



Irish Botanical News

No. 29 March 2019



Editor: Paul R. Green

Selfie of Sylvia, Julian, Mike, Tom and Paul
in August by the River Shannon near
Castleconnell, Co. Limerick.
Photo P. Murphy 2018 (p. 54).



Laois field meeting 2018 (p. 71).
Photo M. McCorry © 2018

Committee for Ireland

2018 –2019

The following is the Committee as elected at the Annual General Meeting at The Botanic Gardens, Glasnevin on 22nd September 2018. Office bearers were subsequently elected at the first committee meeting. The Committee is now:

Robert Northridge (Chairman, Council, Records and Research Committee,
Atlas Planning Group, Irish Officer Steering Group)
Ralph Sheppard (Vice Chair)
Edwina Cole (Secretary, CFI rep. to Publication Committee)
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The following are co-opted to the committee:

Cliona Byrne
David McNeill

The following are nominated observers to the committee:

Mark Wright (Northern Ireland Environment Agency)
Mike Wyse Jackson (National Parks & Wildlife Service)

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Front cover photo: Mayo Field Recording Event, August 2018. Photo Eamonn Delaney © 2018. See page 73.

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Introduction from newly appointed Vice-county Recorders

East Mayo (H26)

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Eamonn is a native of Corofin Co. Galway currently residing in nearby Headford. Eamonn lives to within 2km of Lough Corrib and since moving to Headford has undertaken vascular plant recording in the hazel scrub / woodland, calcareous grassland, fen, marsh and lakeside habitats that remain in the area. Eamonn is a graduate of National University of Ireland, Galway where he undertook a degree in Science, and was a student of Dr Micheline Sheehy Skeffington, Vice-county Recorder for **H15**. Eamonn has been submitting records to the BSBI since 2016 and took on the mantle as trial / temporary VCR for **H26** (East Mayo) in late 2017. He was involved in the Mayo Recording Week 2018 jointly held in Clare Island and Castlebar. The recording week succeeded in targeting and recording in poorly recorded hectads in **H26** and **H27** (West Mayo) for *Atlas 2020*. Eamonn's favourite habitats include calcareous grassland and heath, both of which are found in the southern parts of **H26**. Eamonn has really enjoyed the VCR role over the past year and is hoping for an early Spring in 2019 so that he can get the ball rolling on the final field season in advance of *Atlas 2020*.

Notes from the Irish Officer

After another great year for BSBI in Ireland in 2018, it's time to look forward to the last year of Atlas recording! The final records need to be sent in to the DDb (and validated!) by 31st December 2019. We've had such success with our plan to ensure even coverage (i.e. reduce gaps, by taking almost all hectads to a 200 taxa minimum), that this year we will shift the emphasis slightly in terms of advice to VCRs on where to focus. While gap-filling is still important, it is now likely that time and effort might be better spent focusing on a mix of rare/uncommon species (and thus nice habitats, generally!), and also on under-recorded groups. One such broad group is aquatics, and we hope to have a big push on recording aquatics this year. We will announce details when they are ready, but for now, we can say that there are likely to be a raft (pardon the pun!) of workshops aimed at all abilities, from learners to experts, along with targeted recording. Getting to grips with aquatics is likely to be a challenge for many of us, so it will be great to work together to improve both our ID skills and our coverage in this group.

The New Year Plant Hunt was a runaway success again this year, with more people than ever before sending in lists. Overall 1,500 people took part and 712 lists were made (99 lists from Ireland! – see map page 5).



Overall 627 species were in flower (266 from Ireland), and the average list length was 20 species. Of the 266 species recorded in flower in Ireland, 175 were native, with about 20% of the native flora recorded in flower on that date! One of the interesting aspects of this survey is the fact that a sizeable proportion of the species in flower are native spring species which have flowered early (approx. 25% of the total dataset falls into this category). This of course means that there is a significant asynchrony at play – in terms of weather (plants might be damaged or killed later due to inevitable frosts), of pollination (few/no pollinators on the wing in dead of winter), etc. Overall, based on the data from the NYPH, it is difficult to say for certain that there are more species in flower now than before in mid-winter, but what we can say for sure based on the information from this survey over the past 5+ years, is that plants are clearly responding to warmer winters when we get them (higher numbers of species have been recorded during NYPH when the

preceding winter months have been warm). And with climate change only ramping up, we will surely be getting more unseasonal weather. I've given Ireland's top 20 flowering species in the NYPH below, followed by the number of lists they appeared on:

Daisy 79, Dandelion 78, Annual Meadow-grass 69, Groundsel 66, Gorse 66, Herb-Robert 62, Smooth Sow-thistle 59, Common Field-speedwell 52, Chickweed 51, Winter Heliotrope 48, Shepherd's-purse 44, Red Dead-nettle 44, Petty Spurge 41, Common Ragwort 41, Bramble 41, Cock's-foot 38, Creeping Buttercup 38, Nipplewort 35, Common Mouse-ear 33, Yarrow 30.

