

KINGHORN BIODIVERSITY MONTHLY REPORT – DECEMBER 2023 by Robert Mill



Left: Nacreous ('mother-of-pearl') cloud above part of a much lower cloud, 21 December 2023. Photo Robert Mill. **Right:** Lunar halo, 26 December 2023. Photo Andrea Mill.

December 2023 ranks among Fife's ten wettest Decembers on record (Met Office, 2023a); the easternmost part from Newport down to the East Neuk received more than twice the 1991-2020 average rainfall while more central areas had 175-200% of the long-term average. More southern and western parts of the county had less extreme amounts but the SEPA rain gauge at Kinghorn Loch still collected 99.0 mm of rainfall, which is 131% of the December average (SEPA, 2024). Rain fell almost every day, with the three wettest being 12th (14.4 mm), Christmas Day (13.4 mm) and 7th (10.4 mm), while there were only seven completely dry days (5th, 6th, 14th-16th, 21st and 31st: SEPA, 2024). There were four named storms during December: Storms Elin and Fergus on 9th and 10th, Storm Pia on 21st/22nd and Storm Gerrit on 27th-28th. Kinghorn fortunately escaped the worst effects of these, particularly Storm Gerrit. It was a very dull month but, despite the lack of sunshine most days, mean temperatures in our area were slightly above average for the time of year. The month started cold like the last few days of November, with the 1st-6th (particularly 1st-3rd) being colder or much colder than average. Indeed, there was overnight snow on the night of 1st/2nd, continuing through the early morning of 2nd before turning to rain and finally melting. From 7th-24th mean daily temperatures in our area were at or mostly above average, with 15th-18th, and 20th, being exceptionally mild. From Boxing Day onwards, except for 27th and 28th (Storm Gerrit), temperatures were below average although not as much as at the start of the month (Met Office, 2024b).

As well as the stormy weather, December was notable for two relatively unusual meteorological phenomena. **Nacreous ('mother-of-pearl') clouds** were seen at dawn or dusk on several of the clearer days. These clouds are formed at very high altitudes (at least three times the cruising height of a jet aircraft, i.e. at least 90,000 feet) and only at very low temperatures of below -78°C. Hence they are most often formed in polar regions and much less commonly at Scottish latitudes. Then, on the night of Boxing Day, a **lunar halo** was seen, and photographed, by my wife Andrea.

I made four general recording trips to the Loch during December, on 6th, 19th, 21st and 29th, while Paul Williams recorded birds on eight visits throughout the month. I made one new Loch record during the month (a fern). Also, while examining photos taken earlier in the year, I discovered that a 'hemp-nettle' I had found and photographed by the Great North Road track on 23 July was not the same as Bifid Hemp-nettle (*Galeopsis bifida*), which I had found in the TEC nursery area in September 2022, but was actually **Common Hemp-nettle (*Galeopsis tetrahit*)**, another new Loch record (see photo D at top of page 3). The total at the end of the year thereby increased by two, from 1,666 (30 November) to **1,668** on 31 December. This represents an overall increase of 193 known species since 1 January, made up of 2 mammals, 4 birds, 1 fish, 2 moths, 2 hoverflies, 16 other flies, 4 beetles, 9 bugs, 12 bees, wasps, ants and sawflies, 1 dragonfly, 2 other insects, 7 spiders and allies, 1 woodlouse, 1 centipede, 1 millipede, 1 springtail, 1 worm, 46 fungi, 11 lichens, 2 ferns and allies and 51 flowering plants.



First-winter drake Greater Scaup (*Aythya marila*), Kinghorn Loch, 15th. Photo Paul Williams.

