



Irish Botanical News

No. 30 March 2020



Editor: Paul R. Green



Heracleum mantegazzianum (Giant Hogweed), North Bride River. Photo T. O'Mahony © 2019 (p. 31)

Committee for Ireland

2019 –2020

The following is the Committee as elected at the Annual General Meeting at The Botanic Gardens, Glasnevin on 21st September 2019. Office bearers were subsequently elected at the first committee meeting. The Committee is now:

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Ralph Sheppard (Vice Chair)
Paula O'Meara (Secretary)
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John Faulkner (Board of Trustees)
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The following are co-opted to the committee:

Shane Brien
Jessica Hamilton

The following are nominated observers to the committee:

Abigail Maiden (Northern Ireland Environment Agency)
Mike Wyse Jackson (National Parks & Wildlife Service)

Draft Minutes of the BSBI Irish Branch AGM 2019 are available at:
<http://governance.bsbi.org/ireland>

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Front cover photo: *Spiranthes romanzoffiana* (Irish Lady's-tresses), Kilgarriff on
the north shore of Lough Allen. Photo E. Gaughan © 2019 (p. 56).

All species and common names in *Irish Botanical News* follow those in the database
on the BSBI website <http://rbg-web2.rbge.org.uk/BSBI/> and Stace, C. (2019). *New
Flora of the British Isles*, 4th ed. C & M Floristics, Suffolk.

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Notes from the Ireland Officer – Sarah Pierce – sarah.pierce@bsbi.org

This is my first entry to IBN as the new Ireland Officer and there is so much to report! 2019 was an incredibly busy year for BSBI as everyone scrambled to fill any gaps in recording before the *Atlas 2020* deadline. All the effort was clearly successful as more than 84% of hectads have achieved a post-2000 re-find rate of 70% or more. This is a phenomenal achievement and enormous thanks is due to all the recorders involved.

One group which had been under-recorded in the post-2000 period was aquatic plants. Last year's Aquatic Plant Project went a long way towards rectifying this with thousands of new records and many recorders more confident to identify aquatics in their patch. You can read more about that in the article later in this issue on page 6.

On top of all the events around the Aquatic Plant Project, we had a very busy schedule of field meetings, local group outings, and Rough Crew expeditions in 2019. This year looks set to continue the trend with 8 field meetings in the diary already, and I know our local group leaders have more in store. If you're not already on the list for your closest local group, why not get in touch using the details on our website (bsbi.org/Ireland)? If there isn't a group close to you, perhaps consider starting one up! Just get in touch with me for an informal chat about the possibilities.

BSBI Ireland has now reached its highest ever membership, with 262 members across all of Ireland. To help members, new and old, to develop their botanical skills, we are offering a number of training courses this year. Already we have run an aquatic plant workshop and two days of conifer identification workshops in Northern Ireland, thanks to funding from CEDaR. We also have three workshops scheduled in the coming months in conjunction with NBDC: Introduction to Plant Families (9 May), Introduction to Botanical Keys (6 June), and Introduction to Grass Identification (13 June). These can all be booked on the NBDC website (biodiversityireland.ie/events), and there are three free places on each reserved for BSBI members. We're still working further possible workshops for later in the year, so keep your eye out for details.

2020 started off with a bang as the New Year Plant Hunt returned 1-4 January and saw hundreds of enthusiastic botanists out collecting records of plants in flower. 90 different plant lists were submitted for Ireland over the 4-day period. The largest group I know of was 20 people who visited Glengarriff Woods, Co. Cork, finding a fantastic 51 species in flower. This number was trumped by botanist-extraordinaire Paul Green, who recorded 85 species in flower at one site in Wexford! This project is helping us to better understand how changes in winter weather are affecting our flowering plants. If you'd like to find out more and see the full analysis by Kevin Walker, visit bsbi.org/new-year-plant-hunt.

We're working on a number of other exciting projects for 2020 and beyond, and we'll be sharing details soon. If you want to keep up with development, there are lots of options beyond the usual BSBI mailings you already receive. We're active on twitter (@BSBI_Ireland) and facebook (BSBI Irish Section), I regularly update our website (bsbi.org/Ireland), and there's the new Irish email list (please email me to be added if you aren't receiving it yet).

Thanks to everyone for your warm welcome and support during my first year with BSBI. I look forward to meeting and working with many more of you in 2020!

‘Irish Botanical News’ Editor Position

The Irish Botanical News is a much-anticipated publication each Spring for its readers, due in no small part to the wonderful work of its editor, Paul Green. Paul has edited IBN for 13 years and has done an amazing job coordinating articles, images and editing this publication over the years. Paul plans to retire from the position after the 2021 issue. If you feel you would be interested in taking over this role or would like to know more about what is involved, please get in touch with our Irish Officer, Sarah Pierce - sarah.pierce@bsbi.org.

Vice-county Recorder vacancies

Due to the retirement of 3 VCRs in 2020 we currently have 2 Vice-counties vacant. Paul Green has retired as VCR for Co. Waterford (**H6**) after 16 years and both Sharon Parr and Stephen Ward have retired as VCRs for Co. Clare (**H9**) after 13 years. We thank Paul, Sharon and Stephen for the tremendous work they have done in their respective Vice-counties over the years.

If you would like to coordinate records for either Waterford or Clare, with a view to becoming a VCR, or want more details about what is involved, please get in touch with our Irish Officer, Sarah Pierce - sarah.pierce@bsbi.org.

Introduction from newly appointed Vice-county Recorders

Louth (H31)

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Cliona is a native of west Waterford where she grew up on a small farm with plenty of land to roam. Entertainment being hard to come by, she became interested in the natural world from a young age. Not particularly plants, mostly anything that moved! She is a graduate of University College Cork and the University of Reading, with an undergraduate degree in Plant Biotechnology and a Masters in Plant Diversity respectively. Her interest in plants began during her undergraduate degree, thanks to some talented lecturers sparking her interest in the study of botany. During her time at Reading Cliona was lucky enough to be completely immersed into the world of plants for an entire year. Here she completed her project on chalk grassland restoration in Wiltshire and studied field botany under the enthusiastic Dr M (goes wild)! Since moving to Dublin she was offered the chance to become involved in the recording of

County Louth (**H31**) as a trainee joint VCR. She has had great success under the watchful eye of John Faulkner who has been an excellent mentor and has put tremendous effort into recording the county. Having since been approved as a fully-fledged joint VCR she is looking forward to continuing to progress in the field of botany.

Kate Harrington E-mail: harringtonkm@gmail.com

Kate originally hails from Co. Kildare, but has is happily settled in Skerries, Co. Dublin. While her academic studies in Trinity College were focused on freshwater and marine zoology, she subsequently developed a love of plants (arguably easier to catch?) and has benefited hugely from the field events run by the BSBI over the years. Working as an ecologist, she has found her job increasingly ties her to a desk and computer, and saw the Louth (**H31**) joint-VCR role as an opportunity to get out in the field and continue to learn new botanical ID skills. She spent time in 2018-2019 helping out John Faulkner together with Cliona Byrne with recording for *Atlas 2020*, and has been delighted to have the opportunity to learn from John and have his expertise to hand to confirm uncertain plants. With family in Carlingford, she traverses through Louth frequently, and is happy to have the excuse to take some scenic detours, explore the county, and botanise with fellow joint VCR Cliona.

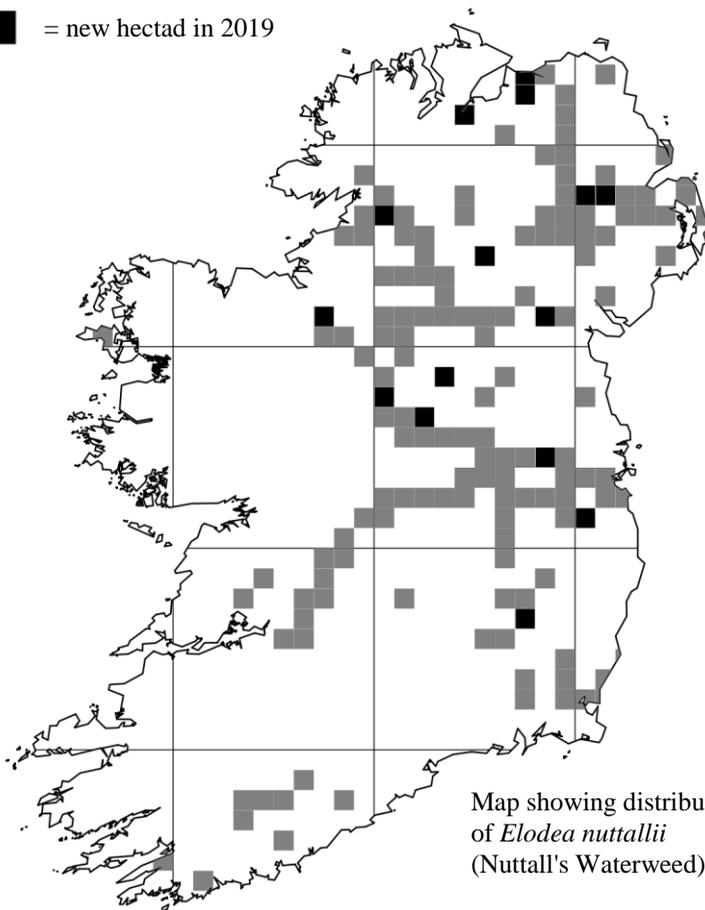
Aquatic Plant Project – Sarah Pierce

Helping to fill some of the gaps in Atlas recording this year was our Aquatic Plant Project. This project succeeded in the twin goals of increasing aquatic plant recording and training recorders so that aquatic records will continue to be made in the future. All told, over 100 people (see photos, p. 37) attended training and recording days and nearly 6400 aquatic plant records were made across 27 vice-counties during the project. 75 species had at least one new hectad record. Of these, ten species had at least 10 new hectad records: *Callitriche brutia* (15), *Callitriche stagnalis* (Common Water-starwort) (10), *Elodea nuttallii* (Nuttall's Waterweed) (15), *Lemna minuta* (Least Duckweed) (11), *Myriophyllum alterniflorum* (Alternate Water-milfoil) (10), *Potamogeton berchtoldii* (Small Pondweed) (13), *Potamogeton natans* (Broad-leaved Pondweed) (11), *Potamogeton polygonifolius* (Bog Pondweed) (14), *Potamogeton pusillus* (Lesser Pondweed) (10), *Ranunculus penicillatus* (Stream Water-crowfoot) (10).

In R.O.I, the project hosted 26 days of training. Two days were solely training on how to identify aquatic plants. These were led by Lynda Weekes and Cilian Roden. A further 24 days were training and recording, led by Nick Stewart, Chris Preston, and Cilian Roden. 87 people took part in at least one day of training, with many attending multiple days. Recording took place at 186 sites (monads) in 73 hectads across 22 Vice-counties. In total, 5026 records were collected for 402 species, including 339 new hectad records for 70 aquatic species.

Key:

- = pre 2019 hectad
- = new hectad in 2019



Map showing distribution of *Elodea nuttallii* (Nuttall's Waterweed)

In NI, the project hosted 9 training and recording days led by Nick Stewart, with 35 people attending. Recording took place at 53 sites across 24 hectads in 5 Vice-counties. In total, 1371 records were collected for 314 species and hybrids, including 57 new hectad records for 31 aquatic species and hybrids.

Nick Stewart also provided two fantastic presentations at the BSBI Autumn Meeting: one on the importance of Irish aquatic habitats and another on identifying challenging aquatic species.

Hopefully this project has put us on track for much more aquatic recording in the future! A massive thanks is due to Paul Green for managing the project, all those who helped with organisation, and those who ran the training days, and NPWS and CEDaR for funding. We are working now to develop plans for the next phase of the Aquatic Plant Project, with more targeted recording and monitoring, as well as further training. Keep an eye on the website and other communication channels for details.

Epipactis dunensis (Orchidaceae): a confirmed new addition for the Irish flora

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A confirmed occurrence of *Epipactis dunensis* (Dune Helleborine) (see photos, p. 70 & back cover) is reported for the Irish flora. Previous mentions of a possible occurrence of this species in Ireland are unverifiable, as no specimens were lodged in either **DBN**, **BEL** or **TCD**. Kodachrome slides and pencil-drawings of plants suspected to be *E. dunensis*, were *not* seen as comprehensive enough to have the species included in books on the Irish orchid flora, nor in those dedicated to the entire flora.

Epipactis (Zinn: 85) is a taxonomically complex genus comprised of allogamous, autogamous and cleistogamous species and variants (Pridgeon 2005). *Epipactis dunensis* (T. Stephenson & T.A. Stephenson) Godfrey (1926: 68) represents one of the autogamous species closely related to the allogamous *Epipactis helleborine* (L.) Crantz (1769:467). As a result, the standard molecular markers used to differentiate species, do not reliably separate *E. dunensis* and *E. helleborine*. Current investigations using RAD Sequencing on *Epipactis* section *Epipactis*, shows a convincingly paraphyletic clade which is undergoing a genotypic, phenotypic and environmentally driven evolutionary radiation, where many of the autogamous species are as widespread and as successful as the allogamous species (Sramkó *et al.* 2019).

In July 2019, Gonçalo Santos, an enthusiastic, self-trained botanist, posted images of an Irish *Epipactis* online (Santos 2019). Correspondences returned, identifying the species as *Epipactis dunensis*, a species *not* recorded for the Irish flora. Santos made contact with Brendan Sayers, horticulturist and orchid specialist at the National Botanic Gardens, Glasnevin (**DBN**), and they visited two of the eight locations where Santos had located plants. The plants observed, matched well with descriptions of the woodland form of *Epipactis dunensis*, although some minor variations were

present. A herbarium specimen was prepared and lodged in **DBN**, accession number **DBN 105000**.

The taxonomically troublesome genus *Epipactis*, is represented in Ireland by five species. Three are shared by the Republic of Ireland and Northern Ireland, namely: *Epipactis palustris* Crantz (1769:463), *E. phyllanthes* Smith (1852:660), and *E. helleborine*. *Epipactis atrorubens* Besser (1809:220) is found in some western counties of the Republic of Ireland, and *Epipactis leptochila* Godfrey (1921:146) is listed for Northern Ireland. The last was first reported in 1979, and is now thought to be extinct (Habitas 2010). This *E. leptochila* record, and various references to *E. dunensis*, were not seen as comprehensive enough to have the species included in books dedicated to the Irish orchid flora nor in those dedicated to the entire flora. (Sayers & Sex 2008; Curtis & Thompson 2009; Parnell & Curtis 2012).

The late Raymond Piper, an artist most noted for his portraits and botanical illustrations, had a great interest in, and meticulously depicted, Irish orchids. In June 1976, Piper exhibited eighty-eight paintings in an exhibition hosted by the Royal Dublin Society and the Ulster Museum, Belfast. Three of these showed plants labelled *Epipactis dunensis* in its 'Irish woodland form, with wide open flowers' and 'dune' forms. A fourth, is a plate depicting *Epipactis dunensis* along with *Epipactis phyllanthes* var. *pendula* Young (1952: 267). In 1975, Thomas Ennis, wildlife photographer and lecturer, took Kodachrome slides of plants that Piper was painting that have tentatively been identified as *E. dunensis*. It is possible that the photographed plants are what Piper refers to as 'woodland form with wide open flowers'. A later, undated exhibition catalogue, again includes the plate depicting *Epipactis dunensis* along with *Epipactis phyllanthes* var. *pendula* with a note: 'Habitat: densely shaded woods for both species, the former only recently found in Ireland for the first time. Flowering: 9th August 1970'.

Another illustrated reference is from a painting by botanical artist Susan Sex, of a plant located on the Portmarnock Golf Links in north Co. Dublin (**H21**). This record has been published as *Epipactis phyllanthes*, but the dark hypochile of the labellum suggests it could have been *E. dunensis*. The plant is considered extinct at this site.

The eight locations where *Epipactis dunensis* occurs are best described as micro-populations, and are all in south west County Dublin (**H21**). The micro-populations occur along a 10 km stretch of river, and number 17, 4, 1, 2, 9, 2, 3, and 2 stems respectively, some of which were not of flowering size.

Current information on *Epipactis dunensis* is derived from its British sites as, prior to the discovery of the Irish record reported here, it has been regarded as a British endemic taxon. The Welsh populations are of the 'dune form' which has distinct morphological traits compared to the inland or 'Tyne' form. Although published descriptions of the British populations differ slightly (Foley & Clarke 2005; Harrap & Harrap 2005) it appears that the Irish plants are *vegetatively* closer to the inland form, but have flowers more similar to the dune form.

Flowering individuals of the Irish plants range in height from 17-58cm, with 3-5 leaves, each leaf up to 8cm long and 3 cm wide. On occasion, there were two flowering stems side by side, and flowers numbered from 3-22 with the flowers predominantly *held to one side*. The stem is tightly sheathed at, or close to ground level, with a second sheathed leaf above. Lower leaves partially clasp the stem, which latter is glabrous proximally, but bears minute, white hairs distally. The pink-tinged pedicel holds a glabrous, pear-shaped, and strongly-ribbed ovary, with narrow floral bracts, the *lower* exceeding the pedicellate flower in length, while the upper do not. The flowers have green sepals and petals up to 8mm long by 4 mm wide, the latter slightly translucent and sometimes tinged pink. The epichile is heart-shaped with a tip that folds under, even on recently-opened flowers. The pink bosses at the base of the epichile are held close, resulting in the formation of a narrow groove to the hypochile. The hypochile is broader than long, and stained deep-purple within, while the outer side and edges are tinged pink. Occasionally, a flower had a well-formed viscidium present, though most had none, the crumbling pollen then being visible even on freshly opened flowers.

The micro-populations occur in suburban commercial and recreational areas with planted broadleaf, evergreen ornamentals or planted native deciduous trees. *All* are vulnerable to disturbance by human activity.

As this is the first time that *Epipactis dunensis* has a verifiable record for Ireland, it is appropriate that an Irish name is also published. *Cuach* (meaning bowl, goblet or drinking cup in its diminutive form) is the Irish word used for the majority of *Epipactis* taxa, while coastal dunes in the Irish language are *méile*, so the most appropriate name for the species is *Cuachín méile*.

The authors would like to thank Marcella Campbell of Trinity College Dublin, Mike Waller of Plantlife, and Colm Clarke and Alexis FitzGerald, for early discussions on identification.

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Botanical visit to Inishtrahull, Co. Donegal, June 2019

Robert Northridge & John Faulkner (E-mail: jsf@globalnet.co.uk)

Inspired by the exploits of Rory Hodd and the Rough Crew, we thought that it would be an interesting project to visit the most northerly once-inhabited island in Ireland, Inishtrahull, some ten kilometres off the tip of Inishowen peninsula. Inishtrahull is composed of by far the oldest rocks in Ireland. It sits in its own hectad, C46, measures about 1.5 km in length, and reaches a height of 49 metres.