And I'd like to finish with two calls...

First, a call for papers from Ireland/relating to Irish botany for the new BSBI Journal 'British and Irish Botany'. Apparently the first issue is nearly ready, and while I'm sure it will be great – there are no submission from Ireland. Let's change that! All the information needed is on the webpage:

<https://britishandirishbotany.org/index.php/bib>

The second call is for volunteers. While acknowledging that all BSBI recorders and members are volunteers!, I envisage that extra help might be needed for data entry, at events, etc., particularly in 2019 in the run up to the Atlas deadline. If you think you might be able to help out, be it for a short one-off time, or perhaps more consistently, please drop me a line (maria.long@bsbi.org). I'd love to create a list of contacts to whom I could go as and when appropriate tasks arise. I am eternally grateful to those who currently help out.

Happy botanising to everyone in 2019 – here's to a fantastic and fruitful final push, and see you in the field soon hopefully!

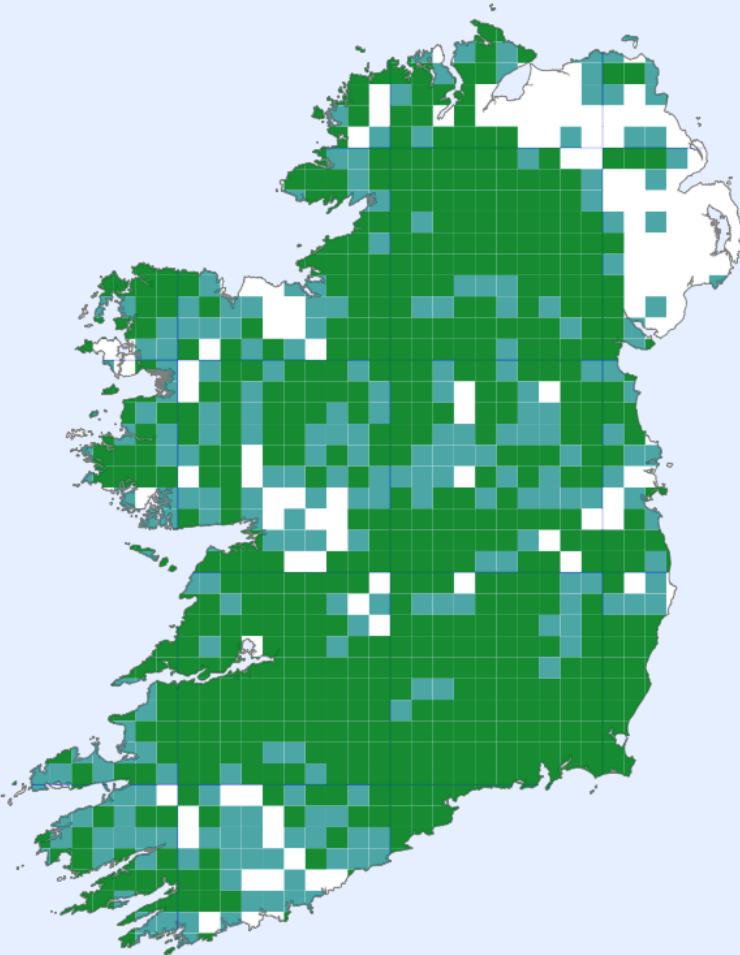
The last year of *Atlas 2020*: Recording Targets for 2019

The Committee for Ireland of the BSBI has the responsibility for ensuring that all the vice-counties of Ireland are adequately surveyed for *Atlas 2020*. This is the last year of recording and all records must be in the DDb and validated by 31 December 2019.