AROUND THE LOCH Birds: Fifty-four bird species were recorded on and around Kinghorn Loch in December, three more than in November. As usual, I am indebted to Paul Williams (abbreviated PW) for many sightings. The mix of species was broadly similar to November's although there were a few unusual sightings. The most notable of these was a first-winter drake **Greater Scaup**, first spotted by the Fife county bird recorder, Graham Sparshott, on 14 December and subsequently seen by Paul Williams on 15th (see photo) and by Nigel Voaden on 18th. I am aware of at least eight post-2000 records of Greater Scaup from Kinghorn Loch, the two most recent being on 31 December 2012 and 16 January—4 February 2011 and the highest number recorded on

any one day being four on 29 November 2009 (NBN Atlas, 2024a; Fife Bird Club, 2011, 2013 and 2014). Ten **Goldeneye** were present on 5th during a short cold snap (PW); numbers then gradually decreased although a few remained all month. Two **Pochards**, a male and a female, were also on the Loch on 5th (PW); the drake was also seen by Paul on 13th and by me on 19th. A high count of 33 **Tufted Ducks** was noted by PW on 2nd; as with the Goldeneyes, numbers gradually decreased thereafter, with about 12 on 5th, 14 on 6th, 8 on 9th, 7 on 13th and about the same till the end of the year. Among **waders**, the first of December's highlights was a **Redshank** that Paul Williams saw at the Loch on 6th. There is only one previous record in NBN from NT2587, the Ordnance Survey monad (1 x 1 km grid square) that contains most of the Loch except its eastern shoreline (NBN, 2024b). This dates from 24 August 2009 and there is not enough information in the published record to connect it with Kinghorn Loch although that is the most likely location in the monad. It is possible, therefore, that Paul's record could be the first for the Loch although up till now I have assumed that the unlocalized 2009 record was from the Loch. Later in the month, Derek Chappell (Kinghorn District Wildlife Group: KDWG) was fortunate to not only see but also photograph a **Water Rail** from the hide on 14th. Unlike Redshank, these regularly visit the Loch, especially in winter, but Derek was the only birdwatcher to record Water Rail in December. **Curlews** visited the Loch shore regularly in December, with 41 on 9th (PW) being the month's highest count. As in November, **Collared Dove** was recorded once (6th). **Coot** were present all month but numbers remained very low, with the maximum number being three from 13th onwards. **Little Grebes** were again present all month, with 13 counted by Jon Penman (eBird) on 21st. Eleven **Great Crested Grebes** counted by Paul Williams on 9th was a much higher number than during the rest of the month. 2023 has been a much better year for both grebe species at the Loch, with three broods of Great Crested from two pairs, Little being present every month and Great Crested in all months except January. A single **Lesser Black-backed Gull** lingered all month, usually perched on a favourite buoy at the west end. **Buzzard** was seen on four dates by PW or myself while **Kestrels** were seen on five occasions, with at least two, possibly three, on 6th (PW). It was the second month in a row that **Kingfisher** was unrecorded and the only sighting of **Great Spotted Woodpecker** was at the hide by Paul Williams on 23rd. **Fieldfare** (more than 30 on 6th, PW), **Redwing** (six dates throughout the month, PW) and **Mistle Thrush** (one on 19th) were all recorded. Six **Starlings** were present on 6th (PW) and at least five **Tree Sparrows** were visiting the bird feeder at the edge of The Ecology Centre 'Sanctuary' area the same day. PW noted **Yellowhammer** on 6th, 9th and 26th. The full list of birds recorded at the Loch during December 2023 is: *Blackbird, Black-headed Gull, Blue Tit, Bullfinch, Buzzard, Carrion Crow, Chaffinch, Coal Tit, Collared Dove, Common Gull, Coot, Cormorant, Curlew, Dabchick (Little Grebe), Dunnock, Farmyard / hybrid geese, Feral Pigeon, Fieldfare, Goldcrest, Goldeneye, Goldfinch, Great Crested Grebe, Great Spotted Woodpecker, Great Tit, Greater Scaup, Greenfinch, Grey Heron, Greylag Goose, Herring Gull, Jackdaw, Kestrel, Lesser Black-backed Gull, Long-tailed Tit, Magpie, Mallard, Mistle Thrush, Moorhen, Mute Swan, Pheasant, Pochard, Redshank, Redwing, Robin, Rook, Skylark, Song Thrush, Starling, Tree Sparrow, Treecreeper, Tufted Duck, Water Rail, Wood Pigeon, Wren, Yellowhammer.*

Mammals, amphibians and fish: **Grey Squirrels** were seen on several occasions, with three present together on 9th and two on 6th (PW). Paul Williams also recorded **Roe Deer** on 23rd. As in November, there were plenty of fresh **Mole** hills in various spots around the Loch shore. No **amphibians** were noted.

