified microscopically from pond margins at Brambles Villa and Ackland's Pond, and from a coastal slump east of Jenny's Cove.

Philonotis sp.: spotted through binoculars on the flushed cliffs behind Ladies Beach and requiring microscope checking to identify whether it is *P. fontana* or *P. rigida* – impossible without abseiling!

Plagiothecium denticulatum var. *denticulatum*: a lush patch in a gully north of Gannets' Combe – the third Lundy site.

Pohlia annotina: the second Lundy record came from gritty soil by Quarry Pond.

**Pohlia melanodon*: found in a seeping crevice at the back of Victoria Beach – new for Lundy.

Polytrichum commune var. *commune*: juvenile plants on slumped gritty peat on the coastal slope north of Gannets' Combe – the fourth Lundy record of this bizarrely rare moss.

Pseudocrossidium revolutum: the second Lundy record was from wall mortar by the Battery steps.

Racomitrium aciculare: last seen on Lundy in the 1950s, this moss was rediscovered by Punchbowl Stream and a stream east of Jenny's Cove.

Rhizomnium punctatum: the fourth Lundy population was found in a gully by Queen Mab's Cave.

Rhynchostegium alopecuroides (*Platyhypnidium lusitanicum*): a large population by Punchbowl Stream makes the small colony found in 2019 further north on the west coast somewhat less surprising. This Hyperoceanic moss is very uncommon in western Britain.

Sphagnum fimbriatum: small patches in coastal gullies by Queen Mab's Cave and north of Gannets' Combe – the second and third Lundy records.

**Sphagnum papillosum*: several large mounds of *S. papillosum* from wet heath south of Pondsbury were checked microscopically. The lookalike *S. palustre* is much more frequent on Lundy so it is good at last to confirm the presence also of *S. papillosum* (see photo, p.112).

Thamnobryum alopecurum: found by Punchbowl Stream and on the coast near Brazen Ward – the fourth and fifth Lundy records.

**Trichostomum crispulum*: locally frequent on thin soil over rock by the Castle – new for Lundy.

Weissia controversa: the second Lundy record is of patches growing on wall mortar by Tent Field.

LICHENS

Sam Bosanquet

The only lichen records made during the year were casual notes made during bryophyte recording. These included the rare coastal lichen **Roccella fuciformis* (new for Lundy), the second Lundy record of *Dermatocarpon luridum* by Punchbowl Stream, and the second and third known colonies of the uncommon *Parmotrema crinitum* in Earthquake (a very large colony) and VC Quarry. The *Sticta* colony in the gully which houses the Ugly letterbox was identified as *S. fuliginosa sensu stricto* by national expert Neil Sanderson; it is the only known *Sticta* on Lundy. Several patches of *Teloschistes flavicans* were GPS'ed during 2020, as were two colonies of the similarly rare *Anaptychia ciliaris* var. *mamillata*. The Lundy lichen list now stands at 373 taxa. A revised checklist has been uploaded to the LFS website.

The rare lichen Rocella fuciformis – *new for Lundy, below Mousehole & Trap (photo: Sam Bosanquet).*

FLORA

Andrew Cleave

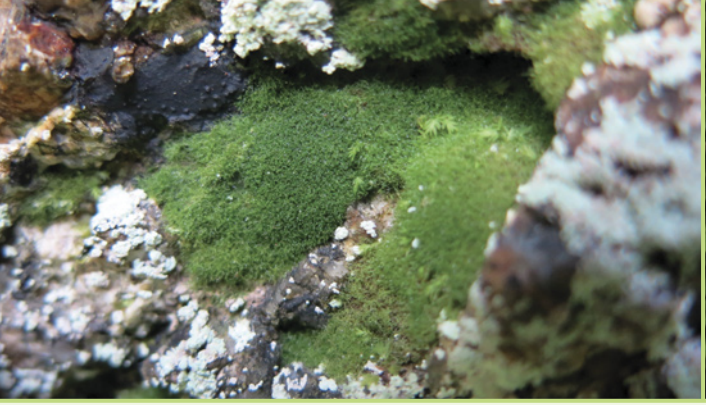
In a year of lockdowns and travel restrictions, botanical records were rather patchy, but thanks to island residents and those visitors who were able to get to Lundy a number of interesting records did find their way into the logbook. Once again, the earliest sightings of open flowers were of **Primroses** and **Snowdrops** in a few sheltered locations at the end of January. The first open **Thrift** flowers were spotted at the end of March by the South Lighthouse and the first **Bluebells** were seen in the first week of April. **Lundy Cabbage** was first seen in flower in mid-April in Smelly Gully. Eight plants of the very attractive **Twiggy Mullein** *Verbascum virgatum* were found in flower in the Walled Garden by the middle of June. This rather scarce biennial seeds itself around the Millcombe valley and can often be seen in flower well into November in a mild autumn.