On checking the information in the DDb, we found that there were just two pre-2000 plant records, one for *Ophioglossum azoricum* (Small Adder's-tongue) in 1940 and one for *Ligusticum scoticum* (Scots Lovage) in 1943. We wondered if these records were made by a war-time U-boat spotter who was whiling away the hours looking for interesting plants! *

Post-2000, according to the DDb, Graham Day had recorded 52 species on 14 August 2000, and Ralph Sheppard added a further 11 species on 11 June 2005. Graham had recorded the *Ligusticum scoticum*, but neither Graham nor Ralph had seen the *Ophioglossum azoricum*.

A 2018 plan for the Rough Crew to go to Inishtrahull had fallen through because of bad weather. So we contacted Jim Wells, a long-time bird enthusiast, who regularly organises bird watching and bird photography trips to the islands off the

north-east coast of Ireland and to some of the Scottish islands. We learnt from him that there was one such trip planned to Inishtrahull on 24 June 2019, departing from Portballintrae at 10.30. We particularly wanted to go at a time in between the early June date of Ralph's visit and the mid-August date of Graham's. Joining eleven birders, each equipped with a long-lensed camera, the powerful craft got us to the island in about 75 minutes.

Landing at a small quay on the north side of the island, we were told that we had just three hours before the boat departed for the mainland.

We began by recording the plants around the landing place, finding a *Sagina* which we later identified as *S. maritima* (Sea Pearlwort). Shortly afterwards we found the first of several patches of *Dactylorhiza purpurella* (Northern Marsh-orchid), the first orchids for the island, and typical of the species we hoped to catch though our timing.

Since time was of the essence, we then had to decide whether to head for the western end of the island and the 1956 (now unmanned) lighthouse, or to the eastern end of the island and the 1813 disused lighthouse.

We chose the former, and set off across a stony beach with a gravelly cliff which had a just-accessible clump of *Spergularia rupicola* (Rock Sea-spurrey). The next beach was slightly more sandy and was just below the remains of some lazy beds; at the head of the beach were many plants of *Urtica urens* (Small Nettle) and *Lamium confertum* (Northern Dead-nettle), relicts of cultivation of the people who had abandoned the island exactly 90 years previously.

Much of the sward was closely grazed by rabbits, and we were told there were, until recently, two red deer on the island. As we approached the western end, the ground rose gradually towards the lighthouse and there were steep-sided gullies between us and the sea. In one of the gullies, a large clump of *Asplenium marinum* (Sea Spleenwort) was spotted, the first record for the island. Next, several plants of *Ligusticum scoticum* were found on a north facing rocky scarp. As the lighthouse came into view the ground flattened out and here we found that tiny shoots *Ophioglossum azoricum* were scattered over a patch about 3 m x 1 m. We saw several dozen, but there might well have been many more. Some casuals were noted in the vicinity of the lighthouse before we lost height as we made our way down towards a small harbour around which were some salt-marsh plants: *Lysimachia maritima* (Sea-milkwort), *Juncus gerardii* (Saltmarsh Rush), and *Bolboschoenus maritimus* (Sea Club-rush). Here we also came across *Carex otrubae* (False Fox-sedge). Just south of the harbour another patch of *Ophioglossum azoricum* was found. A steep-sided gully in this area had, perhaps, a hundred plants of *Ligusticum scoticum*.

Time was no longer on our side so we headed back for the boat, on the way turning up many flowering plants of *Centaureum erythraea* (Common Centaury), another new species for the island.

Reviewing our plant lists as we sped back to Portballintrae, we reckoned that we had recorded 78 species on the day, adding over 20 species to the island's list, but failing to re-find eight of the previously recorded species.

As we refound *Ophioglossum azoricum*, and all other species recorded on the island have been seen since 2000, hectad C46 is now one of the few hectads in Ireland with a post-2000 refinding rate of 100%. So saying, its grand total remains well short of three figures.

**We have since been told they were made by an enterprising lighthouse keeper who sent specimens to Arthur Stelfox.*

***Rumex maritimus* (Golden Dock) and *Chenopodium rubrum* (Red Goosefoot) in the Glanworth area of East Cork (H5) in 2019**

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Introduction

Rumex maritimus L. (Golden Dock) has been known in County Cork since about 1870 when it was discovered at Kilcolman Fen (H5). This remained the only county record until 1993 when several populations were discovered at pond habitats in the Glanworth area and one on the River Blackwater near Fermoy (O'Mahony 2009; Smiddy 2016). A survey of all known sites in County Cork (except Kilcolman Fen) was conducted in 2013-2015; seven sites held *Rumex maritimus*, while *Chenopodium rubrum* was also surveyed at the same time (Smiddy 2016). Twenty-two of the twenty-four sites surveyed in 2013-2015 were re-surveyed in September and October 2019, and several previously undocumented sites were also discovered and surveyed through personal search and as a result of discussions with local farmers.

Results and discussion

Only four of the sites which held *Rumex maritimus* in 2013-2015 were positive for this species in 2019, while one new site was discovered (Ford Footbridge) (Table 1). Its disappearance from Meadstown Bridge is as a direct result of agricultural works which involved the almost total infill of this once 'wet and quaking hollow' (Smiddy 2016). The Togher Cross Roads (farm) site was already lost in 2015 as a result of the expansion of the invasive *Lagarosiphon major* (Curley Waterweed) which had carpeted the site; this situation had not changed in 2019. Ballindangan also appears to have lost *Rumex maritimus*, probably as a result of drying out of the habitat and extensive plant growth, although grazed by horses.

Allowing cattle to graze right into these ponds, therefore creating a sparsely vegetated muddy edge, appears to be important to the continuance of *Rumex maritimus* in an intensively farmed landscape. This was the case at four of the five sites occupied in 2019. However, Laght (Lough Pole) is fenced off from the adjoining cattle-grazed pasture. Here, an area 4m wide has been cleared of vegetation to allow tractor-access

for water abstraction, and this was the only area where *Rumex maritimus* grew. This observation illustrates the importance of habitat management for this species.

Is *Rumex maritimus* threatened in this study area? The apparent loss of the species from three sites since 2015 would indicate that it probably is, but the finding of a new site in 2019 suggests that there may be more sites to discover. Clearly, farming practice has the potential to eliminate the species from the area, with intensification and land improvements leading to the loss of sites (as at Meadstown Bridge), but *managed* farming practice (as at Laght, although probably unwittingly done) has the potential to allow the species to prosper. Since most farmers probably do not know this species, conservation agencies, such as the National Parks and Wildlife Service and Cork County Council, are urged to engage with landowners in the conservation of this rare species; some sites are within protected areas or are areas proposed for protection.

Table 1. Distribution of *Rumex maritimus* and *Chenopodium rubrum* in 2019 indicated by √ (number of plants counted in 2019 in parentheses). Sites occupied in 2013-2015 but unoccupied in 2019 are indicated by the most recent year of known occupation. Site 22 could not be adequately surveyed for *Chenopodium rubrum* in 2019 due to presence of a cattle herd, and *Rumex maritimus* numbers may have been underestimated for the same reason.

Site name	Grid	<i>Rumex maritimus</i>	<i>Chenopodium rubrum</i>
8. Lackabrack (east pond)	R705065	√ (55)	-
9. Ballinaltig Beg	R715045	√ (150)	√
11. Rockmills	R717080	-	√
12. Meadstown Bridge	R714084	2015	-
14. Togher Cross Roads (farm)	R723053	2014	-
17. Laght (Lough Pole)	R744048	√ (25)	2000
18. Ballindangan	R755093	2014	2014
19. Ballynamona (west)	R809003	-	√
22. Gearagh, River Blackwater	W830996	√ (10)	?
Ford Footbridge	R724096	√ (50)	√
Glennahulla	R755110	-	√
Mitchelstown	R798142	-	√

References:

- O'Mahony, T. (2009). *Wildflowers of Cork City and County*. The Collins Press, Cork.
- Smiddy, P. (2016). Golden Dock (*Rumex maritimus* L.): distribution and conservation problems in East Cork (**H5**), and records of an associate native species, Red Goosefoot (*Chenopodium rubrum* L.). *Irish Naturalists' Journal* **35**: 52-54.

Recording for *Atlas 2020* across Ireland during 2019, with a grant from the Wild Flower Society

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This time I was asked to record in hectads where less than 60% of species had been refound since 2000. I was asked to visit hectads in Kerry & Mayo, otherwise I had a free rein to go where I liked. In all, I had 23 days in the field, visiting vice-counties Carlow (**H13**), Dublin (**H21**), East Mayo (**H26**), Mid Cork (**H4**), North Kerry (**H2**), North Tipperary (**H10**), Sligo (**H28**), South Kerry (**H1**), West Cork (**H3**), West Mayo (**H27**) & Wicklow (**H20**).

Before I set out, I always printed a list of species that needed finding for the hectad(s) I was to visit. I generally visited just one hectad a day, and in a few cases two. The percentage of species needing refinding varied from as little as 5% to 100%. The couple of hectads visited where there were no records since 1999, I always found more than listed in the DDb. I never refound every species on the list; often the only way I took the percentage rate over the magical 60%, was by finding a good number of *new* species for the hectad instead. The lists I printed, also included the *date* the plant was last recorded from the hectad. I noticed that by crossing the plants off the lists as I found them, it was often easier to refind species that had the older dates, than species seen in the date bracket 1987 to 1999.

I'm going to mention a few of the highlights for me. I started in late April, by visiting Mid Cork (**H4**); here, I found *Viola canina* (Heath Dog-violet) on heathy ground near the coast at Dunbogey (W72295036). This is only the second modern-day record for Mid Cork, following on its discovery at Lower Dripsey (W5173) on the River Lee Reservoir in 2014 (O'Mahony, 2015). Another visit in early May, found me in a large disused gravel quarry at Killeady (W56976172). This produced *Veronica peregrina* (American Speedwell), an adventive species previously only recorded in Co. Cork from one other Mid Cork (**H4**) site in Cork City. Of all the species I saw over the summer, *V. peregrina* was my favourite, because, within the quarry, it was confined to very shallow pools and puddles – a habitat very similar to a site I saw in Texas, where this species is native. On 18 May I returned to Mid Cork, as I wanted to check on a butterwort I had recorded in August 2016 as *Pinguicula vulgaris* (Common Butterwort), the species then just in leaf. As I had expected, I had jumped to an identification, even when I knew it wasn't possible to ascertain if I had the correct butterwort. My suspicions proved correct, as this time round, there were hundreds of flowers on display – all which were *Pinguicula grandiflora* (Large-flowered Butterwort). A lesson learnt: *don't* put a name to a plant, unless you are sure you are correct with your identification!

Kerry was visited at the end of July. Here, I checked out some very scattered hectads, making a long drive some days to my location from my accommodation on Valencia Island. A visit to a hectad on the Dingle (**H1**) found me on the dunes at Doonsheane (V48399946), where, on a sandy dune grassland slope, I came across

Geranium columbinum (Long-stalked Crane's-bill). This site is at least 80 km from the nearest sites in Cos Cork and Limerick. My prize target was to re-find *Carex punctata* (Dotted Sedge), as my printout gave 1860 as the last time reported from the hectad. I walked over to the other side of the estuary where the low cliffs were rock, rather than sand, like the side I had been, and it wasn't long before I came across two clumps of *Carex punctata* on the rock-face at Kinard (V48549965). I wanted an easy day and choose to walk from Killarney (H2) over to Killarney Lake, an area I had expected to be very well recorded, making it hard to re-find the species on my printout. Thankfully, this proved not to be the case and, in the process, I found some very nice species that I rarely see. For example, I found lots of *Elymus caninus* (Bearded Couch) in one area of the woods (V94649010), this being only the 2nd record for Kerry, the other being found in 2005 on one of the islands in Killarney Lake in the hectad below. In a pool (V9491) there was flowering *Utricularia australis* (Bladderwort), this being the first hectad record, according to my list since 1887.

The 27 August saw me in Co. Dublin (H21) where, on a roadside by Balheary Bridge (O18944799), somebody must have sown a wildflower mix a few years back, as I came across *Lotus tenuis* (Narrow-leaved Bird's-foot-trefoil) – a species I have not seen in Ireland before.

Early September saw me in Mayo, where I was surprised to find that the single plant of flowering *Parentucellia viscosa* (Yellow Bartsia) I saw at Cuilmullagh (G12780149) (H27) on a rocky track, was a new species for the county. In a disused quarry at Pollranny (F76000044) (H27) there was lots of *Clinopodium ascendens* (Common Calamint), new for West Mayo.

My last day of recording as part of the WFS grant, took me to the coast of Co. Wicklow (H20) on 1 November, as I happened to notice that the hectad T37, just south of Mizen Head, only had one post-2000 record, and only 3 species recorded pre-2000. T37 only has a small piece of land, less than an eighth of a monad, the rest of the hectad being in the sea. I managed to record 116 species, but only re-found 2 out of the 4 species on the list: *Elymus junceiformis* (Sand Couch) and *Glaucium flavum* (Yellow Horned-poppy).

Reference:

O'Mahony, T. (2015). A report on the flora of Cork (H3-H5), 2014. *Irish Botanical News* 25: 21-31.

***Rosa* x *pseudorusticana* Crép. ex Preston in Britain and Ireland, with special reference to the cross *R. stylosa* Desv. x *R. arvensis* Huds.**

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Introduction

In Britain and Ireland, the indigenous genus *Rosa* L. (Wild Roses) is represented by only two genetically balanced species (i.e. the morphologically distinctive diploid *R. arvensis* Huds. (Field Rose) and tetraploid *R. spinosissima* L. (Burnet Rose), both of which bear perfect pollen), while the remaining thirteen species belong to section *Caninae* DC., these being unbalanced polyploids bearing at least 30% of aborted pollen grains. In sect. *Caninae*, genetic inheritance in binary hybrids is predominantly derived from the *female* parent (matrocliny) which, in pentaploid hybrids, provides four-fifths of the genomic material, with the result that *reciprocal* crosses within this section are often so very different in morphological appearance, that their true identities can easily go unrecognised. This is a problem that constantly bedevils even experienced rhodologists, while it can seem an insurmountable obstacle to the novice worker, who is short on field experience and is still coming to grips with the bread-and-butter issues of species-delimitation itself, within this extremely complex and formidable genus, where *qualitative* diagnostic characters are so often lacking (O'Mahony 2018). Moreover, in *some* binary hybrids, one of the reciprocal crosses may prove much more visually distinctive than its counterpart – a situation that inevitably results in recording bias for both taxa. A case in point, is the interspecific hybrid, *R. x gremlii* Christ ex Greml (formerly *R. x bigeneris* Duffort ex Rouy) involving the species *R. micrantha* Borrer ex Sm. (Small-flowered Sweet-briar) and *R. rubiginosa* L. (Sweet-briar). In this instance, the cross *R. micrantha* x *R. rubiginosa* has long been recorded from a number of British and Irish sites, while its reciprocal, *R. rubiginosa* x *R. micrantha*, is not recorded at present (Maskew in Stace *et al.* 2015; Stace 2019). Currently, *seventy-three* binary hybrids involving natural crosses between native *Rosa* species have been recorded in these islands, in addition to two more, involving the long-naturalised Asiatic species, *Rosa rugosa* Thunb. (Japanese Rose) (Stace 2019). Of these seventy-five interspecific hybrids, *fifty-three* involve hybrids *solely* within *Rosa* section *Caninae* DC (Bakker *et al.* 2017; Stace 2019).

Rosa arvensis*, *R. stylosa* & their interspecific hybrid, *R. x pseudorusticana

***Rosa arvensis* Huds.**

Rosa arvensis is a widespread and locally common species in Britain and Ireland, and predominantly occurs on calcareous or base-rich soils in, or adjacent to, deciduous woodlands, scrub and hedgebanks, where its stoloniferous growth-habit allows it to form large clonal populations that can locally dominate its chosen habitats. *R. arvensis* stands apart from all other native British and Irish rose taxa, in bearing trailing or



Above: A 1st-year vegetative shoot of *R. stylosa* x *R. arvensis*, displaying the wine-red pigmentation inherited from its *R. arvensis* parent. Below: An immature infructescence of *R. stylosa* x *R. arvensis*: Pedicels densely armed as in *R. arvensis*, but stipitate-glands 0.25-0.8 mm as in *R. stylosa*.
Photos T. O'Mahony © 2019 (p. 17)





Above: A characteristic *R. stylosa*-type deltoid prickle, on a 1st-year vegetative shoot of the cross, *R. stylosa* x *R. arvensis*. Photo T. O'Mahony © 2019 (p. 17)



Phoebe, Hannah and John providing suitable excitement at finding *Eriophorum gracile* (Slender Cottongrass) at Derrygoolin. Photo M. Sheehy Skeffington © 2019 (p. 68).

scrambling (often *pruinose-covered* and *purple-suffused*) stems that interweave through hedgerow/hedgebank shrubs, its large, white flowers *bearing a protruding, slender, pin-like column of fused, glabrous styles some 3mm in length*, which is topped by a tiny, neat head of stigmas. While the hip-disc is predominantly *flat*, it occasionally forms a very low, tight, central mound that encircles the styler-orifice, while the outer (often purple-suffused) sepals bear a pair of tiny pinnae, only 3-4 mm long. The slender pedicels (*conspicuously dilated distally*) vary from 2-5 cm in length, are generally *much longer* than the hips, and are glandular-hispid, being armed with dense, *minute*, stipitate-glands, mostly *c. 0.14-0.3 mm in length, the globose gland equalling or longer than its stalk*. At the flowering stage, I have observed that these glands *are viscous, and emit a delightful, sweet, winegum-like scent* on rubbing (O'Mahony 2016) – a scent *unique* to *R. arvensis* among our native rose taxa. (**Note:** This observation is *at odds* with the *Rosa* account in the work, *Hybrid Flora of the British Isles* (Maskew in Stace *et al.* 2015), where it is stated in the Introduction (page 70) that: “Stipitate *odourless* [my emphasis] glands also occur on one or two species, for example on the pedicels of *R. arvensis* and *R. stylosa*.”)

