



Botanical Society of Scotland

Urban Flora – Newsletter 2023/1

We began this project in 2015, with the idea of recording the urban flora in Scottish towns and cities. The hypothesis was that the urban landscape may be a treasure of biodiversity, much of which remains undiscovered. We also thought there may be signs of climatic warming, with the entry of southern species to our northern towns and cities (these settlements might be somewhat warmer and drier than the surrounding rural landscape and therefore rich in thermophilic species). We wanted to relate the species to their habitats, and we identified ten major habitat types, each one divided into several sub-categories. A completed single 'record' thus has the species name, date, town, grid reference, habitat code, an indication of abundance and the name of the recorder. We use the database iRecord, which enables downloading and mapping.

The main emphasis has been on vascular plants, but other groups have been included. Bryophytes are well-represented in our data set – we regard this group as an important part of the project as some species are indicators of atmospheric pollution; moreover bryophytes have seldom been recorded in some towns.

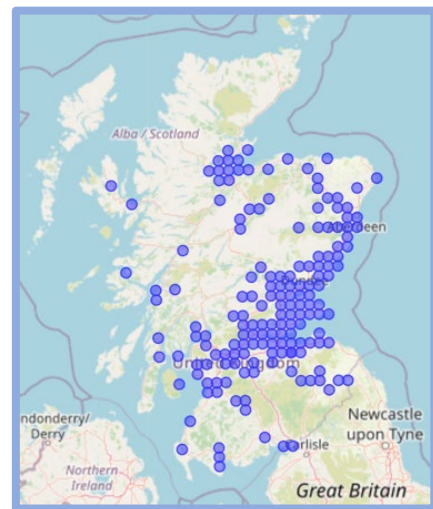


Recording in Aberdeen, July 2022; wetland at Seaton Park by the River Don

We knew we would not be able to visit every town in Scotland but we were fairly confident that we could make a reasonable sample over a period of about ten years. We are a small group of volunteers, and we always need helpers. We found good support from various groups, and excellent help from Vice-County Recorders of the Botanical Society of the Britain and

Ireland (BSBI) and local botany groups. We have 35 registered recorders and many others who help out from time to time.

Data have accumulated steadily over the eight-year period. By the end of 2022 we had sampled much of the urbanised areas of Scotland, although some areas and several habitats require further attention. Currently there are nearly 80,000 records and over 1,200 vascular plant species. We have never attempted to identify the many microspecies of the brambles, roses and dandelions – that must be left to the specialists.



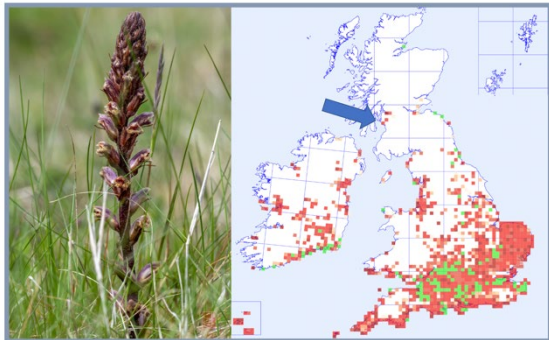
By the end of 2022 we had 78,800 records from 214 towns/cities. NB. Scotland has about 400 towns/cities with a population exceeding 1000.

Review of 2022

This report describes progress made in 2022. The previous two years had been curtailed by the Covid pandemic although several individual members were able to make intensive records in their local areas. So 2022 was a busy year, involving 'catching up'.