Early in 2017 the Committee for Ireland analysed the data in the DDb and found that, of the 1008 hectads in Ireland, over 400 hectads had less than 200 species recorded in them after the year 2000. Much work has been done over the last two years and, of those hectads which do not consist largely of the sea, there are now just 23 hectads with less than 200 species recorded in them after the year 2000. This is a tremendous achievement and reflects great credit on the hard work done by Irish vice-county Recorders and other Irish botanists.

Key

- <60%
- 60% - 70%
- > 70%



Map showing percentage of species refound for each hectad since the year 2000 – (from DDb 6th Feb. 2019). Map produced by Tom Humphrey.

200 species per hectad is a very basic target which does not take in to account the species richness of a hectad. A better measure of how well a hectad has been surveyed in the period after 2000, is the total number of species that have been recorded since 2000 compared to the total recorded over all time, expressed as a percentage.

Analysis of the data in the DDb shows that a post 2000 re-recording rate of 60% is reasonably easy to achieve, especially in the less well botanised parts of Ireland. There are currently 153 hectads with less than a 60% re-recording rate, and the Committee for Ireland is asking Vice-county Recorders to put a special effort in to recording in these hectads (see map on page 7) over the coming months.

There are 248 hectads with less than a 65% re-recording rate, and 399 hectads with less than a 70% re-recording rate. These hectads could also be targeted for visits during the year. Incredibly there are 63 hectads with more than a 90% re-recording rate, and four with 100%!

The total number of species found and the re-recording rate are important targets, but an important part of the analysis of the data will be the state of the rarer plants in Ireland.

For this reason, the Committee for Ireland is keen that VCRs and others should target the re-finding of the rare species for which there are only pre-2000 records. These can be found from the DDb using Tools > Grid reference look-up > View detailed taxon list for [insert your grid reference of choice here]. Then change “earliest year” from 1987 to 1800 and then tick “sort recent records separately”. Lastly double click on the blue box with “Show Taxon List”, and look for interesting rare species which only have pre-2000 records. Detailed information about the sites and grid references for species can be found using the “search” tab at the top of the page and inputting the species name and the hectad involved in to the search template.

In summary, use the coming year to try to get a 60% (higher if possible) re-find rate in every hectad in your vice-county and also to re-find the interesting and rare species in each hectad. We will also be promoting a focus on aquatic plants for this year – but more about that in the Irish Officer’s note.

Have a great season!

Robert Northridge, Chair, Committee for Ireland

To AGG. or not to AGG.

John Faulkner. E-mail: jsf@globalnet.co.uk

Firstly, apologies to any readers who are not into plant recording: this piece may seem hopelessly esoteric to you. If you are a regular recorder, on the other hand, it is vital reading.

It has begun to dawn on me that I have been blasé about aggregates. Not the kind you make concrete with, but those represented by an asterisk or an <agg> on your recording cards. If you have never been perplexed by them, either you designed the card yourself from scratch or you probably should have been!

I realised recently that my MapMate database has a nonsensical split between aggregated and non-aggregated taxa of some common plants. The split bears no relationship whatsoever to my intentions when recording. Records of *Festuca rubra* (Red Fescue), for example, are divided between *F. rubra* s.s. and *F. rubra* agg.. On investigation, it didn't take long to work out how this had happened.

For several years, I have used the optimised version of the BSBI recording card for my vice-county (**H37**, Armagh). The *Festuca* taxa listed on the card include **824 Festu * rub**, but not **825 Festu rub**. When digitising the records, I have entered the taxon number on the card, i.e. 824, so all my records on these cards have been entered as the aggregate rather than the species. This was, of course, quite unnecessary. I had been imagining that the aggregate included those taxa such as *commutata* and *juncea* which I don't normally attempt to distinguish. Wrong! These are classed in MapMate and the DDb as subspecies of *F. rubra* s.s.. In fact, the *F. rubra* aggregate includes two other full species as well as *F. rubra* s.s.. They are *F. heterophylla*, which I only know at one site and have recorded under its species name, and *F. arenaria*, which is confined to sandy ground by the sea, a habitat unrepresented in Co. Armagh.

From time to time, I have used various other recording cards on which **825 Festu rub** is listed, rather than the aggregate. And occasionally I have entered a record from a written list using the 5 letter code **Ferub**, and selecting *Festuca rubra* from the options offered. All of these records would have been entered into the database as *F. rubra*. Hence, the majority of my records appear to be of the aggregate, but some are of the species.