***Rosa stylosa* Desv.**

As with *Rosa arvensis*, *R. stylosa* (Short-styled Field-rose) is, to my mind, a beautiful rose, the combination of its elongate, oblong-elliptic, deep-green, glossy leaflets, deep-pink flower-buds and flowers, and small hips borne on long, stipitate-glandular pedicels, marking it out as both elegant and garden-worthy. *R. stylosa* reaches the northern limit of its world range in Britain and Ireland, wherein it has an essentially southern distribution. *The New Atlas of the British & Irish Flora* (Preston *et al.* 2002) recorded *R. stylosa* from 211 hectads in Britain, for the period 1987-1999, and only 17 Irish hectads for the same time period. However, fieldwork in southern Ireland during the period 2000-2016, has increased the number of recorded hectads: for example, Paul Green (vice-county recorder for Co. Waterford (**H6**)), has recorded *R. stylosa* from 10 Waterford hectads between 2000 and 2007, describing this species as locally common therein (Green 2008). Similarly, O'Mahony (2008) reported *R. stylosa* from 15 Co. Cork (**H3-H5**) hectads, based on fieldwork up to 2007, though the included, highly disjunct, West Cork (**H3**) record – not made by the author – is regarded as suspect. In Britain, the core areas for *R. stylosa* are in the south of England, where it is of locally frequent occurrence in Somerset, Dorset, Hampshire and the Isle of White, in addition to parts of the midland county of Worcestershire, which latter county is close to the northern limit of its British range (Preston *et al.* 2002; Maskew 2014; Maskew in Stace *et al.* 2015). *R. stylosa* is of widespread, if rare, occurrence in southern Ireland, with core populations extending along the transverse (west-east) midland belt of calcareous soils, from Co. Clare (**H9**) on the west coast, eastwards to Co. Dublin (**H21**) on the east coast (O'Mahony 2008). Further south, major satellite populations occur in Co. Waterford (**H6**) (Green 2008), while in Mid Cork (**H4**) and East Cork (**H5**) further widely-dispersed populations of *R. stylosa* occur along the 64 km stretch of the South

Cork Limestone Syncline (a narrow sliver of carboniferous limestone) from Ballincollig Regional Park (to the west of Cork City) eastwards to the termination of the county boundary at the coastal town of Youghal, adjoining Co. Waterford (O'Mahony 2008, 2009). Elsewhere in Co. Cork, highly localised satellite populations of *R. stylosa* occur in the north of the county, bordering roadside hedgebanks in the River Blackwater and River Araglin valleys, east of Fermoy town (**H5**) (O'Mahony 2008, 2009). In July 2016, the author added this species to the Kanturk area of Mid Cork (**H4**, R3.0.), where it occurred frequently in roadside hedgebanks of the R579 (the Kanturk-Freemount Road) to the north of the town, between the local cemetery and Coolageela Bridge, in monads: R38.04., R38.05. & R38.06., this find representing another highly disjunct Co. Cork population of *R. stylosa*. As *R. stylosa* and *R. arvensis* share a fondness for calcareous soils, both species thus locally cohabit in areas where their distributional ranges overlap in Britain and Ireland, and this contact provides the opportunity for the spontaneous occurrence of their interspecific hybrid, *R. x pseudorusticana* Crép. ex Preston.

***Rosa x pseudorusticana* in the British and Irish Flora: its Distribution and Morphology**

In the work, *Hybrid Flora of the British Isles* (Stace *et al.* 2015), the map for *Rosa x pseudorusticana* records it from a total of 64 British hectads, the hybrid occurring in 48 hectads in which both parents were recorded; in 16 hectads in which only the *R. arvensis* parent was present; and in *no* hectads where only the *R. stylosa* parent occurred. In stark contrast, the data for Ireland records *R. x pseudorusticana* from only *five* hectads, and in these *only* where *R. arvensis* occurred. (**Note:** There are some errors in this Irish map data, which are discussed below.) While *R. x pseudorusticana* is of widespread and locally frequent occurrence in the southwest and midland regions of Britain, only a handful of Irish records exist to date (see later details). While the map of *R. x pseudorusticana* in Stace *et al.* (2015) combines all known hectad records for the reciprocal hybrids, it is clear from the relevant literature, that the cross *R. arvensis* x *R. stylosa* is the *predominant* taxon recorded in Britain and Ireland. The following descriptions of both crosses, are based on a *composite* of the pool of data provided by Melville (in Stace 1975), Graham & Primavesi (1993) and Maskew (in Stace *et al.* 2015).

***R. arvensis* x *R. stylosa*:** General habit of *R. arvensis*, though somewhat stronger and more upright in growth habit; leaflets larger-dimensioned than in *R. arvensis*, and with coarsely serrate (rather than crenate-serrate) teeth; petals often pink-flushed, and outer sepals with longer, more numerous, pinnae; hips variable in shape and size: some small and narrow and sometimes partly achene-sterile, others well-developed, often more elongate than in *R. arvensis* and with a distinctly conical/subconical hip-disc; projecting stylar-column somewhat thicker, and less pronounced, than in *R. arvensis*.

***R. stylosa* x *R. arvensis*:** Differs from *R. stylosa* in that a few strongly-pigmented trailing shoots are usually present, these bearing few prickles; leaflets glabrous, or slightly pubescent on the veins beneath; styles long-exserted, almost fused and not readily separating; pedicels long, and rather densely glandular-hispid; hips broadly ovoid, medium to small on the same plant; hip-disc conical or convex.

Comments on the distribution of the reciprocal crosses of *R. x pseudorusticana*

R. arvensis* x *R. stylosa

It is quite clear from literature statements (e.g. Maskew 2014; Maskew in Stace *et al.* 2015) that the *majority* of British records for the interspecific hybrid, *Rosa x pseudorusticana*, are of the cross *R. arvensis* x *R. stylosa*. Moreover, this is equally true for four of the five mapped Irish hectad records (Stace *et al.* 2015), of which the two Co. Dublin (**H21**) hectad records (four separate populations) listed by Doogue *et al.* (1998) are referable to this cross, as is one of the two Co. Waterford (**H6**) records and, most likely, that from Co. Westmeath (**H23**) also (see Green 2004, 2008; Table 1 and the note below). The BSBI DDb provides the following terse data on the Westmeath find: ‘Kilbeggan, Co. Westmeath (**H23**, N313324); 6 September 2004; Finders: G. Smith, E. Buscardo and F. Michell; Determiner: Roger Maskew. (**Note**: Although the DDb does not give the direction of this cross, it is most likely *R. arvensis* x *R. stylosa*.) The DDb also provides a new and much more recent Irish vice-county record for *R. arvensis* x *R. stylosa*, namely: ‘Roadside hedgerow at Glen More, Co. Monaghan (**H32**, H61114690); 16 September 2018; collected: Alexis FitzGerald; determined: Roger Maskew.’ This unexpected find lies far north of all previously recorded Irish or British records for *R. x pseudorusticana*. With regard to its parent species, the finder, Alexis FitzGerald, has informed me (pers. comm. January 2020) that *R. arvensis* is of scarce occurrence in Co. Monaghan, while *R. stylosa* is not known to occur in that county. This serendipitous Co. Monaghan hybrid find, resulted from an unproductive search for *R. arvensis*, in an area where this species had previously been recorded in the 1990s.

R. stylosa* x *R. arvensis

The distribution of *R. stylosa* x *R. arvensis* in Britain and Ireland is *not* clearly stated in the literature (e.g. Graham & Primavesi 1993; Maskew 2014; Stace *et al.* 2015), nor, indeed, is any detailed account available of either its morphology or hip-fertility. Most surprisingly, Graham & Primavesi (1993: 88) commented that: “This hybrid ... is often harder to recognise than its reciprocal...” – a view reiterated by Maskew (in Stace *et al.* 2015), who further stated: “... the typical triangular prickles [of *R. stylosa*] are interspersed with clusters of others which are much smaller, and either straight or slightly curved.” (**Note**: The author’s experience of this cross in Ireland (based on the two finds detailed below) is that it is a much more morphologically distinctive taxon than its reciprocal, *R. arvensis* x *R. stylosa* – as the included descriptions and photographs amply demonstrate. These observations are in total contrast to the views expressed by Graham & Primavesi (1993) and Maskew (in Stace *et al.* 2015).)

***R. stylosa* x *R. arvensis* in the Irish Flora and some notes on its morphology and fertility**

On 4th July 1995, while recording *Rosa* taxa from roadside hedgebanks in the vicinity of Moord Crossroads (**H6**, X13.79.) close to the coastal beach of Whiting Bay, Co. Waterford, I discovered a single fruiting bush of the hybrid cross, *Rosa stylosa* x *R. arvensis*, and voucher material was collected for pressing. It was associated with both of its parents – *R. stylosa* and *R. arvensis*, in addition to *R. micrantha* Borrer ex Sm., and the *Rosa* cross, *R. canina* L. x *R. tomentosa* Sm. (= *R. x scabriuscula* Sm.). The description of the *R. stylosa* x *R. arvensis* cross taken at the time, reads as follows: ‘A vigorous, if low-growing, arching bush with deltoid prickles; inflorescence-branches, hypanthiums, sepals and pedicels *purple-flushed*, up to 9-flowered; some pedicels to 28 mm long, *dilated distally* (an *R. arvensis* character) and bearing numerous minute, glandular-setae, these 0.25-0.8 mm long, their glands *scentless*; disc conical or subconical, the stylar-orifice *c.* 0.25 mm in diameter and *c.* 2.5-3 mm deep; styles agglutinated into a moderately long, projecting column in fruit; styles *very unequal in length*, their stigmas thus forming an elongate-ovoid head [both of these characters derived from its *R. stylosa* parent]; outer sepals *c.* 20 x 5-6 mm, with a filamentous point *c.* 10 mm long, and 2-3 pairs of robust pinnae, these linear-elliptic and up to 9 mm long; pollen mostly abortive.’ (**Note:** Subsequent vertical-sectioning of near-mature hips, revealed that many were *highly achene-sterile*, the few developed achenes in each hip (often hidden by the dense, silky hairs of sterile achenes) being *symmetrical* in shape (*ovoid or lanceoloid*), their surface irregular, or very shallowly furrowed – quite different from the *angular* achenes (with *obliquely triangular faces* in cross-section) that are typical of fully-fertile hips within sect. *Caninae*.) I have observed and previously reported on this phenomenon in the highly achene-sterile *Rosa* cross, *R. corymbifera* Borkh. (Hairy Dog-rose) x *R. sherardii* Davies (Sherard’s Downy-rose) (O’Mahony 2018). The Moord Crossroads site (i.e. on the north-eastern arm of the crossroads) was revisited in July 2006, and further vouchers of the *R. stylosa* x *R. arvensis* bush were collected. However, a return visit in later years revealed that its roadside embankment had been brutalised by flailing machines, all of the shrubs here, having been cut down to their base. This yearly (or biannual) cycle of devastation is now a routine phenomenon in parts of southern Ireland, and has taken a massive toll on rose populations in particular.

While on a Sunday spin with my wife in the Kinsale area of Mid Cork (**H4**) on 17 June 2011, I spotted a rose bush with large, deep-pink flowers at Ballinvarad Crossroads (**H4**, W62.52.), north-west of Kinsale, and made a note to check it out at a later date, feeling it might be *Rosa stylosa*, of which scattered populations occur elsewhere in this hectad (O’Mahony 2008). A return visit in September 2011, turned up cohabiting bushes of *R. stylosa* and *R. arvensis* on the north-eastern arm of this crossroads, while its south-eastern arm yielded two, adjacent, intertwined, apparently suckering bushes of the

cross, *R. stylosa* x *R. arvensis*, an interspecific hybrid new to the flora of Co. Cork. A brief account of this find was duly published (O'Mahony 2013), while fruiting vouchers were collected on a number of visits between 2012 and 2019, and photographs were taken of infructescences and of 1st-year vegetative shoots, these latter, *beautifully suffused wine-red* (see photo, p. 18).

The description of the Ballinvarad Crossroads *R. stylosa* x *R. arvensis* hybrid is as follows: A tall, robust, arching shrub that resembles *R. stylosa* in general morphology, the stem prickles characteristically very broadly triangular in outline (deltoid), with a very short point and *convex* faces (see photo, p. 19); leaves with elongate, oblong-elliptic leaflets up to 65 x 27 mm, adaxially glossy-green and glabrous, abaxially pubescent on the midrib and lateral veins and on the teeth-margins; 1st-year vegetative shoots very long and pliant, trailing and runner-like, and *wine-red* in colour (*all* characters of its *R. arvensis* parent), and apparently *suckering* to form a stoloniferous thicket here; fruit-pedicels (15-) 20-30 mm, rather *densely* glandular-setose (see photo, p. 18) (an *R. arvensis* character), the stalked-glands *c.* 0.25-0.8mm, most glands *shorter* than their stalks and *scentless*, thus much closer to *R. stylosa* in these latter characters; hips broadly to narrowly ellipsoid, 15-21 x 10-13 mm, many *somewhat asymmetrical*, the *conical* disc and/or the pedicel often *oblique* to the longer axis of the hip; the *fused* stylar-column intermediate in characteristics, being longer than in *R. stylosa*, but shorter than in *R. arvensis*, though the *unequal* styles form a narrowly elongate-ovoid head as in *R. stylosa*; sepals broad-based and with long, robust pinnae as in *R. stylosa*.

(**Note:** The hip-dimensions of the Ballinvarad Crossroads hybrid, are *fully in accord* with those I provided for its *R. stylosa* parent in an earlier paper (O'Mahony 2008), though Maskew (in Stace *et al.* 2015) stated that the cross *R. stylosa* x *R. arvensis* bears smaller-dimensioned hips than that of *R. stylosa*. Clearly, *allowance must be made* for variation in this and other characters in all *Rosa* hybrids.)

Vertical-sectioning of batches of hips from the Ballinvarad Crossroads population of *R. stylosa* x *R. arvensis*, was undertaken at various times within the period 2011-2019, and *all* hips were found to be *highly achene sterile*, including the best-developed intact hips that visually looked fertile. For example, 60 random hips collected on 13 September 2019, produced the following data: 22 hips wholly sterile (i.e. no developed achenes); 29 hips each with a single, developed achene; 7 hips each bearing two developed achenes; and 2 hips each bearing three developed achenes. Moreover, these developed achenes were *atypical* in shape and dimensions (when contrasted with the *angular* and *smaller* (*c.* 4.5 x 2.5 mm) achenes from the fertile hips of both parents), being *symmetrical* in outline (ovoid to lanceoloid) and *large*, *c.* 5.5-7 x 2.75-4.5 mm.

Table 1. Co. Dublin (H21), Co. Waterford (H6), Co. Westmeath (H23) & Co. Monaghan (H32) published records, or BSBI DDb records, for *Rosa x pseudorusticana*: Rows 1, 2, 3, 4, 6, 7 & 8 represent the cross, *R. arvensis* x *R. stylosa*: Row 5 represents *R. stylosa* x *R. arvensis*

	Site Name	Vice-county	Hectad	Monad	Date	Records Source
1	Lusk	(H21)	O2.5.	O21.54.	1991	Doogue <i>et al.</i> 1998
2	Chapelmidway	(H21)	O1.4.	O12.46.	1991	Doogue <i>et al.</i> 1998
3	Harristown House	(H21)	O1.4.	O13.42	1987	Doogue <i>et al.</i> 1998
4	St Margaret's	(H21)	O1.4	O13.43	1991	Doogue <i>et al.</i> 1998
5	Moord Crossroads, NW of Whiting Bay	(H6)	X1.7.	X13.79.	1995 & 2006	Green 2008
6	Quarter: T-Junction south of Boheravaghera Crossroads on the N72	(H6)	X1.9.	X12.96.	2003	Green 2004, 2008
7	Kilbeggan	(H23)	N3.3.	N31.32.	2004	BSBI DDb
8	Glenmore	(H32)	H6.4.	H61.46.	2018	BSBI DDb

As mentioned earlier, the map for *Rosa x pseudorusticana* in Stace *et al.* (2015), shows this hybrid as present in just *five* Irish hectads – in all of which only its *R. arvensis* parent is stated to have been present. Allowing for the fact that the reciprocals of hybrids are *not* distinguished in these maps, it is necessary to fine-tune this data accordingly, in order to reflect the *actual* distribution of the reciprocals of *Rosa x pseudorusticana* in the Irish Flora. In **Table I** above (rows 1-4) the four Co. Dublin (H21) records are confined to two hectads (O1.4. & O2.5.) and represent the cross, *R. arvensis* x *R. stylosa*, as does one of the Co. Waterford (H6) records (i.e. row 6, hectad X1.9.), the Co. Monaghan (H32) record (row 8, hectad H6.4.) and, most likely, the Co.

Westmeath (**H23**) record (row 7, hectad N3.3.). In contrast, the second Co. Waterford (**H6**) record (row 5, hectad X1.7.) represents the *reciprocal* hybrid, *R. stylosa* x *R. arvensis*, this cross being added to the Irish Flora by the author in 1995 (Green 2008), where it cohabited with both of its parents. In 2011, the cross *R. stylosa* x *R. arvensis* was also added to the flora of Co. Cork (a Mid Cork (**H4**) site), where it similarly cohabited with both of its parents, as detailed earlier in this paper.

Conclusions

On the basis of my long-term experience of *Rosa* interspecific hybrids in southern Ireland (i.e. 1975-2019), it is clear to me that *no* single, literature description of a hybrid can possibly cover the extremes of morphological variation, or of hip-fertility, to be encountered in that hybrid. Furthermore, it is necessary to bear in mind, that one or two *biotypes* of a hybrid may *dominate* extensive biogeographical areas, and differ in a suite of morphological features from other biotypes of that hybrid occurring outside of the region. In Ireland, this situation is exemplified by (1) the morphology of the Munster populations of the cross, *R. sherardii* Davies x *R. rubiginosa* L (= *R. x suberecta* (Woods) Ley) when contrasted with many British populations of this taxon (Melville in Stace 1975; Graham & Primavesi 1993; Maskew in Stace *et al.* 2015; O'Mahony 2018); or (2) the Munster populations of the *Rosa* cross, *R. canina* x *R. tomentosa* (which are notable for their *wholly glabrous* leaflets and rachides, their *frequently numerous* stipitate-glands emitting the distinctive *sour, resinous* scent of their male parent, *R. tomentosa*) – a detailed description of which was provided by O'Mahony (2003). In the assessment of putative binary hybrids, each must be examined in detail, in order to establish exactly which suite of characters has been inherited from the two presumed parents, and *which* reciprocal the hybrid actually represents – the latter a feat that, in many instances, is not readily accomplished with certainty – to which the literature on the genus *Rosa* clearly and amply attests! Therefore, with regard to the cross *R. stylosa* x *R. arvensis*, it should come as no surprise to find that its morphological circumscription as outlined In this present paper, differs in some respects from published descriptions in the literature – though a perusal of the latter (e.g. Melville in Stace 1975; Graham & Primavesi 1993; Maskew in Stace *et al.* 2015) will *also* reveal similar discrepancies between these authors' accounts, as should be expected, for the reasons outlined earlier in this paper.

Acknowledgements:

My thanks to Paul Green, the ever-helpful editor of *Irish Botanical News* (and current Recorder for counties Waterford (**H6**) and Wexford (**H12**)), for downloading the Irish records of *Rosa x pseudorusticana* from the BSBI DDb, for me. I also thank Alexis FitzGerald, Recorder for Co. Monaghan (**H32**), for providing me with detailed data on his find of *Rosa x pseudorusticana* in that county in 2018.

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Three hybrid sedges new to Co. Meath (H22), two of which are additional to the Irish flora

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Nomenclature in the following accounts follows Stace (2019). Voucher specimens will be deposited in **DBN**.

***Carex rostrata* Stokes × *C. vesicaria* L. = *Carex* × *involuta* (Bab.) Syme**

An unusual sedge, characterised in the field by its yellowish-green leaves in contrast to the glaucous darker-green leaves of *C. rostrata* (Bottle Sedge) which grew nearby, was collected by MN during July 2018. The swollen utricles, which lacked any obvious nut, presented the possibility of *C. × involuta*. The identity was confirmed by Mike Porter in 2019, the determination substantiated by the non-exerted anthers, empty utricles, intermediate spike morphology and the presence of stomata on both leaf surfaces.