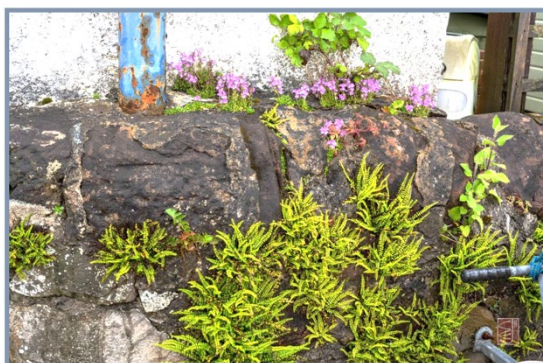
In May we visited North Ayrshire for a long weekend, recording at Irvine, Ardrossan, Stevenston and Lamlash. For most of us, this was 'new territory', and we were very grateful to the BSBI who helped us and especially to Carol Crawford who assisted with the overall planning. Sarah Cowan was most helpful in planning the trip to Arran. Most of us are from Edinburgh and the Lothians and we found species on the west coast that we had never seen before. The post-industrial landscapes of this part of Scotland are intriguing and mysterious; they provide a wide range of substrates and habitats where many species thrive. Even retail parks were species-rich, and the gravelled margins of much-manicured cemeteries provided habitats for species. There were highlights. We explored an area to the north of Ardrossan which was once an oil depot, storing high-

octane aviation fuel for the RAF in World War II (locals call it 'the old Shell site') complete with anti-aircraft battery.



Common Broomrape (*Orobancha minor*) at a derelict site, Ardrossan. Also its distribution map. Photo: Chris Jeffree, Map: BSBI.

There we found many examples of Common Broomrape (*Orobancha minor*) parasitising *Trifolium pratense* (in one case, *Trifolium hybridum*). In the nearby cemetery we found the Mossy Stonecrop (*Crassula tillaea*) a tiny reddish succulent plant that we've since found elsewhere, in cemeteries and car parks. Almost everywhere we looked around Ardrossan we saw the Common Cornsalad (*Valerianella locusta*). At Stevenston we first examined the dunes and found the Isle of Man Cabbage in flower (*Coincya monensis*), then we ventured to Ardeer, the former site of Nobel Explosives, once a global supplier of explosives for mining and quarrying. I have never seen so much Bulbous Buttercup (*Ranunculus bulbosus*) in one location. We found the Rue-leaved Saxifrage (*Saxifraga tridactylites*) at one of the entrances growing on the debris-strewn road.



Species-rich wall in Lamlash, Isle of Arran: Fairy Foxglove (*Erinus alpinus*) and Maidenhair Spleenwort (*Asplenium trichomanes*). Photo: Chris Jeffree.

The most species recorded in a day was at Lamlash on the Isle of Arran. Here, the old walls are very species rich, and a delight for bryologists. Liz Kungu commented "I found two species of hornwort, and two potential vice county records, both exciting records". Behind the wall is a strange site, a long-ago collapsed hotel within

woodland. This highly disturbed area provides a huge diversity of habitats.

town	records	species	town	records	species
Irvine	203	130	Stonehaven	314	150
Ardrossan	272	155	Aberdeen	337	160
Stevenston	242	151	Banchory	470	202
Lamlash	504	239	Westhill	263	124
			Inverurie/Kellands	284	116
total	1221	360	total	1668	344

Recording in North Ayrshire, May 2022 (left) and towns around Aberdeen, July 2022 (right).

In July we visited Aberdeen and its surrounding towns including Banchory, Stonehaven, Westhill, Inverurie, Ellon and Portlethen. The weekend was masterminded by the BSBI Recorder David Elston, who provided much-needed structure to an ambitious target of several towns and territories to be visited, and he also recruited local helping-hands including younger recorders from the University of Aberdeen. Once more we found some remarkable sites, not as profoundly disturbed as on the Ayrshire coast, but still exciting for botany. I had not known about Seaton Park, a wetland area created in north Aberdeen on the banks of the River Don. We were lucky that the weather of preceding weeks had been dry, and we were able to stroll across the wetland and record the species at our leisure. The surrounding towns act in part as 'dormitories' for those employed in the oil industry. At Westhill, a suburban town 11 km west of Aberdeen, we found masses of Lesser Sea-spurrey, *Spergularia marina* in the shopping centre's car-park, more than I have ever seen in one place. We were surprised to find that Westhill has a park complete with a small remnant of a raised bog (but only two species of *Sphagnum*), a site providing an excellent opportunity for school-children to learn some ecosystem science and identify the common plants. We also viewed examples of 'created meadows' in the park and some unusual alien species that were well-naturalised (eg. huge specimens of *Trachystemon orientalis*). Likewise, at the pretty town of Stonehaven, the coastal track had some unusual species that surely must have been planted but seemed to be well-naturalised. At Banchory we found *Carex muricata* on the bank of the River Dee, a scarce species in NE Scotland.