The grass verge on the High Street opposite the Barn continued to provide plants of interest, and a combination of accidental spills of bird seed and a lack of cutting at the critical time of year meant that various colourful annuals and biennials were able to flower here. Not all of these were native species and most will be very short-lived but it will be worth checking this verge regularly.

Elsewhere the first **Heath Spotted Orchids** opened up around Pondsbury in the middle of June and the diminutive **Bristle Spike-rush** *Isolepis setacea* was spotted in a wet flush nearby. Other very small plants recorded this year, which are usually overlooked unless searched for, were **Allseed** *Radiola linoides*, which does very well on Lundy, and **Chaffweed** *Lysimachia* (*Anagallis*) *minima* which grow in damp situations. Kistvaen Pond at the South End is a good site for these, but they suffer in a dry summer. Patches of **Swine-cress** *Coronopus didymus* were spotted in the typical dry habitat of well-trodden paths and gateways.

An exciting discovery by Sam Bosanquet in September added a new species to the Lundy plant list. Exploring on the East Side, he came across what at first looked like a patch of green filamentous algae growing on a damp, shaded rock face. However, this turned out to be the gametophyte stage of the very rare **Killarney Fern** *Trichomanes speciosum*. Ferns have two stages in their life cycle, one of which is the familiar fern frond stage which produces the spores. These are released from sporangia which are usually found on the underside of the frond. The microscopic spores are carried away by the wind and any which settle in a suitable environment produce the gametophyte stage which is quite unlike the mature plant. These delicate structures require damp conditions to develop and will eventually produce the reproductive cells; the antheridium produces the male gametes and the archegonium contains the female cells. Unlike pollen grains which blow in the wind or are carried by insects, the

Primroses in flower at Quarter Wall Copse (photo: Dean Jones).




Killarney Fern (photo: Sam Bosanquet) and Twiggy Mullein (photo: Dean Jones).
Below: Lundy Cabbage (photo: Dean Jones) and Heath Spotted Orchid (photo: Zoë Barton).

male gametes have to swim through a film of water to reach the female cells. Once fertilisation has taken place, the sporophyte stage can start to grow, eventually becoming the mature fern plant which can start producing spores. In the case of Killarney Fern the mature frond is finely divided and very delicate, but strangely this stage in the life cycle is far less common than the gametophyte stage which was found on Lundy. The plant has a mainly western distribution in Britain and Ireland, with some outliers in the uplands, but coastal sites seem to really suit it. It requires permanently damp situations in order to thrive so it often grows in places which are rarely explored by botanists. Sadly, this elegant fern is highly prized by collectors so locations are usually withheld.

Other records of ferns included a sighting of one of Lundy's rarest ferns, **Wall Rue** *Asplenium ruta-muraria*, which is just hanging on in a couple of sites. On the mainland it is very widespread, especially in limestone areas and on mortared walls, but it does not thrive on granite. There were several sightings of **Small Adder's-tongue Fern** *Ophioglossum azoricum* in sites around the South End and West Side at least as far as Threequarter Wall. **Royal Fern** *Osmunda regalis* and **Hay-scented Buckler-fern** *Dryopteris aemula* continued to do well in the quarries and along the East Side. Another rare fern on Lundy is **Hard Fern** *Blechnum spicant* which has just a few small colonies on the East Side and near Pondsbury, but back on the mainland it is a very widespread and common species in damp habitats. There is some evidence that this fern is now increasing its range slightly in the quarries.

In November, Joanne Wilby spotted some unusual marbled leaves near Millcombe which turned out to be the leaves of the garden cultivar of **Large Cuckoo Pint** (Lords and Ladies) *Arum italicum* sbsp. *italicum*. Unlike our native Cuckoo Pint *Arum maculatum*, the leaves are marbled rather than spotted, and the central spadix is yellow, rather than purple, so this is something to look for in the spring when it should be in flower.