The hybrid was encountered in the townland of Garrynabolie (N5474) c.1.5km SW of Drumone within the kame and kettle landscape of northwest Co. Meath, where low hummocky areas are frequently interspersed with wide poorly-drained flat areas (Meehan 2012). It was in such a flat area, winter-flooded but summer-dry, that *C. × involuta* was found. Both historical (Ordnance Survey Office 1838) and more recent (Ordnance Survey Ireland 2016) maps indicate the presence of a lake at this site, but no open water was evident during the exceptionally dry summer of 2018. It was at that time possible to walk across the site, the centre of which was dominated by *Equisetum fluviatile* (Water Horsetail) and *Menyanthes trifoliata* (Bogbean), the outer margins supporting *Persicaria amphibia* (Amphibious Bistort), *Carex hirta* (Hairy Sedge) and *Phalaris arundinacea* (Reed Canary-grass), the position of the latter indicative of the upper limit of winter flooding. A substantial stand of *C. × involuta* was noted in the summer drawdown zone, together with several stands of its *C. rostrata* parent. There was no evidence of its second parent, *C. vesicaria* (Bladder-sedge), although this sedge does occur elsewhere within the vice-county. Foley & Porter (in Stace *et al.* 2015) indicate that the hybrid can form extensive stands, and is usually accompanied by both parents, but that it can also occur in the absence of *C. vesicaria*. They consider it to be one of the commoner hybrid sedges in Britain and Ireland due to the frequency with which both parents grow in close proximity. It is hitherto unrecorded from Co. Meath.

***Carex acutiformis* Ehrh. × *C. acuta* L. = *Carex* × *subgracilis* Druce**

An unfamiliar sedge was found by MN during June 2018, which, on closer inspection, exhibited a majority of utricles with two stigmas, and a small number of utricles with three stigmas, both types present within the same spike. Examination under ×40 magnification of fresh utricles, clearly showed that the variation in stigma number had *not* resulted from the loss of stigmas, which are known to be fragile and prone to

damage. This led to the tentative determination of the sedge as *C. × subgracilis* by MN. The determination was confirmed by Mike Porter in 2019, based on the intermediate morphology of the plants, variation in stigma number, and sterile utricles.

The hybrid was found on the SE shore of Creeve Lough (N5774) c.1.8km SE of Drumone, within the topographic area of the Slieve na Calliagh hills, where bedrock tends to be close to the surface and shallow glacial deposits are abundant (Meehan 2012). Two stands, each of c.25m × c.20m, occurred in a clearly-demarcated zone on the shore between the *Phragmites australis* (Common Reed) rooted in the open water of the lake margin, and the winter flood line along the adjacent sloping agricultural grassland. The soil, where exposed, appeared peaty, with evidence of white marl. Although the *C. acutiformis* (Lesser Pond-sedge) parent of *C. × subgracilis* occurred at the site, its second parent *C. acuta* (Slender Tufted-sedge) was not detected. Surprisingly, this hybrid between *C. acutiformis* and *C. acuta* involves two widely separated sections within the subgenus *Carex*, namely, section *Paludosae* and section *Phacocystis* respectively (Jermy *et al.* 2007). In Britain, the two species often share habitat, but the flowering period for *C. acuta* precedes that of *C. acutiformis* and the hybrid is relatively infrequent (Foley & Porter in Stace *et al.* 2015). The potential for hybridisation in Ireland, is further complicated by the limited distribution of its *C. acuta* parent, a species which does, however, occur at several locations in Co. Meath. The presence of *C. × subgracilis* at Creeve Lough appears to be the first record for this taxon within Ireland.

***Carex acuta* L. × *C. elata* All. = *Carex × prolixa* Fr.**

A sedge with loose tussock-like growth similar to *C. elata* (Tufted-sedge), but differing from that species in having female spikes and lowest bracts longer than normal, was collected by MN in May 2018, as a possible *C. elata* hybrid. The plants were determined as *C. × prolixa* by Mike Porter in 2019 based on the long female spikes typical of *C. acuta*, the bract length, which was too long for *C. elata*, yet not sufficiently long for *C. acuta*, and the utricles which were ribbed but not properly developed. The *absence* of stomata on the upper surface of the leaves ruled out the possibility of hybridisation with *C. nigra* (Common Sedge).

The hybrid occurred scattered along the west shore of Whitewood Lough (N7988), c.3.5km NW of Nobber within the Kingscourt Rift Valley, which is a deep suture in the landscape, bisecting the drumlin belt of north Co. Meath (Meehan 2012). It grew by the water's edge as loose tussocks, in contrast to its more typical non-tussock-forming habit (Jermy *et al.* 2005). Both parents co-existed with *C. × prolixa* at Whitewood Lough, although the *C. elata* parent was difficult to distinguish from its hybrid. The second parent, *C. acuta*, despite its limited distribution in Ireland, was plentiful. The site was revisited by John Faulkner in May 2019, while conducting an assessment of *C. acuta* records in Ireland. In addition to confirming the presence of *C. acuta* at Whitewood Lough, he also encountered *C. elata* and *C. × prolixa*, the latter being one of several *Carex* hybrids which he had previously synthesised (Faulkner

1972, 1973). In nature, the flowering season of *C. elata* precedes that of *C. acuta* (Foley & Porter in Stace *et al.* 2015). This, together with the different habitat preferences of the parent species (*C. elata* preferring more base-rich sites than *C. acuta*), may contribute to the scarcity of the hybrid in Britain. The presence of *C. × prolixa* at Whitewood Lough, appears to be the first record for this taxon within Ireland.

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Heracleum mantegazzianum (Giant Hogweed) on the North Bride River, in East Cork (H5) and Waterford (H6) in 2019

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Introduction

Heracleum mantegazzianum Sommier & Levier (Giant Hogweed) is an alien invasive plant occurring principally, though not exclusively, beside riparian habitats in Ireland (Stokes *et al.* 2006). It carries potentially serious health implications for users of these habitats, including for anglers, farmers and recreationists (Wyse Jackson 1989; Tiley *et al.* 1996). It is a monocarpic species, flowering and producing seeds in its third or fourth year, after which the plant dies (Tiley *et al.* 1996). The combined, large umbels of just a single plant, may bear more than 80,000 flowers, each flower producing two seeds. In Ireland, seed counts have ranged from 1,500 to 108,000 (J.M. Caffrey, in Tiley *et al.* 1996), with mean seed numbers per plant at different sites of between 13,000 and 69,000 (Caffrey 2001). In non-riparian habitats seeds rarely disperse beyond 50 m of the parent plant, but in riparian habitats long-distance water-borne dispersal may occur (Caffrey 1994; Tiley *et al.* 1996), leading to rapid expansion downstream. It may also negatively affect the ecology of infested habitats by reducing floral and faunal diversity, and measures have been taken to control its spread in Ireland, mainly by herbicide use with glyphosate (Wade *et al.* 1997; Caffrey 1999, 2001).

Within the North Bride River (see photo, p. 1) system, *H. mantegazzianum* was first noted (and considered well established) in 1970, on the Shanowennadrimina Stream at Castlelyons, East Cork (H5) (O'Mahony 1975). Further records for this stream and for the River Bride followed (Lucey 1994; O'Mahony 2009), and it was present downstream to a point about 1 km upstream of Tallowbridge, Co. Waterford (H6) in the 2004-2007 period (O'Mahony 2009; T. O'Mahony pers. comm. 2019). No records for the Waterford (H6) sector of the River Bride were given in a survey of the flora of that county (Green 2008, P. Green pers. comm. 2019). (**Note:** the River Bride enters Co. Waterford c. 2 km upstream of Tallowbridge.) Before 2019, the most downstream record was of a seedling on gravel at Tallowbridge in August 2016. This plant did not survive and was either trampled by cattle or washed out in a flood (P. Smiddy pers. obs.).

Study area and methods

The first full survey of the range and extent of *Heracleum mantegazzianum* on the North Bride River, was carried out in August 2019 between Rathcormack Bridge (H5, W813906) and Tallowbridge (H6, W999943) while drifting downstream in an inflatable boat. Between Tallowbridge and the confluence of the River Bride with the River Blackwater (H6, X089912) land-based spot-checks were carried out at intervals where it was possible to examine the river edge. This latter section of the River Bride is tidal for most of its length and has exceptionally heavy bankside vegetation making

access difficult in places. However, representative sections of the banks were examined along the total length. The tidal River Blackwater between Youghal Bridge (**H6**, X099809) and Cappoquin (**H6**, X099995) was also spot-checked on both banks at all points of easy access, especially at quays and slipways. The Shanowennadrimina Stream from Doctor's Bridge (**H5**, W834935) to its confluence with the River Bride (**H5**, W844915) was also surveyed from land-based vantage points.

Results and discussion

In August 2019 *Heracleum mantegazzianum* was present on the Shanowennadrimina Stream from Castlelyons (**H5**, W836933) to its confluence with the River Bride (**H5**, W844915). The most upstream part of its range on this stream included a population on a wooded limestone outcrop on the right bank. It grew sparingly along this stream and increased in density as it approached the River Bride. There was *no* evidence of diffusion upstream on the River Bride from this point (W844915), strongly indicating that at this site its mode of dispersal has been entirely water-borne.

From its first point of contact with the River Bride (**H5**, W844915), *H. mantegazzianum* growth was almost continuous downstream to Aghern Bridge (**H5**, W896928). Density varied however, it was often especially numerous in a narrow strip along woodland or scrub adjoining the river and was sometimes absent where there were no trees, although it was occasionally plentiful in open and non-wooded areas. Grazed pasture fields with little or no rough ground abutting the river often had only a few, or no, plants. It sometimes grew commonly on one bank, only then to switch to the other; such changes were usually attributable to crop management on adjoining land.

H. mantegazzianum was particularly numerous (and continuous) between Aghern Bridge and Conna Bridge (**H5**, W925933), especially on the right bank. Here it grew in about equal measure in woodland edge and open habitats, often along the edge of unharvested cornfields. It grew continuously between Conna Bridge and Mogeely Bridge (**H5**, W956941), rather sparsely along the first half of this sector and much more numerous along the second half. Much of it grew in woodland edge, but much, too, in more open habitats; most occurred in narrow riverside strips, but there were several more extensive patches.

Downstream of Mogeely Bridge, *H. mantegazzianum* occurred plentifully on both banks, but thinned out considerably on the approach to the border with Waterford (**H6**, W982941). It occurred reasonably commonly along the first 1.5 km within Waterford, and then abruptly became very scarce. Only three plants, all on the left bank, could be found downstream of Tallowbridge (**H6**, X001941, X002941, X004942), and *none* on the River Blackwater. Throughout its range on the River Bride system, *H. mantegazzianum* flowered and produced seed profusely during 2019. An estimate of the total population is difficult, but probably involves at least several tens of thousands of flowering plants. In this survey, it could not be ascertained whether populations have become established away from the river corridor as a result of seeds washed in by winter flooding.

It is evident that *H. mantegazzianum* has colonised considerable sections of the banks of the North Bride River since its first discovery at Castlelyons, East Cork (H5) in 1970, when it was “well established” (O’Mahony 1975). It appears to have made little ‘progress’ in colonising the lower parts of the river since the 2004-2007 period, although an accurate assessment is difficult in the absence of firm data. There appears to be no information available on how (or if) it has impacted negatively on any of the native fauna and flora of the river. Some control measures using herbicides have occurred in the upstream parts of the river in recent decades, but such measures appear to have been localised and over a short time-period. Individual landowners and anglers also appear to cut or thrash the stems, but again, only on a localised basis. No control measures appear to have taken place in the downstream parts of this river. Although *H. mantegazzianum* apparently thrives in poorly-drained marshy areas (Tiley *et al.* 1996), it will be interesting to observe if it ultimately establishes populations on the soft muds of the tidal sections of the Rivers Bride and Blackwater, both of which are inundated twice daily. This survey should assist future assessments of the range of this species on the Rivers Bride and Blackwater, particularly in assessing the outcome of any future control measures.

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Pseudorchis albida (Small-white Orchid), near Dowra. Photo E. Gaughan © 2019 (p. 56).



Matthiola sinuata (Sea Stock), Morriscastle. Photo P.R. Green © 2019 (p. 52)



Eriophorum gracile (Slender Cottongrass) at Derrygoolin. Photo M. Sheehy Skeffington © 2019 (p. 68)

Aquatic Plant Project. Nick Stewart finding *Potamogeton x sparganiifolius* on Rosguil. Photo: R. Northridge (p. 6)



Aquatic Plant Project. Lavistown. Led by L. Weekes. Photo M. McCorry © 2019 (p. 6)



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Co. Louth – Good Things Come in Small Packages

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First impressions are not always to be relied on. It was 2016 when I started to take an interest in Co. Louth, and 2017 when I took on the role of coordinating records as the Vice-county Recorder position was vacant. At that stage, a few botanists had made minor forays there since 2000, typically for limited surveys or to interesting sites, but the number of post-2000 records in the DDb was very small indeed. In one or two hectads, there were none at all. To be frank, I knew little about Co. Louth, apart from it being one of the three smallest counties in Ireland. I knew even less about whose records apart from my own I would be coordinating, but some recording had to be done if it was not to appear on *Atlas 2020* maps as a plant-diversity desert.

My own vice-county of Armagh, immediately to the north, was moderately well covered so any time I could spare for Atlas purposes would be more productively spent in Louth. While the prospect of visiting virgin territory was in itself quite appealing, my impression of Louth was that it was that boring agricultural patch that you sped through on the way to Dublin. It was with more of a sense of duty than of expectation of botanical delights that I approached the task.

At first, it looked as though all the effort of recording for *Atlas 2020* was going to be my own with the invaluable if largely non-botanical support of my wife Gillian. We evolved a pattern that entailed spending most of a day in each hectad. Starting with as attractive or scenic a location as we could find, we progressed through a series of successively shorter stops until one of us was tired and hungry. You can guess which of us that would have been. (Bear in mind that an absorbed field botanist doesn't notice such things. Also that a tired and hungry partner equipped with a smartphone will track down a good restaurant or coffee shop in seconds.). Two favourites for an evening meal were the Glyde Inn at Annagassan, and the Sitar at Carlingford Marina, which not only feed you well but have fabulous views across water in the evening light, to the Cooley Mountains or the Mourne – and some rich plant habitats close by. The quirky Fitzpatrick's at Jenkinstown was ideal as a coffee stop.

By 2018, others had started to contribute records, prompted no doubt by the energy and enthusiasm of Maria Long in her role as BSBI's Ireland Officer. For instance, members of the Dublin Group made several recording visits. Paul Green took a small band round the coast to look at *Atriplex* after the September 2017 AGM. Kate Harrington and Cliona Byrne embarked on some energetic gap-filling. Shane Farrell sought out some of the rarer weeds and other specialities. Records were extracted from specialist surveys, mainly commissioned by the National Parks and Wildlife Service. By the end of 2019, we had far exceeded my best hopes of what I had thought would be possible. Here are some provisional statistics that demonstrate how well we have done.

Total No. pre-2000 records 9382 (36.3%) (including some duplicates)

Total No. post-2000 records 16468 (63.7%)

No. records uploaded to DDb by end 2015 8187

No. records uploaded to DDb in 2016-2019 15622

Proportion of records at tetrad level or better, pre-2000 <10%

Ditto, post-2000 >95%

Mean No. taxa recorded per hectad* post-2000

420 (Irish min. target 250)

Mean re-recording % (of all taxa found in hectad*)

79.4% (Irish min. target 65%)

It would be misleading to dismiss the efforts of earlier generation botanists as paltry. They were working to different norms, focussing more on semi-natural habitats and native species, and for the most part without the tremendous benefits of computerised databases and GPS. Louth is still by no means one of the best recorded VCs in Ireland. Nonetheless, it must surely count as one of the most improved. We have roughly trebled the total number of plant records, and most of that has been achieved in the last 4 years. The records are much more precisely located than before, most of the post-2000 ones being at monad level, with many of the more interesting at 6- or 8-figure level GPS readings. Based on what I can find in the DDb, 231 "new" taxa have been recorded in Louth since 2000, 173 of them in the period 2016 to 2019.

These figures probably overestimate the number of truly new taxa that have been found. Some are based on questionable identifications and need checking. A few may be spurious in that they are of higher level taxa which embrace lower ones listed separately. There may also be earlier records of a few more that, for whatever reason, have not yet been entered onto the DDb. For example, there is a typescript Flora of Louth at the Botanic Garden in Glasnevin which I have seen but not searched thoroughly for unharvested records. One candidate might be the Lesser Twayblade, *Neottia cordata*, which was recorded in four different sites in the Cooleys in 2000-2019

and is probably present wherever its “Sphagnum-under-heather” habitat occurs on hill ground; it seems unlikely that it had never been seen before 2000, even though there are no records in the DDb.

My estimate of the number of genuinely new taxa is 200. The majority are adventives (e.g. Bilbao Fleabane, *Erigeron floribundus*), planted species (e.g. Large-leaved Lime *Tilia platyphyllos*), microspecies (e.g. 3 Dandelions, *Taraxacum* spp.), or hybrids (e.g. *Carex otrubae x remota* = *C. pseudoaxillaris*). Fewer than ten appear to be native full species, and among these are three Stoneworts (Charophytes).

By way of contrast, it is worth looking at those taxa which were recorded before 2000 and not since. There are 76 of them, including 9 Brambles (*Rubus* spp.), 5 Hawkweeds (*Hieracium* spp.), and 6 hybrids. At least half of the rest are native species. So it appears that natives are much more strongly represented among the missing than among the newly found. Not surprising, perhaps, but disappointing all the same.

For my part, I have really enjoyed botanising in new territory and especially on the coast – which is all but absent from Armagh. In the right conditions, the views northwards along the coast across Dundalk Bay or Carlingford Lough are simply gorgeous. The coast has many species I have seen rarely if ever before in the wild, among them Yellow-horned Poppy (*Glaucium flavum*), Sea Wormwood (*Artemisia maritima*), and Sea-kale (*Crambe maritima* – a plant which I grow in my vegetable garden). There are parts of Louth where arable farming predominates, “keep out” notices are legion, wetlands are very scarce and finding anything resembling semi-natural vegetation is not easy, but the compensation here is the presence of a fascinating weed flora. Most pleasing of all, however, has been the way in which so many others have risen to the challenge of bringing botany in the vice-county into the 21st century. To illustrate this, there was one instance when I really thought I had set a challenge too far.

On 23rd December 2019, I realised that we still had one hectad that had obdurately refused all attempts to raise it above the 70% re-recording threshold and we had 8 mid-winter days in which to do it. I was about to go away for a week over Christmas. Feeling rather guilty, I suggested to Cliona and Shane that they work off their Christmas dinners by taking a day out to find at least 8 more taxa. They went, they did it, and they found taxa to spare. With botanists prepared to rise to a challenge like that, Co. Louth really is looking up botanically.