As well as the two long week-ends described above, we had visits with Michael Philip (BSBI) to Alexandria, Lanark and Strathaven. Michael's group devoted twelve outings in 2022 to the Urban Flora Project including Erskine, Motherwell, Dumbarton (two different areas), Gourrock, Johnstone, Linwood, Shotts, and Paisley adding many more records to the database.

We also visited Peebles with Luke Gaskell (BSBI). and in smaller groups we went to Galston, Forres and Elgin.



Cicerbita macrophylla, the Common Blue-sow-thistle seen at the old Deeside railway line. Photo: Chris Jeffree.

We especially enjoyed Elgin's River Lossie (see image on the left), despite having to shelter under a bridge from a prolonged 'tropical' rainstorm.



Meanwhile, Brian Ballinger working with the Dundee Naturalists' Society and the Inverness Botany Group added over 4700 records to the database, mainly from Eastern Scotland and the Highlands (some from Glasgow). Brian wishes to

thank Anne Reid of the Dundee Naturalists and Mary Dean of the BSBI for help with some under-recorded areas. Interesting finds included *Saxifraga tridactylites* in St Andrews, *Senecio inaequidens* at Invergordon (a new Vice-County record) and *Epipactis helleborine* - 'The Glasgow Orchid' as locals know it - in Glasgow Eastwood cemetery. Speaking of urban orchids, an unexpected urban orchid record was *Goodyera repens* (Creeping lady's-tresses) growing on a garage roof in urban Forres. It's common in pinewoods of the north-east but most unusual in a town.



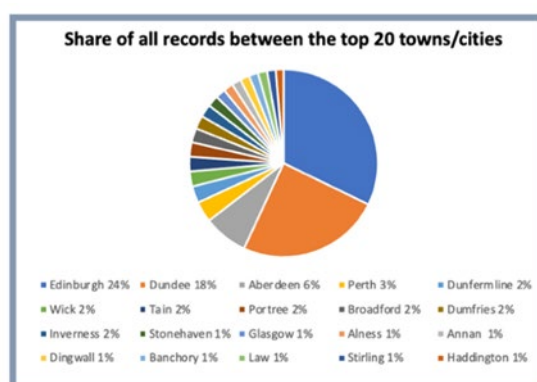
Recording at Alness, with Mary Eagleson and Brian Ballinger. Photo: Mary Dean.

Brian continued a series of small urban and rural habitat comparisons and in 2022 compared coastal paths. In

this survey there were more species on the urban coastal paths, perhaps because of their combination of shore and town species. Important contributions have also been made by Stephen Bungard and his group on Skye, Ali Shuttleworth in South Fife and David Elston is adding still more records from his individual trips. Thanks to you all!

First look at coverage of data

We are keen to achieve a geographical coverage that reflects where the towns and cities are located and their population size. We made a special effort to record in Aberdeen this year, as it was under-represented. We succeeded, as now 6% of our records are from Aberdeen (Aberdeen has about 9% of Scotland's population).

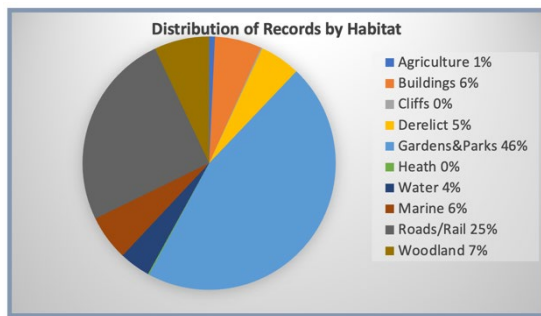


Distribution of records by town/city, taking the top 20 most recorded settlements.