Another group beset by a similar problem is *Elytrigia* (Couch grasses). In this case, my optimised card appears to have an error. It gives **33 Elytr rep** for *E. repens* (Scutch), whereas the code number should really be 33.2. The code 33 equates to *E. repens* agg.. Because I have used the code on the card, most of my records appear to be of the aggregate, which encompasses not only *E. repens* s.s. but also *E. campestris* subsp. *maritima*, a very scarce species of maritime sand in Ireland.

In both of these cases, my records inadvertently lost precision, though I can of course correct them in retrospect by editing. In other cases, a lapse of concentration could easily have led to the opposite situation – spurious precision. The *Dryopteris affinis* agg. (Scaly Male-fern) is a case in point.

My “optimised” card has both **662.1 Dryop aff** and **662 Dryop* aff**, with the former slightly more prominent as the latter is inset. The other main members of the aggregate are *D. borrieri* and *D. cambrensis*, neither of which are listed on the card though both are present in the VC. To the best of my knowledge, most Irish recorders do not attempt to distinguish these species and simply record the aggregate, as did I until very recently.

Nonetheless, about half of all Armagh records for the group on the DDb are supposedly for *D. affinis* s.s.. There are 173 Armagh records of *D. affinis* s.s. on the DDb, overwhelmingly by recorders whose intention would almost certainly have been *D. affinis* agg.. All of them, including some pre-2000 ones of mine, were accessed from CEDaR, the Northern Ireland Biological Records Centre. This is a clue to how the error may have arisen. The CEDaR database uses a different taxonomy in which the aggregate is defined as a single species, *D. affinis*, with three subspecies. In the process of transferring the data to the DDb, records have acquired a precision at subspecies level that was never intended.

The frequency of these supposed records of *D. affinis* s.s. is presumably why the BSBI system generates an “optimised” card for the vice-county that includes *D. affinis* as a species as well as a the aggregate. Both *D. affinis* and *D. affinis* agg. appear to be common taxa meriting inclusion on the card. Remarkably, however, the system appears to have dealt successfully with another potential pitfall in this group. *Webb’s Irish Flora* has always treated the group as a single species, successively under the names of *D. borrieri*, *D. pseudomas* and *D. affinis*. I expected to find some older records in the DDb purporting to be of *D. borrieri* s.s. as a consequence of recorders using that name for the aggregate. In fact there are only three records of *D. borrieri* s.s. all of them my own from 2018. By scrutinising the DDb, I can see that the same is not true for some neighbouring vice-counties.

If you have followed the detail of all these three cases, well done! If not, don’t despair. Each vice-county has its own historical recording quirks. Really there is only one take-home message: be aware of aggregates. Give them a moment’s thought each time you record a member of one. In some cases, they are straightforward. Thus *Papaver dubium* s.l. (Long-headed Poppy) includes both *P. dubium* s.s. and *P. lecoquii*. In others, you can easily be misled. *Callitriche stagnalis**(Water-starwort), for instance, does not include all unidentifiable *Callitriche*, only *C. stagnalis* and *C. platycarpa*. On my card, if I haven’t a clue what *Callitriche* it is, I have to cross off **Calli* agg**, not **Calli *sta**.

Some other groups that might cause trouble are *Rosa canina*, *Hedera helix*, *Arctium minus*, *Malus sylvestris*, and *Trichophorum cespitosum*. As a simple

exercise, try listing what you think is included in each of these as an aggregate. Then log into the DDb, click on the **Search** tab, and in the top LH corner select <Taxa> from the drop down <Search for?> menu. Enter the genus and species name in the appropriate boxes and click on <display results>. This should give you a list of related and overlapping taxa. Click on the relevant **agg.** or **s.l.** This will bring up a mass of technical guff about your chosen taxon. Ignore the detail, and from the row of tabs across the top, click on <sub-divisions> (second from the left). This will bring up a list of all the taxa included within the aggregate.

How well did you do?

My thanks are due to Kevin Walker and Tom Humphrey for telling me how to find out what is included in an aggregate.