Thanks to all the observers: Zoë Barton, Sam Bosanquet, Tim Davis, Mandy Dee, Dean Jones, Tim Jones, Alan & Sandra Rowland, Joanne Wilby and Michael Williams.


FUNGI

Mandy Dee

Fungi recording in 2020 was badly hit by Covid-19 restrictions, but with the island open to visitors for much of the main autumn season, some recording did take place. Six new species were added to the island list, which is available on the LFS website (**www.lundy.org.uk/species-lists/fungi**), giving a new total of 656 species (including Chromists and Protists). Four species were found for a second year, which is a valuable confirmation of their presence on the island.

The spring lockdown meant that the first fungus was not recorded until June, when Dean Jones found a **Pleated Inkcap** in Millcombe. This was soon followed, once the island reopened, by a new species, *Neofavolus alveolaris*, a small brown kidney-shaped bracket fungus discovered growing on oak in Quarter Wall Copse by Alan and Sandra Rowland. They were also able to report a count of 14 of the distinctive **Parasols** growing in South West Field.

Taking advantage of one of the many cancellations available, I was able to visit the island in early August, after a damp spell, and recorded an unusual 23 species, many more than you would find in a hot, dry summer. Dung fungi, the mushroom family, and puffballs are normal summer species, and added to those were **Bluefoot Bolete**, **Brown Rollrim**, and **Coral Brittlegill**, which are usually recorded a little later in the summer, or early in autumn once the rains start. A few early waxcaps were also present.

The most interesting August find was a slime mould from the *Stemonitis* family, none of which have been recorded before on Lundy. It was growing on a tree trunk in Millcombe Wood, by the path to Brambles, and although the condition of the specimen precludes identification to species, it will surely be recorded again in future years.

My main late-September recording week was able to take place, but after a dry spell in early September the fungus season hadn't advanced much since my previous visit. **Marsh Webcap**, an attractive orangey-brown toadstool, appeared in the damp areas round Pondsbury. Turning over dead logs in the copses proved more fruitful, with a second record of *Nemania confluens*, which forms little clusters of black pimpled domes on decaying wood, and a second record for the transparent lumps of jelly called **White Brain**. More exciting still were two new records growing on dead sycamore in St Helen's Copse: *Tyromyces lacteus*, a soft squishy little white bracket, and **Moss Oysterling**, looking like a tiny oyster mushroom.

Tyromyces lacteus*, St Helen's Copse (photo: Mandy Dee).*

Melanoleuca strictipes*, above Benjamin's Chair (photo: Mandy Dee).*

Sam Bosanquet recorded another new species during his September visit: a tiny fungus called *Helminthosphaeria clavariorum*, which imparts a lilac colouration to other fungus species, in this case to **Crested Coral**. Well spotted, Sam!

My early November visit, unfortunately without my normal partner-in-crime John Hedger, was cut short by the start of the second lockdown. The island was awash with fungi and I was able to find a wide variety of the usual grassland specialists: waxcaps, clubs, corals and earthtongues. One of the more unusual waxcaps, **Yellowfoot Waxcap** was found by the path near South West Point. A dull greyish-white in colour, it is similar to **Grey Waxcap** that proliferates at the North End, but has a yellow base to the stipe. With limited time and without additional helpers, the regular surveys of Grey Waxcaps at the North End, and of waxcaps in the Airfield, were not able to be undertaken,

The very short cropped turf which covers the ruins of buildings near the Old Hospital is always a good place for the smaller waxcaps, and for **Meadow Coral**. This year they were joined by an unusually large number of **White Spindles**. In richer soil this species can grow to hand height, but in the very thin soil there they were just a few millimetres high.

Much of the Lundy dung is covered with a small orangey-red fungus called *Psilocybe coprophila*. This has a sister species which is similar, but with a blue base to the stipe, called *Psilocybe fimetaria*. Only recorded once before, I was determined to find it a second time, so after several hours of close observations of pony dung, I was pleased to find it near Quarter Wall. The things we mycologists have to do!

The final record of the trip was of a new species in the Cavalier family, *Melanoleuca strictipes*. Growing in grass right on the edge of the cliff overlooking Benjamin's Chair, photographing it was a bit perilous, and it is hard to imagine it being overlooked in previous years, as it was reasonably large and quite obvious. So, it may well be the first fruiting.

Scientific nomenclature follows *Index Fungorum*: **www.indexfungorum.org/Names/Names.asp**. English names follow the British Mycological Society checklist: **www.britmycolsoc.org.uk/library/english-names**.