Naturally, we tend to have most records where our recorders live; so Edinburgh, Dundee and Tain have more than their fair share of records. Glasgow seems under-recorded but some of our records are not yet uploaded, and towns of Greater Glasgow come under their suburban names (eg Cambuslang, Maryhill).

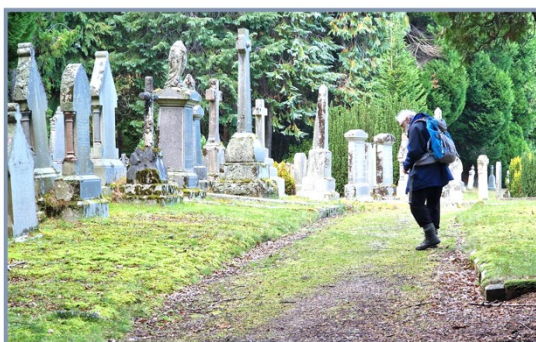
Likewise, we want to achieve a reasonable distribution of records across habitats. Urban species grow in all kinds of places and our habitat classification does not work perfectly. For example, a footpath through parkland by the side of a river running through woodland might be classified as woodland, water or parkland.

What we see in the pie-chart (see over) is that almost half of all our records are classified as 'Gardens and Parks'. But this category includes many subcategories: allotments, carparks, churchyard/cemeteries, golf courses, private gardens, public parks and playing fields, schools, hospitals and business grounds, supermarkets and malls. So it is not surprising that 46 % of records are from these forms of land use. And the subcategories of Roads/Rail include footpath/cyclepaths, pavements, railway embankments, and roadsides.



The ten main categories of habitat and the percentage of recording effort spent in each one.

We are also interested in the proportions of native versus alien plants, and especially how this might vary geographically and with the extent of urbanisation. Highly urbanised areas of Britain typically have 35-40 % of alien species. But the towns we visited in 2022 have markedly less. The towns of the northeast had 27.5 % of aliens whilst those of North Ayrshire had 30.5 %. The highest alien % was Lamlash, perhaps because the recording was dominated with data from walls (around gardens) and the long-ago-collapsed hotel.



Cemeteries can be quite species-poor due to excessive mowing and clipping, but they hold species that are small enough to escape blades, including of course many bryophytes.

Bryophytes

Our bryophyte team is led by David Chamberlain and Liz Kungu. Both have made strong contributions. For example, Liz writes: "I've just heard back from the recorder for liverworts today. He has accepted both my vice county records from Lamlash on Arran....the *Dumortiera hirsuta* is a new record for VC 100, the Clyde Isles. It is only known from 5 other sites in Scotland, 2 places on Jura, 2 on Islay and one on the mainland, so rare in the Scottish context. One of the records on Jura is recent, 2003, but the other Scottish records date from 1944 to 1998. The hornwort *Phaeoceros laevis* was previously recorded in the VC, but not for over 50 years. It's never before been found on Arran, the only previous vice county record was from the Isle of Bute in 1957. It is not nearly so rare as the *Dumortiera*, but still only known from 20 other Scottish locations".

David Chamberlain found the very rare Blunt-leaved Bristle Moss *Orthotrichum obtusifolium* growing on a parkland tree in Forres.

Keeping up the pace

We have sampled around half of all towns and cities in Scotland, and now we can start analyses. We hope to produce more Newsletters in the coming months to report progress. But we would like to continue recording, to fill in conspicuous gaps in the data. We need to recruit new recorders and to enhance our relationship with BSBI. To increase the 'profile' of the project we need to attend as many relevant gatherings as possible. Recently we presented ourselves at the Annual Conference of the British Ecological Society, with the aim of promoting the Society's activities.



Representing the Botanical Society of Scotland at the Annual Conference of the British Ecological Society, December 2022: John Grace, Jill Thompson, Laszlo Nagy and Erika Buscardo. Photo: Jonathan Silvertown.

Finally, we wish to thank all those who worked with us in 2022. We hope that the spirit of co-operation will continue to build!



A group of happy recorders at Stonehaven. Photo: Chris Jeffree.



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