***Asplenium onopteris* L. (Irish Spleenwort) in the Irish Flora: some comments on its distribution, autecology, recognition, conservation status, and on its reinstatement to the East Cork (H5) Flora**

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Introduction

Within the depauperate Irish fern-flora (Pteridophyta), the visually beautiful *Asplenium onopteris* L. (Irish Spleenwort) is *unique* in being our *only* native fern species that is absent as an indigenous taxon in Britain. In reference to this intriguing phytogeographical puzzle, Page (1997: 76) commented in his scholarly book, *The Ferns of Britain and Ireland*: "... *A. onopteris* is common all around the Mediterranean, but is most frequent in the west, and is abundant too in the North Atlantic islands (the Canary Islands, Madeira and the Azores). From the north of the Iberian Peninsula, its range jumps to the south-west of Ireland – a discontinuity shared by a number of other Irish plants of restricted range." Praeger (1919a, 1919b), having examined a wide range of Irish, European, and extra-European vouchers of this taxon in Irish and British herbaria, informally recognised two forms (*based on the shape of the ultimate pinnae-segments*) which, he believed, approximated to the two extreme end-points in the spectrum of morphological variation exhibited by *A. onopteris*. Thus, his 'f. *ovatum*' encompasses the most widespread variety throughout its overall world range (and the form most often confused with *A. adiantum-nigrum*), while his 'f. *lineare*' – an exquisitely beautiful taxon with very finely-cut blades, displays a predominantly *Atlantic-type* distribution in Europe, and is a *much rarer* taxon in Ireland than 'f. *ovatum*'. For most of its recorded history, the *true* taxonomic status of *A. onopteris* (formerly known as *Asplenium acutum* Bory or *A. adiantum-nigrum* var. *acutum* (Bory) had remained unresolved, until the cytotaxonomic publications of Manton (1950) and

Shivas (1969). Their work established that the amphidiploid species *A. adiantum-nigrum*, is an allotetraploid taxon ($2n = 144$) derived from the union of the diploid ($2n = 72$) species *A. onopteris* and *A. cuneifolium* Viv. (the latter species not known to occur in Ireland or Britain), followed by doubling of its chromosome number. Moreover, the research of Shivas (1969) also established that *A. adiantum-nigrum* can readily backcross with its *A. onopteris* parent to form a triploid ($2n = 108$), *largely spore-sterile* hybrid (= *A. x ticinense* D.E. Meyer) – a hybrid that is now known to be of widespread occurrence in the wild (where it often displays *hybrid vigour*) and frequently cohabits with one or both of its parent species (Rumsey in Stace *et al.* 2015). Interestingly, Shivas (1969) found that her artificially synthesised hybrids were morphologically much closer to their *A. adiantum-nigrum* parent in appearance, reflecting this species greater genomic contribution to the hybrid. While this revelatory cytotaxonomic work has resolved many issues pertaining to the *A. adiantum-nigrum* aggregate, it regrettably proves of *no* practical help to the field botanist, who must resort to *microscopic examination*, in order to clinch determinations of its constituent taxa.

The Distribution and History of Recording of *A. onopteris* in the Irish Flora

The first reference to *A. onopteris* in the Irish Flora was that of J.T. Mackay (*Flora Hibernica* 1836) who, in 1805, discovered this taxon on limestone rocks within the grounds of Muckross Estate, Killarney (**H2**) (see notes below). During the recording-period 1805-1937, *A. onopteris* was confirmed to have its headquarters in the southwest of Ireland (i.e. counties Kerry (**H1-H2**) and Cork (**H3-H5**)), with an outlier *inland* population in North Tipperary (**H10**) and further outlier subcoastal or coastal sites in Kilkenny (**H11**), Wicklow (**H20**) and Down (**H38**). Modern-day records (i.e. 1965-2018) for *A. onopteris* have added it to the Waterford Flora (**H6**), while additional sites for both this species and *A. x ticinense* have been discovered in counties Kerry and Cork (see **Table 2**), though most new populations for both taxa consist of just a few plants. [**Note:** The data in this present paper is part-based on the author's personal discoveries and on the finds of other correspondents, supplemented with information culled from literature sources, and that supplied by Scannell & Synnott (1989, 1990), the *New Atlas of the British & Irish Flora* (Preston *et al.* 2002) and the updated **BSBI Database**.] No doubt some records have been overlooked, while the finds of *anonymous* collectors' are omitted.