I am expecting to complete the validation of records, but after that will withdraw from any coordinating role in Co. Louth. All being well, Cliona and Kate will be taking over as joint VCRs during the course of 2020. I hope they find it a rewarding a role, and that others will continue to send in records and support them in any way they can. Contrary to my first impressions, there are lots of exciting plants out there, and maybe even some interesting old records by Robert Lloyd Praeger and Donal Synnott to re-discover.

**based on the 15 hectads with at least 15 monads of land in H31; the data include records in other VCs which share the hectad.*

Further additions to the *Taraxacum* Wigg. flora of Co. Meath (H22) 2018 & 2019, including the holotype of *T. elegantifrons* A.J. Richards.

Margaret Norton, *Tinode*, Manor Kilbride, Blessington, Co. Wicklow

Additions to the *Taraxacum* flora of Co. Meath (H22) recorded during 2018 have been previously reported (Norton 2019). Three more taxa, which were not included at that time, have since been described as new species (Richards 2019). Thus, it is now possible to add these to the *Taraxacum* checklist for H22, namely: *T. atrocollinum* A.J. Richards, *T. chlorofrugale* P. Oosterv. ex A.J. Richards and *T. elegantifrons* A.J. Richards, the holotype of the latter collected in Co. Meath. Other additional species from 2018 listed below include *T. richardsianum* C.C. Haw. and *T. hepaticum* Rail., both new to Ireland. Fieldwork by MN during 2019 revealed a further twenty-three species of *Taraxacum* hitherto unrecorded from Co. Meath, including the first record for Ireland of *T. sundebergii* Dahlst. Also new to Ireland was *T. pseudomarklundii* Soest, a species previously only recorded from north-west Spain, south-west France and more recently South Devon (Day and Richards 2020).

The following account gives details of the first known record within H22 for each species listed. Additional details are given for *T. elegantifrons*. All specimens were determined by A.J. Richards 2018/2019 and will be deposited in DBN. Nomenclature for *T. pseudomarklundii* follows Soest (1954). Nomenclature for other species follows Dudman *et al.* (2006) or, in the case of more recently described species, follows Richards (2019). Species are listed alphabetically within each section.

Section *Erythrosperma*

T. proximum (Dahlst.) Raunk.; Carrickawaddy, c.2km NE of Dromone (N5775), hillock in sheep-grazed pasture; 4 April 2019.

T. rubicundum (Dahlst.) Dahlst.; Lady's Finger, Mornington (O1576), coastal sand-dunes; 2 May 2019.

Section *Naevoza*

T. richardsianum C.C. Haw.; Lough Doo, c.7.5km SW of Oldcastle (N5174), in rough pasture at N end of lough; 19 May 2018. New to Ireland

Section *Celtica*

T. atrocollinum A.J. Richards; South Bull, Mornington (O1575), coastal sand-dunes; 5 April 2018. New to Ireland.

T. britannicum Dahlst.; Blackcut, c.8km SE of Trim (N8651), mossy roadside bank on Trim esker; 1 April 2019.

T. chlorofrugale P. Oosterv. ex A.J. Richards; Ballyhoe Lough, c.7km NW of Drumcondra (N8495), grassland adjacent to lough; 7 May 2018.

T. elegantifrons A.J. Richards; Occurring in both coastal sand-dunes and on light calcareous soils inland including several sites within the Trim esker area. New to Ireland.

Holotype: Laytown (O1671), low coastal sand-dunes on shingle; collected by MN during joint DNFC and BSBI meeting led by Tim Rich; 5 May 2018; **DBN101893**. First record: South Bull, Mornington (O1575), coastal sand-dunes; 5 April 2018. Additional records: Blackcut, c.8km SE of Trim (N8651), roadside bank on Trim esker; 14 May 2018 and 1 April 2019. Slieve na Calliagh, c.4km SE of Oldcastle (N5877), on vertical side of heavily vegetated drystone retaining-wall; 19 May 2018. Galtrim, c.7.5km SE of Trim (N8652), on mound of glacial material located within the Trim esker area; 1 April 2019. Collegeland, c.9.5km SE of Trim (N8750), trackway on NE side of quarry-lake located within Trim esker area; 1 April 2019. Lady's Finger, Mornington (O1576), an isolated plant on vertical bank of trackway through coastal sand-dunes; 2 May 2019.

T. excellens Dahlst.; Ginnets Little, c.7km SE of Trim (N8350), mossy calcareous roadside embankment; 1 April 2019.

T. hesperium C.C. Haw.; graveyard adjacent to St. Joseph's school, Kilmessan (N8857), grass verge at kerb of grave-plot; 11 March 2019.

T. landmarkii Dahlst.; Commons, Duleek (O0469), wet fen grassland; 2 May 2019.

Section *Hamata*

T. hamatum Hagend., Soest & Zevenb.; Industrial Estate, Dunshaughlin (N9751), grass verge; 11 March 2019.

T. pseudomarklundii Soest; Kilmessan (N8857), low roadside bank topped by hedging on outskirts of village; 11 March 2019. New to Ireland.

T. spiculatum M.P. Christ.; Carrickawaddy, c.2km NE of Dromone (N5775), mossy hillock in sheep-grazed pasture; 4 April 2019.

Section *Ruderalia*

T. acutifidum M.P. Christ.; Carrickdexter, c.3km SW of Slane (N9373), on rock outcrop by roadside; 27 March 2019.

- T. acutifrons* Markl.; Kill Beg, c.3.5km W of Summerhill (N8048), rural roadside verge; 1 April 2019.
- T. aequisectum* M.P. Christ.; graveyard adjacent to St. Joseph's school, Kilmessan (N8857), gravel of grave-plot; 11 March 2019.
- T. anceps* H. Øllg. *nom. nud.*; Clondoogan, c.2km W of Summerhill (N8248), sloping verge at base of hedgerow in rural cul-de-sac; 1 April 2019.
- T. coartatum* G.E. Haglund; Trim, near Post Office (N7956), rank grassland; 11 March 2019.
- T. hepaticum* Rail., Millbrook, c.2.5km S of Oldcastle (N5577), rock outcrop by roadside SE of disused mill; 19 May 2018. New to Ireland
- T. insigne* Ekman ex M.P. Christ. & Wiinst.; Carrickdexter, c.3km SW of Slane (N9373), on rock outcrop by roadside; 27 March 2019.
- T. lacerifolium* G.E. Haglund; Wicker's Cross Roads, c.0.8km S of Stackallan (N9172), base of roadside bank; 27 March 2019.
- T. latisectum* H. Lindb.; Sillery's Bridge, c.4km N of Nobber (N8390), forest trackway; 23 May 2018.
- T. lepidum* M.P. Christ.; Industrial Estate, Dunshaughlin (N9751), grass verge; 11 March 2019.
- T. lunare* M.P. Christ.; Carrickdexter, c.3km SW of Slane (N9373), on rock outcrop by roadside; 27 March 2019.
- T. ochrochlorum* G.E. Haglund ex Rail.; Broadboyne Bridge, c.5km SW of Slane (N9171), rural roadside bank; 27 March 2019.
- T. pannulatiforme* Dahlst.; Clondoogan, c.2km W of Summerhill (N8248), sloped verge at base of hedgerow in rural cul-de-sac; 1 April 2019.
- T. pannulatum* Dahlst.; Millbrook, c.2.5km S of Oldcastle (N5478), gravel at base of wall by disused mill; 4 April 2019.

T. sundebergii Dahlst.; Carrickdexter, c.3km SW of Slane (N9373), single large plant amongst tall grass at base of rock outcrop by roadside; 27 March 2019. New to Ireland

T. undulatiflorum M.P. Christ.; Industrial Estate, Dunshaughlin (N9751), grass verge; 11 March 2019.

Acknowledgements:

A huge debt of gratitude is due to John Richards for determination of *Taraxacum* specimens. Sincere thanks also to members of the Dublin Naturalists' Field Club for advice on the collection and curating of *Taraxacum* specimens in addition to editing of script, and to Colin Kelleher (Keeper of the National Herbarium) for permission to include the photograph (see page 53) of the holotype of *T. elegantifrons*.

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Vice-county reports

Interesting plants in Co. Waterford (H6), 2019

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At the beginning of 2019, I informed the BSBI Ireland Officer that I intended standing down as the Vice-county recorder for Waterford. This is my last report for the county and, what a year it was, with some really good discoveries!

Andrew Malcolm contacted me to ask about a marsh-orchid Ann Trimble had found in the Knockmealdown Mountains, at Knockaungarriff (S0554705557). By chance, I was heading over to Lismore the following day, 23 May. The marsh-orchid Andrew showed me, was *Dactylorhiza incarnata* subsp. *pulchella* (Early Marsh-orchid), a new subspecies for the hectad. An even better find at the same

site, was *Lycopodiella inundata* (Marsh Clubmoss), as there were hundreds of plants present, this being the largest population I have ever seen of this clubmoss. *L. inundata* is a new native species for the county, its nearest extant sites in Ireland being in west Cork and Co. Galway. Earlier that day, I had called into Stradbally Wood (X3597) where I found *Reynoutria sachalinensis* (Giant Knotweed), the first county record away from Waterford City. Somebody had been dumping in the wood as there were many other introduced species, including *Verbena bonariensis* (Argentinian Vervain), the 3rd county record. In an arable crop at Durrow (X33369855), *Alopecurus myosuroides* (Black-grass) was an abundant weed; the 2nd county record.

Reading an article on *Senecio minimus* (Toothed Fireweed) in *BSBI News* (FitzGerald 2019), I realised a plant I had seen along the Waterford Greenway, in June 2018, and which I had never returned to identify, must be this. On 11 July, I was able to check on the site at Greenan (S44840781); then I sent photos to Alexis FitzGerald who agreed it was *S. minimus*.

23 July took me to Tramore Nature Park (S594013) to do some survey work. This is the old dump, now converted into an amenity area for the public. Here I had a number of large patches of *Ervum tetraspermum* (Smooth Tare), the 3rd record for the county. Also new for the hectad were *Ophrys apifera* (Bee Orchid) and *Rumex x schulzei* (*R. crispus* (Curled Dock) x *R. conglomeratus* (Clustered Dock)).

I made two visits to the county in September. The first, on 8th to Dunmore East (S6800), with my brother Duncan and his girlfriend sightseeing. While walking around this picturesque village, I found *Eryngium planum* (Blue Eryngo), self-sown into a pavement crack: a new county record. On 12th I met up with Andrew Malcolm and Megan Morris to look at some *Sorbus* that Andrew had found at Poulfadda. The first tree we looked at, was *S. hibernica* (Irish Whitebeam) on a ditch-bank margining a wood (S05590250); the second tree was *S. aria* (Common Whitebeam) self-sown in a ditch bordering a track (S06170364), and the third was *Sorbus x liljeforsii* (Liljefors' Whitebeam) found in a wood (S05940343). All three are new hectad records, the latter being new for the county. Photos of Liljefors' Whitebeam were sent to Tim Rich to see if he agreed, as at first Andrew thought it might be *Sorbus x thuringiaca* (Bastard Mountain Ash). What is interesting about this site, is that Andrew has known the large tree of Liljefors' Whitebeam here for about 30 years. While looking at the tree, we found 3 small trees in the wood, which I take to be offspring. As Liljefors' Whitebeam is a hybrid, it isn't supposed to produce any fertile seed. These trees were so small compared to the large tree, they must be progeny and some of the berries did have seeds.

I had seen a photo of *Allium sphaerocephalon* (Round-headed Leek), found by Kevin Halley in July, on waste ground at Knockboy (S64100918), and I went to take a look in October, as this was a new species for the county. As I was going to

Dunmore East on 20 November, I decided to see how many of the 15 species I had seen in the hectad X69, back in 1997, could I refind and turn into post 2000 records. I only managed to relocate 5 of them. *Lycium barbarum* (Duke of Argyll's Teaplant) and *Petroselinum crispum* (Garden Parsley) I found easily, as I knew where they were on the sea-cliffs at Dunmore East. I looked in a wood to find *Quercus robur* (Pedunculate Oak). On a heap of soil, was flowering *Aethusa cynapium* (Fool's Parsley) and, following a wooded stream, I managed a single clump of *Carex remota* (Remote Sedge). To my surprise, two new species were added to the hectad: *Borago officinalis* (Borage) on a heap of dumped soil and, plentiful along a roadside, was *Polypogon viridis* (Water Bent). To finish the day, off in the adjoining hectad, there were lots of *Hedera algeriensis* (Algerian Ivy) along a hedgebank at Dunmore East (S68810020), new for the hectad, and the 2nd county site. I did one last good deed as vice-county recorder for Waterford, and checked out a site for *Saxifraga spathularis* (St Patrick's-cabbage) found by Alan Walshe on rocks along the River Mahon in 2018, as this species was new for the hectad, and 6 km east of any other known site in the county. The only information I had with the record was a 10-figure grid reference, and the words 'rock face'. Arriving at the location, there proved to be *no* rock face, just a small wooded slope! I could see in the distance that there was a very steep wooded slope on the other side of the river, which, on close inspection, revealed lots of large rocks. The dilemma then was, should I do a long walk to get to the other side, or should I wade across the river! On choosing the latter option, I found what looked like the shallowest point to cross, and picked up a large branch to aid my balance. However, the current proved stronger than I had anticipated, and the depth of the water surprised me as it came up to my waist. Climbing up the bank, I was rewarded with my prize: lots of patches of St Patrick's-cabbage scattered over the rocks. The correct grid reference (S42200167) put the St Patrick's-cabbage in the adjoining monad. To finish off the morning I headed for the churchyard at Newtown (S4107), where I believed my brother Ian had found *Veronica polita* (Grey Field-speedwell) back in 1997. In the event, there proved to be lots of the Grey Field-speedwell along the gravel paths, and it was a great feeling to think I had updated another hectad record to post 2000 for 'Atlas 2020'.

A few other records were reported to me, including a visit to the Waterford side of the River Suir, upstream of Knocklofty Bridge (S1420), by Rosaleen Fitzgerald and Chris Preston, as part of the BSBI Aquatic Plant Project. Here, they had *Potamogeton x nitens* (*P. gramineus* (Various-leaved Pondweed) x *P. perfoliatus* (Perfoliate Pondweed)), the first county record since 1899, growing with *Potamogeton x angustifolius* (*P. lucens* (Shining Pondweed) x *P. gramineus*). Paula O'Meara visited the county a number of times, adding three new species: *Rudbeckia hirta* (Black-eyed-Susan), self-sown at base of footpath kerb in St John's Park, Waterford City (S6110); *Weigela florida* (Weigelia) from a field hedgerow at

Knockeen (S57660781) and *Callistemon viminalis* (Weeping Bottlebrush) self-sown on the side of a high wall along Upper Yellow Road, Waterford City (S59411217).

Signing out!

Reference:

FitzGerald, A. (2019). *Senecio minimus* Poir. (Toothed Fireweed) arrives in Co. Dublin (v.c. H21). *BSBI News* **137**: 58-59.

A report on fieldwork in Limerick (H8), 2019

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With 2019 being the final year of fieldwork for *Atlas 2020*, the main aims were to update records of rarer species not refound in Limerick since 2000 and to fill more gaps across the county, with the invaluable help of our friends and colleagues Mike Quirke, Paul Murphy and Tom Harrington. Julian Reynolds and I also recorded in Wicklow in cooperation with Catriona Brady and Pauline Hodson for a second year. A summary of the more interesting species found in Limerick, as well as a few records kindly passed on by others, is given below.

In the spring Julian and I visited Knockderc (19 April, R6537, R6538) to update the 1997 record of *Erophila glabrescens* (Glabrous Whitlowgrass). Specimens were collected from patches of *Erophila* in open ground on the track to the quarry and on the quarry floor, and determined by Tim Rich as that species, which is not nearly as common as *E. verna* s.s. (Common Whitlowgrass) in Ireland. A bonus there was to see abundant flowering native *Vicia sativa* subsp. *nigra* (Common Vetch) on the roadside bank, in open ground, on outcrop (volcanic) and in the quarry itself – and this subspecies was more striking too than ever seen before over shale on Foynes Island (20 April, R2452) (see photo, p. 54). At Knockderc we found both *Aphanes australis* (Slender Parsley-piert) and *A. arvensis* s.s. (Parsley-piert) on gravel in the abandoned quarry (R6538), confirmed by Mike Wilcox. He also determined both species from limestone grassland with outcrop at Lough Gur (19 April, R6441). On the way to Foynes, *Viola reichenbachiana* (Early Dog-violet) was checked again in woodland over limestone at Cahirguillamore and Rockbarton (R6140, R6139), with variously coloured *Primula vulgaris* (Primrose), known there since 1999.

On 27 April I joined a meeting led by Rob Lynch through semi-natural woodland with *Quercus petraea* (Sessile Oak), *Q. robur* (Pedunculate Oak) and *Luzula sylvatica* (Great Wood-rush) along the Keale River (R6917), to update records of spring-flowering species such as *Anemone nemorosa* (Wood Anemone),

Hyacinthoides non-scripta (Bluebell) and *Euphorbia hyberna* (Irish Spurge), but *Luzula pilosa* (Hairy Wood-rush) was not seen.

Checking aquatics at Worldsend north of Castleconnell (24 June, R6563) resulted in an update for the River Shannon of *Potamogeton x angustifolius* (Long-leaved Pondweed; *P. lucens* x *P. gramineus*, confirmed by Chris Preston), with *P. lucens* (Shining Pondweed), *P. perfoliatus* (Perfoliate Pondweed), *P. crispus* (Curled Pondweed), *Myriophyllum spicatum* (Spiked Water-milfoil), *Elodea nuttallii* (Nuttall's Waterweed) and *Callitriche obtusangula* (Blunt-fruited Water-starwort) in the same area. Looking over the river wall, a nice surprise was to see *Alisma lanceolatum* (Narrow-leaved Water-plantain), with its distinctive leaves and coming into flower, new to the Limerick flora and known further up the Shannon. The nearby ungrazed riverside meadow at Lacka (R6664) contained many plants of *Carex pallescens* (Pale Sedge) in fruit, but no *Sisyrinchium bermudiana* (Blue-eyed-grass) this time.

Elusive *Neottia nidus-avis* (Bird's-nest Orchid) still occurs in small numbers in planted woodland on Foynes Island (30 June, R2552), previously seen there in 1983 and 2005. Because *Eriophorum latifolium* (Broad-leaved Cottongrass) had been found in a fen at Routagh near Limerick City (R5952) in 2017 and initially recorded as *E. angustifolium* (Common Cottongrass), it seemed a good idea to check a record of the latter species in the west Limerick fen at Ellaha (R2848) – and one plant of definite *E. angustifolium* was found there on 2 July. This is a good site with *Cladium mariscus* (Great Fen-sedge), *Schoenus nigricans* (Black Bog-rush) and associated species, but less pristine than formerly due to some clearance and drainage works. At a contrasting habitat the same day, a dense patch of *Anisantha diandra* (Great Brome) was noted on the gravel roadside at Mount Trenchard west of Foynes (R2151), otherwise only found at Foynes Port.