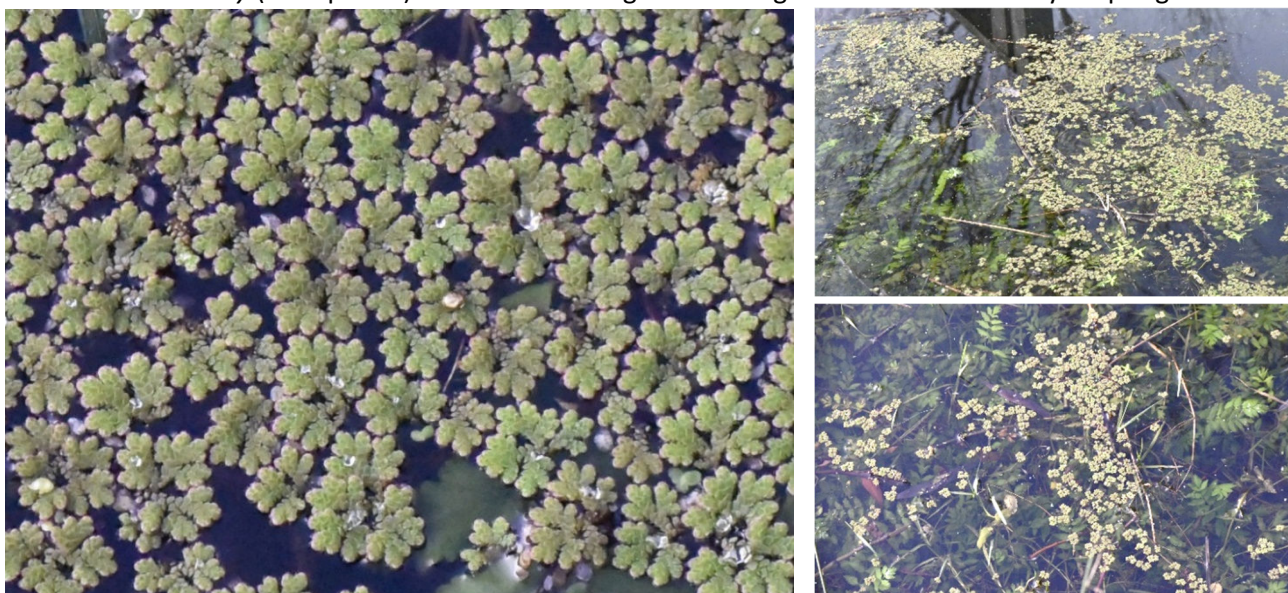


A, Garden Snail (*Cornu aspersum*), 21st. **B**, Frosted leaves of Yarrow (*Achillea millefolium*, centre) and other plants, 6th. **C**, Dried fruiting umbel of Wild Carrot (*Daucus carota*), 6th. **D**, Common Hemp-nettle (*Galeopsis tetrahit*), 23 July, NLR (inset, flower close up). Photos Robert Mill.

Invertebrates (‘minibeasts’): The only invertebrates found during December were a greyish-coloured variant of **Garden Snail** (*Cornu aspersum*) that was snugly in a crevice of a dry-stone dyke by the Great North Road track (21st), and the leaf mines of the **Golden Pigmy moth** (*Stigmella aurella*) on bramble leaves on 29th.

Flowering plants and ferns:

The cold spell in late November and the first few days of December brought about the cessation of flowering, for the 2023 season, of quite a few plant species that had been flowering in November, such as **Borage**, **Common Knapweed**, **Herb Robert**, **Hogweed**, **Field Scabious** and even **Bramble**. Consequently, only 17 wild or naturalised plant species remained in flower during December. I found another 7 in fruit, 7 in vegetative states, and one in bud – 32 species in all. As well as these, I noted 13 cultivated flowering plant species (10 in flower, 3 in fruit), as well as four ferns. The number of species of flowering plants and ferns, 439, now exceeds the *total biodiversity* (432 species) known when I began recording the Loch’s biodiversity in spring 2021.



Water Fern (*Azolla filiculoides*), 21st. New Loch record. **Main photo, left:** Fronds close up. **Top and bottom right:** fronds floating on water surface. Submerged leaves of Lesser Water-parsnip (*Berula erecta*) can be seen in the lower image. Photos Robert Mill.