The **BSBI Database** (DDb) provides modern-day Irish records (up to 2018) for both *A. onopteris* and *A. x ticinense*, and also gives a range of historical **DBN** records for both taxa that augment those listed by Scannell & Synnott (1989, 1990). These additional records accord with the map in the *New Atlas of the British & Irish Flora* (Preston *et al.* 2002), the latter work listing *twenty-seven* pre-1970 Irish

hectad records for *A. onopteris*, including a number of inland records. However, of the five hectad records mapped by Preston *et al.* (2002) for NE Ireland (i.e. Down (**H38**), Antrim (**H39**) and Derry (**H40**)), *only one* (i.e. Praeger's 1884 record from near Newtownards, Co. Down), is accepted as genuine by Hackney (1992), who stated that the remaining vouchers of putative *A. onopteris* from the NE, have been re-determined by R.H. Roberts as morphological variants of *A. adiantum-nigrum*.

Table 1.

Chronology and Phytogeography of the Historical records for *A. onopteris*

[**Note:** The designation **DBN** indicates that a corroborative voucher for a particular record resides in the Herbarium of the National Botanic Gardens, Glasnevin, Dublin. Some of these records were published by Scannell & Synnott (1989, 1990), and the remainder are on the **BSBI Database**.]

North Kerry (H2) [V9.8.]: Muckcross, Killarney, 1805: J. T. Mackay (Mackay 1836). The first Irish record. With regard to this find, Mackay (1836: 342) stated: "I found, in 1805, on the limestone rocks at Mucruss [*sic*], a beautiful and delicate variety of [*Asplenium*] *adiantum-nigrum* [Black Spleenwort] with fronds tripinnate throughout, or with pinnules deeply and finely laciniated. It was subsequently found by Miss Hutchins and Dr Taylor."

South Kerry & North Kerry (H1-H2) [V8.8. & V9.8.]: Purple Mountain (**H1**) and Torc Mountain (**H2**) respectively, near Killarney: J.R. Kinahan and G.H. Kinahan (Moore & More 1866). It is unclear if vouchers exist for these records, but Alexander Goodman More was fastidious with regard to the records he accepted for publication, while both botanists were known to be highly competent pteridologists. [**Note:** According to Newman (1854) the Torc Mountain site was originally discovered by a Dr Allchin, but the **BSBI Database** states that a W. Wilson recorded this species at Torc Cascade in 1829, the voucher being confirmed by CGE.]

North Kerry (H2) [V9.8]: Roadside bordering the Upper Lake, Killarney, 1894: J. Lecky. **DBN** (record source: **BSBI Database**). Same location (?), 1894 and 3rd June 1903: R.W. Scully. **DBN**. [**Note:** This site was rechecked by Praeger in 1911, and further vouchers were collected for **DBN**. Following on the original discovery in 1894, *A. onopteris* persisted in this locality for the next one hundred years (i.e. up to the mid-1990s at least), though by that date only a single plant remained, and this may now be extinct (R.L. Hodd, pers. comm. December 2018). Scully's vouchers (and those collected by Praeger in 1911) must have been derived from

more than one plant at this site, as D.M. Synnott – former Director of Glasnevin Botanic Gardens – has identified *A. onopteris* and *A. x ticinense* specimens from the collections of both botanists.]

South Kerry (H1) [Q7.0.]: Caherconree Mountain [in the Slieve Mish mountain range, twenty-six km aerially to the SW of Dingle town], 1835: Mr W. Andrews. Andrews sent a voucher specimen of this taxon to J.T. Mackay (Mackay 1836). [Note: The **BSBI Database** states that the voucher for this record was confirmed by **DBN**, where it is lodged.]

South Kerry (H1) [V7.9.]: Caragh Lake, June 1881: E.M. Battersby. **DBN**. (Colgan & Scully 1898), and Caragh Lake, 28 June 1889: R.W. Scully. **DBN**. [Note: D.M. Synnott has identified *A. onopteris* and *A. x ticinense* specimens from amongst the voucher material collected by both botanists from Caragh Lake.]

South Kerry (H1) [V4.7.]: Knight's Town, Valencia Island, 1913: J. Lecky. [Note: Some vouchers from this collection were confirmed at **DBN** as *A. x ticinense* by D.M. Synnott, but it is not clear if the remaining vouchers represented *A. onopteris*.]