On 22 July, the aim at Lough Gur (R6441) was to search for *Potamogeton friesii* (Flat-stalked Pondweed), which we soon found to be abundant at the lake edge, with its distinctive turions, and growing with *Ceratophyllum demersum* (Rigid Hornwort) and *Lemna trisulca* (Ivy-leaved Duckweed) on the north-east side of the lake. While collecting aquatics for a Dublin Naturalists' Field Club workshop with Chris Preston, Julian and I came across *Scirpus sylvaticus* (Wood Club-rush) in tall vegetation among *Phalaris arundinacea* (Reed Canary-grass), *Elymus repens* (Common Couch) and *Impatiens glandulifera* (Himalayan Balsam) bordering the River Shannon near Plassey Bridge (23 July, R6058). Later that day we revisited Worldsend (R6564) where *Potamogeton friesii* was among other aquatics grabbed out of the Shannon. By now there were immature fruits on the *Alisma lanceolatum* (Narrow-leaved Water-plantain; R6563, R6564), with *Butomus umbellatus* (Flowering-rush).

In mid-September after returning from a family visit to Vancouver it was time to check two Shannon Estuary sites for *Salicornia* (Glasswort) species, fresh

specimens then determined by Paul Green. *S. europaea* s.s. (Common Glasswort) still occurs by Poulaweala Creek (15 Sept, R2952), growing with *S. dolichostachya* (Long-spiked Glasswort), new to Limerick, but *S. fragilis* (Yellow Glasswort) was not refound. On to a saltmarsh near Long Rock east of Glin (R1549), *S. ramosissima* (Purple Glasswort) was the second new county record of the day, but *S. disarticulata* (One-flowered Glasswort) has not been refound there since 1997. *Apium graveolens* (Wild Celery), at a new Limerick site, grew by a stream at the top of the shore with *Carex riparia* (Greater Pond-sedge) and *Ranunculus sceleratus* (Celery-leaved Buttercup). The following day we got *Rosa agrestis* (Small-leaved Sweet-briar) on Accrour Bridge north of Dromcolliher (16 Sept, R3825), with fruiting *Cotoneaster integrifolius* (Entire-leaved Cotoneaster).

Gaps were filled on a damp day in north-east Limerick, with *Rosa sherardii* (Sherard's Downy-rose) on one nice stretch of roadside east of Gowlagh Bridge (25 Sept, R8657). More recording on 20 October north of Abbeyfeale included finding single plants of *Achillea ptarmica* (Sneezewort; R1433, R0935) and *Hypericum humifusum* (Trailing St John's-wort) on a roadside bank (R1034), neither common in the county. Unexpectedly, we came across a plant of *Erigeron floribundus* (Bilbao's Fleabane) on the weedy edge of a side road south-east of Rathkeale (21 Oct, R3838), this fairly recent introduction now well established in Limerick City as it is in some other Irish towns.

As in previous years, our joint outings with Mike, Paul and Tom were as enjoyable and botanically rewarding as ever. In 1998, Mike and I had explored parts of Cooga Bog west of Doon where we found *Carex canescens* (White Sedge) at two sites – and there had been no Limerick records for this species since 2000. On 9 July, Julian and I joined Mike and Paul to revisit the bog (R8050), but found that access was now difficult and that the raised bog itself was drier and quite overgrown. However, there were still wetter patches with some *Vaccinium oxycoccos* (Cranberry), *Potamogeton polygonifolius* (Bog Pondweed), *Drosera rotundifolia* (Round-leaved Sundew), *Comarum palustre* (Marsh Cinquefoil) etc. On our way out through bordering *Betula pubescens* (Downy Birch), *Salix cinerea* (Grey Willow) and *Rubus fruticosus* agg. (Bramble) at R7950, Julian spotted a couple of plants of the desired sedge *C. canescens* in *Sphagnum*, with *Succisa pratensis* (Devil's-bit Scabious), *Epilobium palustre* (Marsh Willowherb) and stunted *Equisetum fluviatile* (Water Horsetail) – so just surviving in that marginal habitat.

Our next meeting together on 23 July included Tom and we went to Clooncunna North by the Tipperary road (R6453) where the three of them had recorded some 140 species in November 2018 and where I thought a summer visit would be worthwhile. The large site consisted of former gravel workings, with swamp, extensive open water and wide channels, a small area of bog with *Calluna vulgaris* (Heather) and *Erica tetralix* (Cross-leaved Heath), gravel tracks and

weedy ground with dumped soil. *Salix cinerea* (Grey Willow), *S. alba* (White Willow) and a *Populus* (Poplar) species bordered the wetter areas with *Typha latifolia* (Bulrush), *Lycopus europaeus* (Gypsywort), also *Scutellaria galericulata* (Skullcap) etc. There were dense stands of *Schoenoplectus lacustris* (Common Club-rush) in the largest water-body, with *Potamogeton pusillus* (Lesser Pondweed) at its edge. Using a grab, we pulled out another fine-leaved *Potamogeton*, *P. berchtoldii* (Small Pondweed), as well as *Eleogiton fluitans* (Floating Club-rush) in flower from one of the channels – the only post-2000 record for the latter species in the county. Weedy species, including *Epilobium tetragonum* (Square-stalked Willowherb) with its characteristic long fruits and *Fallopia convolvulus* (Black-bindweed) added to the tally of species at that site, nearly 200 recorded between the two visits.

Our final joint outing was with Mike and Paul on 29 October to Tooraree Lower, south-west of Ballyhahill (R1642), where the large expanse of cut-over bog was dominated by bleached *Molina caerulea* (Purple Moor-grass), with occasional *Myrica gale* (Bog-myrtle) and *Osmunda regalis* (Royal Fern). Wetter areas had *Erica tetralix* (Cross-leaved Heath) and *Narthecium ossifragum* (Bog Asphodel), with *Rhynchospora alba* (White Beak-sedge) in one place, and there were dense patches of *Utricularia minor* (Lesser Bladderwort) with turions in peat cuttings. Added variety came from the gravelled road, e.g. *Helminthotheca echioides* (Bristly Oxtongue), and open disturbed ground with *Spergula arvensis* (Corn Spurrey), *Galeopsis tetrahit* s.s. (Common Hemp-nettle) etc.

Making an early start in 2019, Mike reported a new site for *Andromeda polifolia* (Bog-rosemary) on a north-west slope of the Slievefelim Mountains (2 Jan, R7758). Then on 15 January, responding to the proposed re-opening of the railway to Foynes, Mike, Paul and Tom recorded at and near Robertstown Creek. They found about two dozen plants of the rare arable weed *Euphorbia exigua* (Dwarf Spurge) on a sandy bank by the disused railway (R2850), where it had last been seen in 2005. Another very good find was *Lepidium latifolium* (Dittander) at Ballynacarriga near the mouth of the River Maigne (19 July, R4656), growing with *Tussilago farfara* (Colt's-foot) and *Sonchus arvensis* (Perennial Sow-thistle) just above high tide level at the base of the embankment. It seems that the only previous records were from waste ground in Limerick City in the early 1900s (Reynolds 2013). A wet site they found near Mungret with *Juncus subnodulosus* (Blunt-flowered Rush), *Cirsium dissectum* (Meadow Thistle), *Hydrocotyle vulgaris* (Marsh Pennywort) and *Lysimachia tenella* (Bog Pimpernel; 24 Oct, R5252), not far from Loughmore turlough, will be worth a visit next summer.

Mike, Paul and Tom also recorded a number of casuals and garden escapes or relicts of cultivation, such as *Erodium moschatum* (Musk Stork's-bill) at Kilmallock (8 Aug, R6028), *Rubus tricolor* (Chinese Bramble) at Kilfinnane (8 Aug, R6823), *Rhus typhina* (Stag's-horn Sumach) at Knockainy (4 Sept, R6835),

Campanula portenschlagiana (Adria Bellflower), *Cerastium tomentosum* (Snow-in-summer) and *Echium candicans* (Pride of Madeira), the last self-sown not too far from parent plants, at Bruree (11 Sept, R5430). Apparently *E. candicans* is sold by a nursery in Co. Cork, and this species may yet escape into ‘the wild’. Paul and Tom spotted two well-grown *Cannabis sativa* (Hemp) plants among Brambles and Bracken by the abandoned railway, now a Greenway, north of Inchabaun Bridge (4 Oct, R2029).

Paula O’Meara told me about finding *Cardamine corymbosa* (New Zealand Bitter-cress) coming into flower between the paving slabs of Steamboat Quay in Limerick City (1 March, R5656), the first Limerick record for this species which has probably been introduced into Ireland with pot plants or other horticultural material; John Fogarty gave me an update for *Dactylorhiza kerryensis* (Irish Marsh-orchid) and the hybrid *D. fuchsii* x *D. kerryensis* at their known site near Pallas Grean (29 May, R7745); and Oonagh Duggan found *Solidago gigantea* (Early Goldenrod) on the family farm south of Croom (31 Aug, R5038) – Rory Hodd confirmed the identification for her, but it is not known how it got there. Caroline Plant of the Environmental Protection Agency sent me records from their Limerick surveys, providing useful updates for *Littorella uniflora* (Shoreweed) at Lough Gur (2015, R6440) and for *Potamogeton friesii* (Flat-stalked Pondweed; 2009, 2015, R6441) in the same lake.

Systematic fieldwork for *Atlas 2020* since the publication of the Limerick *Flora* (2013) has undoubtedly led to a better understanding of species, their habitats and distribution across the county. Vice-county recorders now are expected to validate all records from their county in the BSBI database (DDb), which I started to do in late 2019. It is quite a straightforward process to validate one’s own records or those of known recorders. However, it is not at all easy and very time-consuming to assess records from external datasets, which have bypassed the vice-county recorder protocol. These datasets include the work of paid consultants as well as ‘citizen science’ records via the National Biodiversity Data Centre, the last often of dubious quality. Another problem is that many of my own records, already entered into the DDb by me, have also been extracted from my reports and my *Flora* by others - not always accurately - and transferred to the DDb. To date, of all the records recently added to the DDb from other sources, only a few have provided useful new information. From further checking of records in the DDb, what has become obvious is the lack of or misinterpretation of correct first and historical Limerick records, so my next task must be to compile such records carefully for the database.

My best thanks for help with fieldwork in 2019 go again to my husband Julian and to our friends Mike Quirke, Paul Murphy and Tom Harrington. I would also like to thank those who determined specimens, passed on their records and

dealt with my queries. There is still plenty of interesting botanical work to be done in Limerick.

References:

Reynolds, S.C.P. (2013). *Flora of County Limerick*. National Botanic Gardens, Glasnevin, Dublin.

Recording in Wexford (H12), 2019

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2019 proved to be another fantastic year for plant recording in Wexford. I had expected it to slow down, as we were heading for the close of recording for *Atlas 2020*, but the opposite proved to be the case, with over 60,000 records collected. We also managed to visit the last few monads with no records. In all, there are 2,564 monads with records. If the number of species were shared out evenly between the monads, the average would be 167, this is an increase of 9 compared with 2018.

There have been some exceptional refinds of native species that were thought extinct in the county. *Matthiola sinuata* (Sea Stock) (see photo, p. 35) had been regarded as extinct in Ireland since 1925, yet was *refound* on the east coast at Morriscastle (T1942) in April! On the south coast, *Cytisus scoparius* subsp. *maritimus* (Prostrate Broom) was refound on Baginbun Head (S8004) in large numbers. This distinctive subspecies hugs the ground, rather than growing upright; it was last recorded here in 1882 by H.C. Hart, and the current record is the first for the county since the 1960s. Also on the south coast, *Lathyrus japonicus* (Sea Pea) was found on a shingle beach on the Hook (S7500), the 2nd county record, and first since 1994. It wasn't just native species that we had luck with, as, in late December, *Angelica archangelica* (Garden Angelica) was refound on the bank of the River Barrow at New Ross (S7228), this garden escape last being reported here in 1994 by Ro FitzGerald.

The number of new species and hybrids added to the county still continues to surprise me, with 33 in 2019. Alexis Fitzgerald collected a number of dandelions, 9 of which had *not* been recorded in the county before: *Taraxacum aesculosum*, *T. atrocollinum*, *T. degelii*, *T. elegantifrons*, *T. exacutum*, *T. hibernicola*, *T. landmarkii*, *T. pseudohamatum* and *T. scoticum* – all, I take to be native. The only other natives are two hybrids found by me: a large clump of *Viola x bavarica* (Early x Common Dog-violet) on a road bank with both parents at Ballinvunna (T1845), while a wood at Garrylough (T0729) yielded *Geum x intermedium* (Water x Wood Avens), cohabiting with both parents.

Zoë Devlin had *Spinacia oleracea* (Spinach) appear below the birdfeeder in the garden at Gibletstown (S9011), determined by Matthew Berry. All other non-



Holotype of *Taraxacum elegantifrons*. Photo M. Norton © 2019 (p. 41)



Native *Vicia sativa* subsp. *nigra* (Common Vetch) on Foynes Island, looking towards the port. Photo S. Reynolds © 2019 (p. 47).

native new species were found either by me or Paula O'Meara, or by us both while recording together.

New species found by me and Paula are: *Phedimus stoloniferus* (Lesser Caucasian-stonecrop) well established on top of, and on the sides of, high walls within the grounds of Monksgrange (S8241), confirmed by Ray Stephenson, and a photo was published in the Sedum Society Newsletter (Stephenson, 2019). Also from a wall at Monksgrange was a self-sown bush of *Berberis wilsoniae* (Mrs Wilson's Barberry), confirmed by Mark Duffell.

Paula found 6 other new species, in the order they were found throughout the year: *Cota tinctoria* (Yellow Chamomile) self-sown through paving at Warren Middle (T0941); *Osteospermum jucundum* (*Osteospermum*) growing through gravel at quarry, Newtown Lower (T1870); *Phlomis russeliana* (Turkish Sage) in field hedge, Ballykilty Upper (T1971); *Polystichum polyblepharum* (Korean Tasselfern) single plant self-sown at base of sheltered wall gutter, Monksgrange (S8241); *Coriandrum sativum* (Coriander) two on side of weedy lane to beach, Kilpatrick (T2465); *Erythranthe x smithii* (*E. nummularius* x *E. variegatus*) one on gravel between graves at Monageer (T0242).

I added 14 new to the county list, in the order they were found: *Symphytum grandiflorum* (Creeping Comfrey) scattered patches along track, Ballinapark (S9257); *Malva x clementii* (Garden Tree-mallow) bush surviving where dumped by Whites Bridge (S9941); *Cotoneaster frigidus* (Tree Cotoneaster) one self-sown on ruin, Coolbawn (S8337); *Hyacinthoides italica* (Italian Bluebell) small patch in wood near ruin, Dunganstown (S6822); *Allium moly* (Yellow Garlic) patch on field bank by ruin, Watch House Village (S9160); *Cardamine occulta* (Cryptic Bitter-cress) weed at Drinagh Garden Centre (T0416), confirmed by Tim Rich; *Hydrocotyle ranunculoides* (Floating Pennywort) covering half of man-made pond on dune, Ballyduboy (T1839); *Secale cereale* (Rye) roadside at Moneyhore (S9138); *Campanula ramosissima* (Ketun Bellflower) one on side of track, Clonjordan (S9246), confirmed by Matthew Berry: *Limonium sinuatum* (Statice) one in field gateway, Ramsgrange (S7410); *Festuca rubra* subsp. *commutata* (Chewing's Fescue) well established on gravel areas by pond, Gorey M11 Service Station (T2167), confirmed by Arthur Copping; *Rubus laciniatus* (Cut-leaved Bramble) self-sown on side of track to field, Plattinstown (T2070); *Solanum laciniatum* (Kangaroo-apple) one on disturbed ground, Milltown (T0911) and *Nicotiana x sanderæ* (*N. alata* x *N. forgetiana*) one on disturbed ground, Milltown (T0911).

There have been much fewer records sent in by other recorders than in past years. Despite this, there have been some very good finds. *Hyoscyamus niger* (Henbane) was found on a road bank at Bannow (S8207) by Vera Roche Murphy, this being the first county record for eight years, an area where Henbane has been known since 1872, when reported by Miss Nunn. Vera's find really got botanists

excited, as the 3 plants must have been the most visited and photographed plants in the county in 2019, as I saw many pictures on social media. On a downer, somebody dug up one plant, and many seed pods were taken from the two remaining plants. Another surprise find was *Geranium purpureum* (Little-Robin) at the train station in Wexford Town (T0422) by Zoë Devlin, this being the fourth site in the county, and first for the railway line going north, as the other sites are along the railway line from Rosslare to Ballycullane. On investigation Little-Robin was found to be by the station platform, along the fence of the public car park bordering the railway line a little north of the station, and on a heap of rubble in the car park. Frankie Tennant & Roy Watson had *Vicia lathyroides* (Spring Vetch) on the dunes at Morriscastle (T1940) in April, the fifth dune system the species has been found on in the county. They found *Geranium rotundifolium* (Round-leaved Crane's-bill) for a new hectad, on a sandy road verge at Ballyconnigar (T1332), a species which seems to be slowly spreading in the county. Frankie's *Viola reichenbachiana* (Early Dog-violet) from a hedge bank at Killane (T0616) is a new hectad record. And finally Mary Foley counted 18 *Ammi majus* (Bullwort) on a disturbed road verge at Coolcotts (T0321), the fourth county record.

Reference:

Stephenson, R. (2019). Editorial. *Sedum Society Newsletter* **131: 3**

Recording in Leitrim (H29), 2019

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What a year for Leitrim recording! Over 25,000 records collected from all corners of the county by over 15 recorders.

The best early season find was *Equisetum x trachyodon* (Mackay's Horsetail) by a roadside drain near Lough Scannell in March. This was the first record for South Leitrim. Two curiosities were *Arisarum proboscideum* (Mousetailplant) in Kinlough and *Claytonia perfoliata* (Spring Beauty) at Rossinver. Both were likely growing near where originally planted. The early months were a good time for some taxa which were under recorded in Leitrim; e.g. *Erophila verna* (Common Whitlowgrass), *Arabidopsis thaliana* (Thale Cress), *Veronica hederifolia* (Ivy-leaved Speedwell), *Veronica filiformis* (Slender Speedwell), *Viola reichenbachiana* (Early Dog-violet), the two subspecies of *Ficaria verna* (Lesser Celandine) and an abundance of the adventive *Draba muralis* (Wall Whitlowgrass) at Newtown Gore at the eastern end of the county. The only other Leitrim record for the last is an old one for Manorhamilton. A native species that has eluded Leitrim recorders since *Atlas 2000* was *Moehringia trinervia* (Three-nerved Sandwort). In May I saw a colony by a shady roadside near

Manorhamilton. Another early surprise was *Jasione montana* (Sheep's-bit) on a peat covered limestone scarp at O'Donnell's Rock. Although locally common in some parts of Ireland this species is extremely rare in Leitrim or Sligo, the only other Leitrim record being an old one in Glénade.