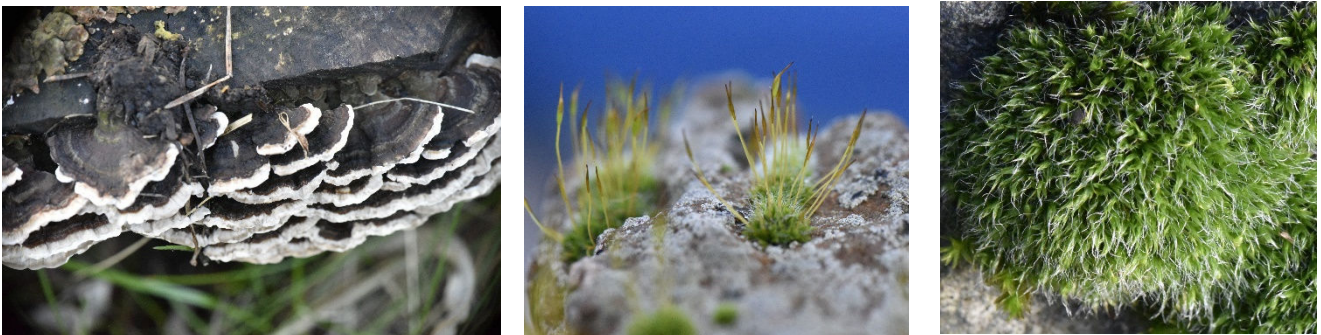
One of the ferns, **Water Fern** (*Azolla filiculoides*), was December’s only new Loch record; it was found floating on the surface of the recently restored pond at the east end of the marsh fringing the Loch’s western shore on 21st. However, like the Chilean Giant Rhubarb found in September, it is not a welcome one, being an invasive species listed under Schedule 9 of the Wildlife and Countrywide Act 1981; if allowed to spread, it could easily



December plants, Kinghorn Loch. A: Hart's-tongue Fern (*Phyllitis scolopendrium*), 21st. **B:** Heath Groundsel (*Senecio sylvaticus*), 21st. **C:** Common Field-speedwell (*Veronica persica*), flowers closed up just before sunset, 29th. Photos Robert Mill.

undo the benefits of the pond restoration by forming dense duckweed-like mats that would prevent animals now living in the pond from coming to the surface. The question is – how did it get there, and when? The ‘when’ is possibly answered more easily than the ‘how’: I have made several visits to the boardwalk round the pond over summer and autumn 2023 and did not notice Water Fern until this month, by which time it had already begun spreading from the pond edge into the middle. Therefore, it must have gone unnoticed for at least a couple of months. As for how it got there, there are several possibilities, such as deliberate or accidental human introduction; introduction on the feet or plumage of mallards, moorhens or other water birds that have come from another site where it grows (there are several other records from Fife, though none seem to be recent); accidental transport on machinery or boats; or direct spread from spores.

On the same day that I found the Water Fern, **Hart's-tongue Fern** was once again thriving at its shady spot near the Pond. **Wild Carrot** and **Red Campion** were still in flower on 6th but no flowers of either were found on any of my three later visits on 19th, 21st and 29th, while **Tansy** was in flower on 19th but not on 29th. **Shepherd's-purse, Gorse, White Dead-nettle, Common Field-speedwell, Ox-eye Daisy, Common Daisy, Feverfew** and **Heath Groundsel** did continue flowering till the end of the year. **Chinese Mugwort** had begun to form buds last month and then I was expecting it to come into flower sometime in December. However, the frosts early in December clearly adversely affected the plants which, although not totally killed, were clearly quite badly frost damaged when I inspected them on 29th, so flowering is very unlikely to occur this season.



December cryptogams, Kinghorn Loch. Left: Turkeytail (*Trametes versicolor*), 19th. **Centre:** Wall Screw-moss (*Tortula muralis*), 29th. **Right:** Grey-cushion Grimmia (*Grimmia pulvinata*) on Diana Bates memorial, 21st. Photos Robert Mill.