Mid Cork (H4) [W6.7.]: Near Garrycloyne, Blarney: F. Townsend (Moore 1855). [Note: *A. onopteris* was rediscovered here in 1976 by Maura J.P. Scannell, who also recorded cohabiting populations of the interspecific hybrid, *A. adiantum-nigrum* x *A. onopteris* (= *A. x ticinense* D.E. Meyer), this fern hybrid being new to the flora of Ireland and Britain (Roberts & Scannell 1977). Since 1976, the Garrycloyne site for *A. onopteris* and *A. x ticinense* has been monitored through the decades by T. O'Mahony and M. Scannell. Both fern taxa were still present here in 2018, this being the longest-recorded extant site for *A. onopteris* in Ireland, given its known occurrence here for over 160 years. **DBN**.]

Mid Cork (H4) [W5.5.]: Inishannon, December 1862: Isaac Carroll. **DBN**. [Note: Also recorded from Inishannon in the 1860s by Thomas Chandlee (Moore & More 1866). It is quite likely that Carroll and Chandlee found this site while botanising together, given that they were long-time botanical acquaintances. What is far from certain however, is whether the find was a Mid Cork (**H4**) record (i.e. from a roadside habitat on the left bank of the River Bandon at Inishannon) or from a roadside bank on the opposite, West Cork (**H3**) side of the river.]

West Cork (H3) [W5.5.]: At Ballinadee, by the tidal River Bandon, 1870s: Rev. Thomas Allin (Allin 1883).

West Cork (H3) [W2.3.]: Union Hall, Glandore Harbour, 1870s, and near the Rowry River [between Glandore Harbour and Ross Carbery tidal inlet], 1870s: Rev. Thomas Allin (Allin 1883). [**Note:** Allin's 1870s Roury River record was updated in 1992, when M. Troy and T. O'Mahony found a single, magnificent clump of this species in this general area. Tragically, the existence of this single plant proved to be short-lived, as it was not refound (plant taken?) on a revisit to the site in March 1998 (O'Mahony 1999).]

West Cork (H3) [W0.2.]: Lough Ine [or Lough Hyne], 1870s: Rev. Thomas Allin (Allin 1883).

West Cork (H3) [W0.2.]: Mountain at Lough Ine, December 1889: R.A. Phillips. **DBN**. [**Note:** Further, tiny populations of *A. onopteris* were located in the Lough Ine area in 1983 by Maura Scannell, who also found stations for *A. x ticinense* in the same area, this hybrid being an addition to the West Cork flora (Scannell 1984).]

West Cork (H3) [V9.3.]: Skull (old spelling: Schull): no date: R.D. O'Brien. O'Brien sent a voucher specimen of his fern discovery to Praeger, who confirmed the determination (Praeger 1919a). Robert Donough O'Brien (1847-1917), was a Limerick botanist and naturalist, and is best known for adding *Schoenoplectus triqueter* (Triangular Club-rush) to the Irish Flora (Praeger 1949). His sister, Charlotte Grace O'Brien (died 1909), added a range of species to the Limerick Flora (Knowles & O'Brien 1907; Reynolds 2013).

East Cork (H5) [W8.6.]: Aghada, on the east side of Cork Harbour: Isaac Carroll (Moore & More 1866). **DBN**. [**Note:** Isaac Carroll was born in the village of Aghada in 1828, and would have been in his mid-30s when he recorded *A. onopteris* in his local village surroundings – an environment that he knew intimately.]

East Cork (H5) [W8.6.]: Near Whitegate, 1894 and November 1896: R.A. Phillips (**DBN**), and subsequently rechecked by Phillips in 1900 (Praeger 1902). [**Note:** Given that the villages of Aghada and Whitegate are only some 2-3 km distant from each other, it is very likely that Robert Phillips had searched for, and refound, Isaac Carroll's original 1860s site for *A. onopteris*. While Phillips was only fourteen years of age at the time of Isaac Carroll's death in 1880, in subsequent years he might well have acquired locational data for Carroll's *A. onopteris* site from lifelong friends of Carroll, such as Thomas Chandlee or, much more likely, the Rev. Thomas Allin (who was based in Weston-super-Mare, Somerset, since the late-1870s, where he published his flora (Allin 1883)). This is a distinct possibility, bearing in mind that Phillips was a prolific natural history correspondent. Moreover, as Praeger (1949) commented, Isaac Carroll (immediately prior to his

premature death at just fifty-two years of age), was in regular correspondence with Allin, as both botanists were collaborating on a forthcoming flora of Cork – a work that was published just three years after Isaac Carroll’s death in 1880.]