On May 24th I explored the lower eastern end of the Benbulbin plateau above Glencar, where there is a nice area of limestone karst near two magnificent megalithic tombs (the Aghamore tombs). The area had few recent records. Before I got there, I could see at some distance the white sheets of *Saxifraga hypnoides* (Mossy Saxifrage) in flower. With it were lots of *Sesleria caerulea* (Blue Moor-grass), *Asplenium viride* (Green Spleenwort), *Cystopteris fragilis* (Brittle Bladder-Fern), *Carex caryophylla* (Spring-sedge) and much *Polystichum lonchitis* (Holly Fern). The last has its Irish headquarters in Co. Leitrim and this is one of its lowest sites at about only 260 metres. Who says you have to climb a high steep mountain to see some nice upland species!

Early in the year Aoife Delaney (VC Co-recorder for Leitrim) started a "Leitrim Group" of people interested in recording and also drew up a calendar of meet ups from April to September. As the season advanced, more joined the group. The first outing was to the Derrycarne area near Dromod on April 6th and was attended by six people. We were treated to some nice species in the wet woodland habitat; *Lathraea squamaria* (Toothwort), *Carex strigosa* (Thin-spiked Wood-sedge) not yet in flower but spotted by Aoife; *Ranunculus auricomus* (Goldilocks Buttercup), *Cicuta virosa* (Cowbane), *Carex elata* (Tufted-sedge), *Viburnum opulus* (Guelder-rose), *Euonymus europaea* (Spindle), *Taxus baccata* (Yew), *Vinca minor* (Lesser Periwinkle) and several of the commoner spring woodland flowers. Subsequent outings always produced some surprises and nice species. In early May the group visited an area near the east side of Lough Allen and came upon a large colony of the rare grass *Bromus racemosus* (Smooth Brome) first spotted by Robert Northridge (VCR for Cavan and co-author of "Flora of Co Fermanagh") who joined us on the day. Later I saw the grass at two other sites in the general area and the records are the first for Leitrim since 1969. On May 26th I found *Carex laevigata* (Smooth-stalked Sedge) in a new hectad in south Leitrim.

On June 1st the group met at Dowra and recorded a nice mixture of habitats near the north end of Lough Allen. The habitats included rocky heath, unimproved drier grassland and wet grassland. We saw lots of the local *Cirsium dissectum* (Meadow Thistle) in flower, *Ranunculus bulbosus* (Bulbous Buttercup), *Platanthera bifolia* (Lesser Butterfly-orchid), *Lythrum portula* (Water-purslane) rare in Leitrim, 3 *Myosotis* spp. incl. the charming little *M. discolor* (Changing Forget-me-not), 3 *Glyceria* spp. incl. the local *G. declinata* (Small Sweet-grass), lots of *Cytisus scoparius* (Broom) in bloom, *Viburnum opulus* (Guelder-rose) in bloom and 16 *Carex* spp. (Sedges). The most significant sedge and find of the day was *Carex canescens* (White Sedge). It was late in the day and we brushed it off as

the much commoner *C. leporina* (Oval Sedge). However, I had my doubts and luckily our excellent photographer of the group Patricia McHugh gave me a good picture which I sent to Paul Green (VC recorder for Wexford and Waterford). Paul agreed that it was indeed *C. canescens* and sent the picture on to the *Carex* referee for confirmation. So, this was the first Leitrim record since 1988. Later in the summer I recorded the sedge in two other places in Leitrim. I had hoped to find the rare orchid *Pseudorchis albida* (Small-white Orchid) (see photo, p. 34) here or at a nearby suitable habitat. This orchid was never seen by any of the group other than me. No luck on the day and time did not allow us to look at the second site. However, Patricia McHugh and I went back there 5 days later and were treated to three spikes in prime condition at the second site.

On June 18th Patricia McHugh and I recorded on the Doora peninsula near and by Lough Boderg north of Derrycarne. I had looked at this area in April when the access road was flooded. It had few past records. The session was productive with 160 taxa seen including several uncommon species. *Carex* spp. came to the fore; *Carex pseudocyperus* (Cyperus Sedge) in three places now at its best with its broad yellow-green leaves and shaggy pendulous female spikes, *Carex otrubae* (False Fox-sedge) rare inland and *Carex pallescens* (Pale Sedge) both the last in new hectads. Other nice species were *Stellaria palustris* (Marsh Stitchwort), *Osmunda regalis* (Royal Fern), several *Salix* spp. and hybrids, *Lysimachia nummularia* (Creeping-Jenny), *Cicuta virosa* (Cowbane), *Potamogeton gramineus* (Various-leaved Pondweed), *Potamogeton x angustifolius*, *Vulpia bromoides* (Squirreltail Fescue) uncommon in Leitrim, and perhaps most significant of all *Ranunculus sceleratus* (Celery-leaved Buttercup) which had not been recorded in Leitrim since 1934! It was Patricia who spotted the few plants of this modest little taxon in a mucky field.

Later in June there was another Leitrim Group outing to Lough Allen which I missed. This time the group was joined by Rory Hodd of “Rough Crew” fame and with a good eye for spotting uncommon species. Among the finds of that day were *Carex pallescens* (Pale Sedge) and *Dryopteris carthusiana* (Narrow Buckler-fern). Both are decidedly uncommon or absent in many parts of Ireland.

June produced some other nice records: *Sisyrinchium bermudiana* (Blue-eyed-grass) in Glencar (well known in the area but only recorded once in the Leitrim part there since 2000); the first Leitrim record for *Gaultheria mucronata* (Prickly Heath) by Lough Gill; *Chaenorhinum minus* (Small Toadflax) near the railway (its typical habitat, but a new hectad site); *Trichophorum x foersteri* (Hybrid Deergrass) in a bog near Roosky and *Hypericum perforatum* (Perforate St John’s-wort). There are few Leitrim records for the last. On June 27th while visiting Sligo and Leitrim, Zoë Devlin found *Cerastium diffusum* (Sea Mouse ear) at Parkes Castle, Lough Gill. This species is rare inland and the only other Leitrim record is an old one by R.L. Praeger at Tullaghan by the coast.

On July 7th The Leitrim group met at Keeldra Lough in South Leitrim. Today we were joined by a new member of the group, Sandie McCanney. We found a good variety of aquatic and wetland species including three pondweeds: *Potamogeton crispus* (Curled Pondweed), *P. perfoliatus* (Perfoliate Pondweed) new site, and the commoner *P. natans* (Broad-leaved Pondweed). There was lots of *Littorella uniflora* (Shoreweed) in the lake with *Lycopus europaea* (Gypsywort) conspicuous on the shore. On the way from Sligo, I stopped in Carrick on Shannon and looked at some waste ground behind the well-known Landmark Hotel (well known for hosting stag and hen parties) but the patch of waste ground has produced some interesting ruderals (mostly non-native) recently. Today I spotted the grass *Polypogon viridis* (Water Bent) there; the first Leitrim record. Later in the year I found some *Matricaria chamomilla* (Scented Mayweed) in the same place; another first for Leitrim.

On July 9th Patricia and I recorded in the valley between Benbo Mountain and the Shanvaus River near Manorhamilton. Patricia was the first to spot the delicate pink flowers of *Scutellaria minor* (Lesser Skullcap) in flower. It was my first time to see it in Leitrim where it probably has its most northerly sites in Ireland. It had been recorded in this area before, but later in the summer I saw it in two other tetrads a bit to the northwest. We also saw *Holcus mollis* (Creeping Soft-grass) new site, *Elymus caninus* (Bearded Couch), lots of *Carex pallescens* (Pale Sedge), a little *Lythrum portula* (Water-purslane) and the delightful *Anagallis tenella* (Bog Pimpernel) in flower. The nearby roadside was adorned with the creamy white flowers of *Rosa arvensis* (Field-rose).

On July 20th I headed south again to get 300 records from two monads (one with no previous Leitrim records) near Jamestown by the River Shannon. Nice species (some of them typical of the R. Shannon) were *Sagittaria sagittifolia* (Arrowhead), *Hydrocharis morsus-ranae* (Frogbit), *Ranunculus lingua* (Greater Spearwort), *Lysimachia nummularia* (Creeping-Jenny), *Cicuta virosa* (Cowbane), *Carex vesicaria* (Bladder -sedge), *Spirodela polyrhiza* (Greater Duckweed) and the Pondweeds *Potamogeton bertholdii* (Small Pondweed) & *P. obtusifolius* (Blunt-leaved Pondweed). There are not too many recent Leitrim records for the Greater Spearwort, a species which is easily overlooked when not in flower.

On Sat July 27th the Leitrim group met at Mohill to record at and near a lake to the north east. We got records from three monads and saw lots of *Hypericum maculatum* (Imperforate St John's-wort) uncommon in Leitrim, *Catabrosa aquatica* (Whorl-grass), *Salix pentandra* (Bay Willow), *S. purpurea* (Purple Willow), *S. x holosericea* (Silky-leaved Osier), the aliens *Lolium multiflorum* (Italian Rye-grass), *Epilobium ciliatum* (American Willowherb) and a plant of *Papaver somniferum* (Opium Poppy). One of the group, Andy King, spotted a plant not yet in flower which puzzled us for a while. It was *Pulicaria dysenterica*

(Common Fleabane). This is a common late summer species in many parts of Ireland but it was my first time to see it in Leitrim where it is obviously local or rare.

On August 2nd Patricia McHugh, Andy King & I recorded at Kilgarriff on the north shore of Lough Allen. This area had some up to date records and today we got many more. The highlights for Patricia & Andy were 67 flowering spikes of *Spiranthes romanzoffiana* (Irish Lady's-tresses) (see photo on front cover) and *Populus nigra* subsp. *betulifolia* (Black Poplar). Both are specialties of Lough Allen and have been recorded in this area before, but neither Patricia nor Andy had seen the orchid previously. We also saw *Osmunda regalis* (Royal Fern), *Scutellaria galericulata* (Skullcap), *Apium inundatum* (Lesser Marshwort), lots of the pretty *Sagina nodosa* (Knotted Pearlwort), *Achillea ptarmica* (Sneezewort), the distinctive *Potamogeton crispus* (Curled Pondweed), *Baldellia ranunculoides* (Lesser Water-plantain), & *Myriophyllum alterniflorum* (Alternate-leaved Water-milfoil). A curiosity was *Campanula trachelium* (Nettle-leaved Bellflower) by a roadside and undoubtedly a garden escape here.

On August 10th The Leitrim group met to record an area south of Mohill. Up to today, our group outings were blessed with fine weather but not today. The recording was frequently interrupted by wetting, showery rain. However we had an interesting day, with the main focus on a bog where we saw *Andromeda polifolia* (Bog Rosemary), *Melampyrum pratense* (Cow-wheat), *Utricularia minor* (Lesser Bladderwort), *Trichophorum x foersteri* (Hybrid Deergrass) along with many commoner bog species including *Narthecium ossifragum* (Bog Asphodel) & *Drosera rotundifolia* (Round-leaved Sundew). The uncommon non-native bindweed *Calystegia pulchra* (Hairy Bindweed) was growing by a roadside. This large pink-flowered bindweed seems to have its Leitrim headquarters in the south of the county, as I saw it earlier this year near Carrigallen. Walking back along a grassy path adjacent to the bog, we spotted some of the uncommon sedge *Carex pallescens* (Pale Sedge).

August 15th was a much better day weather-wise. Patricia, Andy & I took off to Lough Allen again, to record two monads at Derrintober on the east shore of the lake near Drumshanbo. This area is one of the two sites in Leitrim where *Limosella aquatica* (Mudwort) was recorded. Despite a systematic search we failed to re-find it today. Water levels were higher than normal for August due to recent rains. It is quite likely that any Mudwort plants present were submerged. Nevertheless, we had a productive day in an under-recorded area. Species of interest were: *Persicaria minor* (Small Water-pepper) in both monads, *Spergula arvensis* (Corn Spurrey), *Glyceria declinata* (Small Sweet-grass), *Rumex hydrolapathum* (Water Dock), *Carex vesicaria* (Bladder-sedge), the alien *Impatiens glandulifera* (Indian Balsam), as well as the omnipresent (for South Leitrim) *Cicuta virosa* (Cowbane) and *Lysimachia nummularia* (Creeping-Jenny), the latter still showing some cup-shaped yellow flowers. We tried the "tongue test"

to distinguish the common *Persicaria hydropiper* (Water-pepper) from the much rarer *Persicaria minor* (Small Water-pepper). That said, I wouldn't rely on this method alone! Anyway, the two species look very different. The deep red colour and narrow leaves of the latter stand out. A narrow-leaved *Callitriche* sp. (Water-starwort) puzzled us, but I kept a sample to show to Nick Stewart (an aquatics expert) a few days later. He determined it as *Callitriche brutia*.

On Sunday August 18th I joined Nick Stewart for an Aquatics Training Day. No one else was available, but we got some nice records in the Drumsna area and also from the nearby Cloonboniagh Lough. Of interest among aquatics were *Potamogeton x angustifolius*, *Potamogeton perfoliatus* (Perfoliate Pondweed), *P. obtusifolius* (Blunt-leaved Pondweed), *P. pusillus* (Lesser Pondweed), *P. praelongus* (Long-stalked Pondweed), *Elodea nuttallii* (Nuttall's Waterweed), *Eleocharis acicularis* (Needle Spike-rush), *Ranunculus penicillatus* (Stream Water-crowfoot), *Sagittaria sagittifolia* (Arrowhead), *Myriophyllum spicatum* (Spiked Water-milfoil) & *Spirodela polyrhiza* (Greater Duckweed). A good haul of under-recorded aquatic species – and identified or confirmed under the expertise of Nick. Like many recorders, I am only scratching the surface with difficult groups like *Callitriche* spp. However, the following month I *did* come across *Callitriche brutia* again, and applied what I had learned from Nick to identify it. The *Potamogeton praelongus* was the first Leitrim record since 1978; definitely under-recorded, that one!

On August 24th the Leitrim group met for the second-last scheduled meeting of the year. Four people participated today and we recorded in the poorly recorded hectad N18 near Roosky. Again, the habitats featured a bog, and we saw *Andromeda polifolia* (Bog Rosemary), *Utricularia minor* (Lesser Bladderwort), and some *Dryopteris carthusiana* (Narrow Buckler-fern). Along the hedgerows we found *Holcus mollis* (Creeping Soft-grass), *Agrimonia eupatoria* (Agrimony), *Salix x smithiana* (Broad-leaved Osier), *Ulmus procera* (English Elm), *Euonymus europaea* (Spindle), & *Viburnum opulus* (Guelder-rose), this latter now showing its fruits.

Other good finds for the month of August included a new hectad site for *Vaccinium oxycoccos* (Cranberry) in a bog in North Leitrim, *Galeopsis bifida* (Bifid Hemp-nettle), *Carex lasiocarpa* (Slender Sedge) & *Carex canescens* (White Sedge), both the last in new sites.

The autumn months continued to produce some good records. In early September, on the last-scheduled Leitrim group outing, there was a sighting of *Trifolium micranthum* (Slender Trefoil), spotted by one of the group, Shane Brien. This was only the second Leitrim record for this rare clover, which in Ireland occurs mainly near the south and east coasts. On September 6th I recorded on the west side of Garadice Lake and found a new hectad site for *Carex pseudocyperus* (Cyperus Sedge). On September 16th Patricia & I saw some *Helminthotheca echioides*

(Bristly Oxtongue) near Belhavel Lough; this is only the second record for Leitrim. On September 18th I found some *Phleum bertolonii* (Smaller Cat's-tail) near a lake in south Leitrim. There are only four recorded sites in Leitrim for this grass species, which is probably overlooked or ignored by recorders. The garden escape *Hylotelephium telephium* (Orpine) turned up in a few roadside places. The uncommon fern *Polystichum aculeatum* (Hard Shield-fern) was seen near Jamestown. This very local fern is mainly associated with the limestone hills of north Leitrim, though it is occasionally found on old limestone mortared bridges and walls. A nice find in October was some *Hypericum humifusum* (Trailing St John's-wort) on a peaty bank near Carrigallen. On October 28th I saw a plant by a roadside which had obviously jumped a garden wall; although finished flowering, it was eventually identified as *Solidago gigantea* (Early Goldenrod). Another garden escape, this time at the edge of a woodland, was *Hypericum x inodorum* (Tall Tutsan). The distinctive little grass *Catapodium rigidum* (Fern-grass) was frequently recorded this autumn, and right up to December, sometimes on forest tracks. In this habitat it is occasionally accompanied by the rarer grass (for Leitrim) *Vulpia bromoides* (Squirreltail Fescue).

Into November and December, sometimes accompanied by Patricia, I continued to gather records, and even this late there were some unexpected finds. For example, *Smyrniolum olusatrum* (Alexanders) turned up in a cemetery, while *Petrosedum forsterianum* (Rock Stonecrop) was naturalised on the wall of a second cemetery. Another alien, *Lepidium didymum* (Lesser Swine-cress) occurred in a new hectad – a very rare species in the north-west of Ireland. *Asplenium adiantum-nigrum* (Black Spleenwort) was seen on a wall in South Leitrim, well away from its main limestone habitats of north Leitrim. *Aethusa cynapium* (Fool's Parsley) was seen as a weed in a garden; there are very few Leitrim records for this species. In a church car park, a few precocious plants of *Erophila glabrescens* (Glabrous Whitlowgrass) were identified easily, as they had both flowers and fruits before November was out. I know that the year has come around when I see the leaves of *Ficaria verna* (Lesser Celandine) reappear in late December, and so ended recording this year for Leitrim on December 30th.

Late last year (2018), I drew up a list of all Leitrim taxa *not* recorded since 1999. There were about 90 taxa. 15 of them were re-found in 2019. This does not sound like an impressive catch, but many from the list were *casuals*, maybe seen only once before disappearing, or which had died out, due to changes in agricultural practice. However, the list included some good rare native species which hopefully are still present somewhere in Leitrim – for example, *Carex elongata* (Elongated Sedge) and *Equisetum hyemale* (Rough Horsetail).

So...what for 2020 onwards! We will probably take a break from recording in January and February; then we can start towards the next atlas if, and whenever, that will be! Anyway, the pressure is now off, so we can cherry-pick some nice

sites, and maybe even re-find some of the missing Leitrim species which have eluded recorders over the last 20 years. Aoife and I *do* plan to keep our Leitrim recording group going, and are looking forward to the social, educational and fun aspects of trips during the coming year.

Co. Down (H38) recording in 2019

Graham Day. E-mail: gvd@cherrycottage.myzen.co.uk

With work for the forthcoming atlas coming to a close, during 2019 an emphasis was placed on recording in hectads that had the lowest number of records. Use was made of species lists to identify taxa that really should be there, but hadn't yet been recorded for *Atlas 2020*.

The 1st of January was a very cold day but 53 species were found in flower in Newcastle on the New Year Plant Hunt. The list was boosted by several species sown in a wild flower seed mix including *Centaurea cyanus* (Cornflower) and *Glebionis segetum* (Corn Marigold).

My recording season properly began in late April with the first of several visits to Banbridge. *Polystichum aculeatum* (Hard Shield-fern) was a good find by the river, as was a large colony of *Fumaria purpurea* (Purple Ramping-fumitory) at an amenity site. A single *Fascicularia bicolor* (Rhodostachys) plant was found in woodland where it had been planted, but it is unlikely to persist in this unsuitable habitat. A subsequent visit to Banbridge finally produced *Asplenium ceterach* (Rustyback) on an old wall close to the river.