Cryptogams Only five species of **fungi** were recorded around the Loch during December. Bracket fungi included **Conifer Mazegill (*Gloeophyllum sepiarium*)** and **Turkeytail (*Trametes versicolor*)**. **Melampsoridium hiratsukanum** rust persisted on the leaves of Italian Alder (6th) until these themselves succumbed to frosts. Twelve **lichens** were also re-found. Four **mosses** were identified during December. **Wall Screw-moss (*Tortula muralis*)** has begun re-colonising the rebuilt wall at the west end of the jetty (see photo above); several plants were found on the top of the wall, some bearing capsules. **Grey-cushion Grimmia (*Grimmia pulvinata*)** was found at a second location, on the Diana Bates memorial by the track to Craigenfalt Farm, and is now therefore known from both Loch Ordnance Survey monads (NT2687 and NT2587).



Grey Partridges (*Perdix perdix*), 6th. Photo Paul Williams.

VILLAGE, BEACHES AND COASTAL PATH

As in November, relatively few observers recorded birds in the Kinghorn area in December. Apart from Paul Williams (PW) and myself they included Jon Penman, Lars Haarr, Lukasz Pulawski (all eBird: abbreviated JP, LH and LP), plus Ronnie Mackie and Gavin Wilkinson (Kinghorn District Wildlife Group) but there were no records by Graham Sparshott other than his first finding of the Greater Scaup on Kinghorn Loch.

Paul Williams recorded both **Grey Partridge** at the Tammy Lowrie Field by Red Path Brae on 6th and **Red-legged Partridge** at Grange Hill on 26th. Lukasz Pulawski noted six **Pink-footed Geese** in Kinghorn on 11th and larger skeins flew over from time to time. **Long-tailed Ducks** were off Seafield all month (PW) and were also seen off Kinghorn (four on 11th and nine on 12th, LP), Pettycur (13th, Gavin Wilkinson) and Kinghorn Ness (28th, Jon Penman). Paul Williams saw over a hundred **Common Scoters** off Seafield on 14th and over 30 there on 5th while I saw over 30 **Goosanders** there on Boxing Day. Small numbers of **Red-breasted Mergansers** were also seen off Seafield (5th, 6th, 13th), Kinghorn (11th) and the coastal path (23rd). Gavin Wilkinson spotted two **Slavonian Grebes** off Pettycur on 13th, a relatively unusual occurrence in our area – the most recent local record is two off Kinghorn in November 2022 and there are only seven records from NT28, the Ordnance Survey 10-km square that contains Kinghorn and Burntisland, in the National Biodiversity Network database (NBN Atlas, 2024c). Three **Red-throated Divers** were off Kinghorn on 11th (LP) while single birds were seen there the next day (LP) and on 5th at Seafield (PW). **Fulmars** returned to the cliffs at Kinghorn on 9th (Ronnie Mackie) and a **Gannet** was seen off Kinghorn on 12th by Lukasz Pulawski. Single **Grey Herons** (possibly the same one each time) were at the Burnside Pond on 6th, 21st and 29th. Less frequently seen **waders** included about 28 **Knot** at Seafield on 26th and two there on 12th (PW) as well as **Sanderlings** seen by PW there on both 5th (seven birds) and 6th (about five). Paul also saw **Purple Sandpipers** at Seafield on four dates in December as well as commoner waders like **Ringed Plover**, **Turnstone**, **Curlew**, **Redshank** and **Oystercatcher**. Two **Kittiwakes**, as well as **Razorbill** and **Common Guillemot**, were seen off Kinghorn Ness on 28th (JP), the only local December records of these three species. Two **Kingfishers** were at Seafield on 6th (PW) and singles were there on 28th (Tim Nicholson) and the coastal path near Kinghorn (LH, 23rd). Paul Williams saw **Stonechats** at Lower Grange Hill on 13th and 26th, and **Rock Pipits** at Seafield (6th and 26th) and the coastal path between Seafield Tower and Kinghorn (26th).

Andy Pay and one or two others were fortunate to see a **Humpback Whale** in front of Inchkeith off Pettycur on 5th December (see Andy's post on the Burntisland Biodiversity Facebook page); this was the only marine mammal recorded in the month.

The only **flowering plants** noted around Kinghorn in December were **Yellow Corydalis (*Pseudofumaria lutea*)** still in flower on two walls in the village on 17th and 20th, and **Dandelions**, **Scentsless Mayweed** and **Red Clover** along the Burnside Path (and Red Path Brae in the case of dandelions).

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