In early May, part of the Connswater, Knock and Loop rivers in Belfast was walked. The location has had extensive planting and significant efforts have been made to improve biodiversity. *Equisetum x litorale* (Shore Horsetail), *Glyceria maxima* (Reed Sweet-grass), *Carex pseudocyperus* (Cyperus Sedge), *C. riparia* (Greater Pond-sedge) and *C. acutiformis* (Lesser Pond-sedge) were found in marshy areas. But unfortunately, *Lagarosiphon major* (Curly Waterweed) was completely dominating a large pond. A repeat visit in early June produced *Lysichiton americanus* (American Skunk-cabbage) by the Knock river.

In early June a visit to the Comber Greenway at Knock to confirm *Lathyrus nissolia* (Grass Vetchling) also produced *Thlaspi alliaceum* (Garlic Penny-cress) and *Vulpia fasciculata* (Dune Fescue). In August Jacqueline Gray sent photos of *Adonis annua* (Pheasant's-eye) from Knockbracken, a probable stray from a seed-mix, and a probable first for Ireland.

The recording meeting in mid-August was in the Mourne on the Banns Road to Lough Shannagh. *Huperzia selago* (Fir Clubmoss) was seen in small numbers at the highest point on the Banns Road. *Sparganium angustifolium* (Floating Bur-reed) was seen in a bog pool and *Oreopteris limbosperma* (Lemon

Scented-fern) at the edge of the lough, but perhaps the most pleasing find was a small colony of *Neottia cordata* (Lesser Twayblade) on the slopes near the lough.

In September records were made of *Atriplex* and *Salicornia* taxa on the shores round the county. During these trips, *Salsola kali* (Prickly Saltwort) was found growing in gravel at Killough, and another notable was *Helminthotheca echioides* (Bristly Oxtongue) from a wild flower seed mix by Kilclief.

The last monthly meeting took place at Grey Point in heavy rain and was eventually abandoned. One interesting find was the hybrid *Jacobaea maritima* x *J. vulgaris* (Silver x Common Ragwort).

Thanks to those who attended meetings and contributed records during the year, including Suzanne Belshaw, Lesley Crawshaw, Paul Hackney, Anne McComb, Ian McNeill, Margaret Marshall, Daniel Kelly, Dave Riley, Ian Rippey, Valerie Macartney and John Wann among others, and especially Jo Whatmough who sent in comprehensive detailed records from Murlough NNR.

Summary of the 2019 BSBI field meetings in Ireland

2019 was yet again another busy year on the BSBI field meeting front with a total of eight meetings taking place between May and August. Once again these meetings contributed a large number of plant records for the final recording push for *Atlas 2020* as well as providing an important opportunity to get to know new plants, places and people. Accounts of many of these field meetings are included in the following pages. The largest meeting of the year was held over four days in the Clifden area of Connemara (**H16**). Apart from a very wet night before the first day, which almost inundated some of the braver camping botanists, the weather held up quite nicely. The meeting attracted approximately 39 participants and a wide range of sites/habitats were visited. A short account of this meeting can be found in the 2020 BSBI yearbook. As is the case with many field meetings some of the best botanical discoveries were made on the last day when one of the groups recorded two species which are real rarities in **H16**, *Carum verticillatum* (Whorled Caraway) and *Equisetum* x *trachyodon* (Mackay's Horsetail), from lake margins near Recess.

Apart from the Connemara field meeting, personal highlights of the year included a botanical exploration of the spectacular northern shores of Lough Easky in County Sligo, a fascinating little area of old cutaway bog with nice fen pools near Bohola in Co. Mayo and a visit to an extensive bog flush in south-east Galway which turned up a variety of rarer flush/fen species. As is to be expected in the post-*Atlas 2020* era the field meeting activity will not be quite as fast and furious during 2020 however there will still be a total of eight meetings taking place throughout the length and breadth of the island, as well as a good scattering of local group meetings and Rough Crew outings. Hope to see you at some of these.

John Conaghan, Field Meeting Secretary.

Field meeting reports, 2019

Saturday 18 & Sunday 19 May Foxford & Charlestown areas, East Mayo (H26)

The main purpose of this field meeting was to improve coverage in hectads near the north of vice county **H26** for *Atlas 2020*. Four people attended the field meeting on Saturday 18th May with eight attending on Sunday May 19th. The Saturday began with the group meeting and botanising around Charlestown urban area (G40), river walk and abandoned railway line. Efforts yielded the usual suite of vernal, ruderal and ephemeral species in addition to seven new hectad records for G40 including *Oenanthe crocata* (Hemlock Water-dropwort), *Carex remota* (Remote Sedge), *Papaver dubium* (Long-headed Poppy), *Ajuga reptans* (Bugle), *Reseda luteola* (Weld), *Salix x multinervis* and *Vicia sativa* (Common Vetch). After botanising around Charlestown for the morning, the group headed west towards an expansive area of cutover raised bog, access tracks and disused railway line at the Sonnagh townland. Of note was a first hectad record for *Carex paniculata* (Greater Tussock-sedge) in addition to locally distributed or under recorded species such as *Spergula arvensis* (Corn Spurrey), *Symphytum x uplandicum* (Russian Comfrey), *Alchemilla filicaulis* (Hairy Lady's-mantle), *Cytisus scoparius* (Broom), *Neottia ovata* (Common Twayblade) and *Ranunculus bulbosus* (Bulbous Buttercup). The final stop of the day ended with a short walk along the banks of the River Moy at Bellanacurra which recorded new hectad records for *Allium ursinum* (Ramsons), *Veronica montana* (Wood Speedwell), *Schoenoplectus lacustris* (Common Club-rush) and *Stachys sylvatica* (Hedge Woundwort).

Eight attendees met at Foxford (G20) on Sunday morning where they continued along the bank and associated walkways and pathways of the River Moy. This presented the usual riparian herbaceous species, in addition to some notable ruderal species such as *Fumaria bastardii* var. *hibernica* (Tall Ramping-fumitory) and *Fumaria muralis* subsp. *boraei* (Common Ramping-fumitory). Species of note recorded along the river corridor margins included *Lysimachia nummularia* (Creeping-Jenny), *Oenanthe crocata*, *Myosotis discolor* (Changing Forget-me-not), *Carex disticha* (Brown Sedge), *Bidens cernua* (Nodding Bur-marigold) and *Persicaria amphibia* (Amphibious Bistort). After lunch the recording group moved south to hectad M39 covering the village of Bohola and an area of cutover bog and recolonising woodland in the nearby townland of Clooneen. New hectad records for *Holcus mollis* (Creeping Soft-grass) and *Alchemilla xanthochlora* (Intermediate Lady's-mantle) were found in Bohola village while Clooneen yielded *Lepidium heterophyllum* (Smith's Pepperwort), *Potamogeton coloratus* (Fen Pondweed), *Alliaria petiolata* (Garlic Mustard), *Polypodium interjectum* (Intermediate Polypody) and *Carex diandra* (Lesser Tussock-sedge) as new hectad records. A total of 706 records were collected across three hectads as part of the field meeting, greatly contributing to *Atlas 2020* data for **H26**. Many thanks to all those who attended, in particular to John Faulkner and John Conaghan for providing valuable guidance and botanical expertise across both days.

Eamonn Delaney

Longford (H24) 25th May

Six people attended on the day; Robert and Hannah Northridge, Sylvia and Julian Reynolds and Pdraig Kerins. Sylvia and Julian have made a huge contribution to recording in Longford, in particular adding greatly to records for the *Atlas 2020* project.

The meeting point was at Moyne Crossroads, to the north of the county, however it was decided that the most efficient use of resources would be to concentrate on the most under recorded hectad, and two sites in N38 were chosen.

The first site visited was predominantly agricultural, with some adjacent forestry. Sylvia pointed out *Rumex x pratensis*, the hybrid of *R. obtusifolius* (Broad-leaved Dock) and *R. crispus* (Curled Dock) - pleasingly intermediate between the parents, and likely very under recorded. *Potentilla anglica* (Trailing Tormentil), *Stellaria holostea* (Greater Stitchwort) and *Ribes rubrum* (Red Currant) were recorded from the hedgebanks, while our chosen "carpark" contained a struggling and unnameable *Barbarea* (Winter-cress).

The nearby Mullinroe Lough looked worth exploring, so once permission was obtained from the land owners (and a very large bull secured!), we had a look. A drainage ditch contained *Potamogeton obtusifolius* (Blunt-leaved Pondweed), *Callitriche brutia* and *Utricularia vulgaris* (Greater Bladderwort). The field by the lakeshore was rich in sedges, including *Carex paniculata* (Greater Tussock-sedge), *Carex canescens* (White Sedge), as well as a curiously unshaded patch of *Ajuga reptans* (Bugle).

The second site chosen was the north-eastern edge of Lough Kinale, which also borders Counties Cavan and Westmeath. Parking at the abandoned Ballywillin Railway Station, we quickly found *Papaver dubium* (Long-headed Poppy), a first post 2000 VC record. Other finds of note were two subspecies of *Vicia sativa* (Common Vetch) in close proximity, native *V. sativa* subsp. *nigra*, and non-native subsp. *sativa*.

Lough Kinale has been well studied for its archaeological features. It is very shallow, with a maximum depth of just 4 metres, and has several crannogs. The lakeshore and adjacent pasture proved the highlight of the day. Robert noted *Prunus cerasus* (Dwarf Cherry), which occurs occasionally in hedgerows in the county – whether always planted or otherwise is an open question. The gently sloping fields by the lake yielded patches of *Silene flos-cuculi* (Ragged-Robin), more *Carex* spp. and a single clump of *Nardus stricta* (Mat-grass). Uncommon species found included *Stellaria palustris* (Marsh Stitchwort) and *Butomus umbellatus* (Flowering-rush), along with more usual suspects like *Persicaria amphibia* (Amphibious Bistort) and *Hydrocotyle vulgaris* (Marsh Pennywort). First VC records for *Hydrocharis morsus-ranae* (Frogbit) and *Ceratophyllum demersum* (Rigid Hornwort) were recorded from among the *Phragmites*.

Over 150 taxa were recorded from both sites, and the refind rate for hectad N38 passed the critical 60% threshold as a result. Thanks to all for attending, but especially to Sylvia and Robert for their expertise.

Ciaran Bruton

Youghal, East Cork (H5), 6th July

On a dull but dry day 15 eager plant lovers gathered in the carpark adjacent to Summerfield, Youghal for a day of recording. There is a sliver of hectad X17 that is in **H5** and a very, very small area of X18. These had been overlooked since the previous atlas. X17 had 341 records in the previous atlas, X18 none. Prior to this excursion for *Atlas 2020* they had 18 and 14 records respectively so a lot of work had to be done.

The morning began with exploring the dunes. The Irish officer used this opportunity to survey the population of the scarce Wild Clary (*Salvia verbenaca*) which grows there. We were very fortunate to have the retired Wildlife Ranger for East Cork, Pat Smiddy, with us who knew exactly where to look for this species and assisted with finding our first population. Once we got our eyes in for Wild Clary our searching was successful and we found several plants scattered throughout the dunes. The beautiful Pyramidal Orchid (*Anacamptis pyramidalis*) and Yellow-rattle (*Rhinanthus minor*) were also flowering in the dunes.

After wandering around the dunes the group split up as there was a lot of under-recorded ground to cover. One group explored the dunes a bit more before heading northwards towards Youghal town along the coastal boardwalk. The other group drove to the north of the town and explored the Slob Bank, Youghal Mudlands, Foxhole and urban areas in the north end of the town.

We encountered more Wild Clary plants as we moved towards the town itself and even found one plant in an overgrown flower bed beside some apartments! Unfortunately (for botanists) Youghal town itself was lacking in weedy species after a huge clean-up for the Ironman competition that was held in the town 2 weeks previously but we did find some. Probably the highlight of this was the finding of Fiddle Dock (*Rumex pulcher*) on a cliff top near the lighthouse. Fiddle Dock was first recorded in East Cork in 1895 near Whitegate. There is a pre-1969 record for it from the same hectad but it hasn't been recorded since, and not ever from Youghal, until now. Many thanks go to Paul Green for confirming the identification. The old railway line was teeming with vegetation but sadly we could not get on to it due to a high fence, but we managed to identify a few species including Greater Burnet-saxifrage (*Pimpinella major*) from the boundary.

At the north end of Youghal where there are areas of wet grassland and salt marsh it was good to find two typical coastal sedges - Distant Sedge (*Carex distans*) and Long-bracted Sedge (*Carex extensa*). In an area of rough grassland, and almost overlooked as it was not in flower, was Goats-beard (*Tragopogon pratensis*). There are very few records for this species in Cork in general and it had not been recorded for this hectad in **H5** previously.

Overall we dipped in and out of 9 monads and recorded 233 species in total.

The non-botanical highlight of the day had to be witnessing two people exercising their macaw parrot with training ropes on the beach!

Edwina Cole & Finbarr Wallace (Joint VCRs for **H5**)

East Tyrone (H36), August 3rd

Seven botanists met at the bridge in Coagh, Co. Tyrone on the morning of August 3rd. We began with a short walk along the adjacent Ballinderry River, noting a fine stand of *Equisetum hyemale* (Rough Horsetail) and several dying flower-heads of *Tellima grandiflora* (Fringecups), a major alien colonist on the Ballinderry.

We then moved to the fishing harbour at Kiltagh on the shore of Lough Neagh. Here we saw many of the classic plants associated with Lough Neagh such as *Butomus umbellatus* (Flowering-rush) and *Sagittaria sagittifolia* (Arrowhead) and the rather rarer *Azolla filiculoides* (Water Fern) and *Zannichellia palustris* (Horned Pondweed), plus several pondweeds including *Potamogeton lucens* (Shining Pondweed), *P. pectinatus* (Fennel Pondweed) and *P. perfoliatus* (Perfoliate Pondweed).

The next stop was Brookend. Here the actual shore of Lough Neagh is very hard to reach through dense reed-beds, but 'inland' of these reeds there is an extensive area of marsh and rough grassland. Here we were welcomed by a magnificent display of late-summer flowers – *Lythrum salicaria* (Purple-loosestrife), *Lysimachia vulgaris* (Yellow Loosestrife), *Rhinanthus minor* (Yellow-rattle), *Succisa pratensis* (Devil's-bit Scabious), *Mentha aquatica* (Water Mint), *Mentha x verticillata* (Whorled Mint) and many others. There was an abundance of *Scutellaria galericulata* (Skullcap), although its flowers tend to hide down among the stems and leaves. We re-found a small area of *Salix repens* (Creeping Willow), rare by Lough Neagh. I had found this several years ago but it had got 'lost awhile'. We searched long and hard for *Spiranthes romanoffiana*, but in vain. Over the last forty years Brookend was the only site in Tyrone for this elusive and unpredictable orchid. Often it disappeared for several years, and then would pop up again. Perhaps next year

Ian McNeill

SE Galway meeting in Slieve Aughty area (H15) August 10th-11th

This was in August, so inevitably the forecast was terrible. The first day I'd planned to record up a hillside of blanket bog in the north-western Slieve Aughty range and reach a mountain lake that might yield some aquatics. But in the event it poured rain and we couldn't even see the base of the hills! Only three were due to turn up and the two who were waiting for me were very keen. So we drove round the base of the hills to Kilchreest and along a small road which ended in a farm. It was still pretty wet, but my enthusiastic companions were undaunted, so we set to recording the farmyard and roadside and then explored the much-weed killed church car park and surrounds. In total we found 113 species - and my never-failing interest in ruderals paid off: an assiduous scouring of the church grounds revealed not one but two *Fumaria* species, one with down-turned fruit. Tim Rich later kindly confirmed that one was the frequent *F. bastardii* (Tall Ramping-fumitory), but the other was *F. purpurea* (Purple Ramping-fumitory), new to **H15** and a rare find west of the Shannon. So hunting for ruderals can

turn up interesting species, despite the on-going frenzy for weed killing any surfaces near buildings. On returning to the car, Alessandra with her eagle eye spotted a spike of *Orobanche* on the lawn of the farmhouse, so on getting permission to explore the lawn and adjacent clump of trees from a bemused householder, we established that it was *O hederæ* (Ivy Broomrape), growing on the prolific ivy under the trees - and we counted at least 40 spikes! It seems to me that 2019 was an exceptional year for *O. hederæ*.

Satisfied with this sortie and as it was still driving rain, we repaired to a café in Loughrea, whereupon I spotted a rare weed in the car-park flower-bed: a 'first' record for *Galinsoga* west of the Shannon! It must have come in with the very lush bedding plants. It turned out to be *Galinsoga quadriradiata* (Shaggy Soldier) and in fact Chris Peppiatt had already found it at one site in West Galway (**H16**). Sadly when I returned to photograph it in drier conditions, someone had assiduously weeded it out!

On Sunday, the weather and the numbers of attendees improved a lot, with my two trusty companions joined by six others -including three former students of mine, which was lovely. Another former student Caroline Sullivan had tipped me off about a very large fen with *Phragmites* at Derrygoolin on the slopes of the Slieve Aughty Mountains, in the extreme SE part of **H15**.

And sure enough, when I did a quick explore in July, it proved an amazing valley fen with the Coos River running alongside and spreading into it with huge tussocks of *Carex paniculata* (Greater Tussock-sedge) upstream. But the gem that turned up was *Eriophorum gracile* (Slender Cottongrass) (see photos on pages 19 & 36), the second only record for **H15**! It became the focus of the field outing, with c. 16 spikes found, but along with it were other nice finds such as *Carex lasiocarpa* (Slender Sedge), *Galium uliginosum* (Fen Bedstraw) and *Carex x fulva* (thanks to John), which was new to me. Other nice finds were *Vaccinium oxycoccos* (Cranberry) and *Pinguicula lusitanica* (Pale Butterwort) (much to Alessandra's delight!). On the way in, a small grass in the shallow ditch along the track aroused debate, but it was only on bringing it home to a microscope that I realised it was very small *Catabrosa aquatica* (Whorl-grass), presumably stunted due to the long dry spell in July. A very slender *Euphrasia* drew our attention and - for once - I'm confident, after microscope study and using Chris Metherell and Fred Rumsey's *Eyebright Handbook*, that it was *E. micrantha* (Slender Eyebright). The fen proved less species-rich further downslope, so we opted to record in the adjacent hectad, further down the track, adding 46 species to the 129 already recorded.

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Captions for page 70 & back cover:

Fig. 1 - Habitat of the micropopulation with 17 stems present of *Epipactis dunensis*.

Fig. 2 - *Epipactis dunensis* flower with a viscidium present, centre and below the crumbling pollen.

Fig. 3 - *Epipactis dunensis*.

Fig. 4 - *Epipactis dunensis* flowers showing friable pollen and swollen seed capsules.



Fig. 1 (p. 8 & 69)



Fig. 2 (p. 8 & 69)



Fig. 3 (p. 8 & 69)



Fig. 4 (p. 8 & 70)