Limerick (H8) [R2.5.]: By the River Shannon near Corgrig [a townland], Foynes: Miss C.G. O’Brien (More 1872). **DBN**. [**Note:** Additional vouchers from this site, subsequently sent to **DBN** by Miss O’Brien during the time-period 1875-1902, describe the habitat and location in slightly different terms, as, for instance: “Near Foynes harbour 1875, in cave on Shannon shore” (Colgan & Scully 1898), or: “Foynes 1902, smuggler’s cave.” Moreover, Knowles & O’Brien (1907) describe the habitat in the following words: “Foynes, cave on shore below Ardanoir.” Currently, there are no known sites for *Asplenium onopteris* in Co. Limerick (Reynolds 2013).]

North Tipperary (H10) [R9.8.]: Near Cloughjordan, 20 August 1900: R. L. Praeger. **DBN**.

Kilkenny (H11) [S6.1.]: Snowhill [on a cliff-face, overlooking the tidal bank of the River Barrow], 11th August 1899: R. L. Praeger, **DBN** (Praeger 1902). [**Note:** Scannell (1984) stated that examination of Praeger’s voucher sheets in **DBN** had established that they contain specimens of both *A. onopteris* and *A. x ticinense* – the latter hybrid being new to the Kilkenny flora. of the three plants refound at this site by P. Green and M. Morris on 30 January 2008 (Hemsley 2009), Paul Green described two of the clumps as: “superb; the best I have seen [of *A. onopteris*] in Ireland” (pers. comm. P. Green, December 2018). This observation tantalisingly hints at the possibility of at least one of these two robust plants being *A. x ticinense*, given the frequently observed *vigour* of this hybrid in the wild. The *A. onopteris* records from Snowhill, thus span a 109-year period (i.e. 1899-2008).]

[West Galway (H16) [L7.5.]: Frequent in Connemara: G.H. Kinahan (More 1872). Praeger (1949) was an acquaintance of George Henry Kinahan, and stated he was a renowned professional geologist. He shared a love of pteridology with his brother, John Robert Kinahan (the latter a lecturer in botany) and they often went on fern-forays together and made interesting discoveries, such as *A. onopteris* populations on Torc Mountain and Purple Mountain near Killarney (see record above). While supportive herbarium vouchers appear to be wanting for the Connemara records, Praeger’s (1902) listing of West Galway for *A. onopteris* can be taken as a vote of confidence in the G.H. Kinahan record. Most surprising, therefore, to find that the *Flora of Connemara and the Burren* (Webb & Scannell 1983) made *no* mention of the presence of *A. onopteris* in the flora region; nor did it refer to any historical

records for this taxon, though subsequently these latter records appeared in the work, *New Atlas of the British & Irish Flora* (Preston *et al.* 2002).

Wicklow (H20) [02.0.]: Dunran Wood, near Newtownmountkennedy: Mr D. Orr (Moore & More 1866). [**Note:** Reported by R.P. Vowell as: “Still there, but almost exterminated, in 1886” (Colgan & Scully 1898). The **DBN** voucher from this locality (confirmed as *A. onopteris* by Roberts (1979)), is dated 1854, the finder being labelled as “anon.” – but the date of collection strongly suggests it was Mr D. Orr. The presence of this voucher in **DBN** is *not* listed by Scannell & Synnott (1989).]

Wicklow (H20) [T1.9.]: near Glendalough, 1904: R. L. Praeger (Praeger 1919a). This population was also found independently at Glendalough by a Mr C.M. Fleury in October 1917, who sent a voucher of his find to Praeger – the latter being of the view that both records referred to the same site (Praeger 1919a).

East Mayo (H26) [M1.5.]: Near the rectory, Cong: Miss M.F. Jackson (Colgan & Scully 1898).

West Mayo (H27) [L7.8.]: SW Mayo: G.H. Kinahan (More 1872).

[**Down (H38)** [J2.2. & J.3.2.]: On the mountains of Mourne: Mr Sherard (Moore & More 1866). No subsequent corroborative evidence.]

Down (H38) [J4.7.]: Near Newtownards, 8th October 1884: R. L. Praeger. **DBN**. [**Note:** Two further **DBN** vouchers collected by Praeger from this locality, are dated 1892 and 1937, and both were confirmed as *A. onopteris* by R.H. Roberts, on the basis of spore measurements (Roberts 1979). *A. x ticinense* was subsequently identified from some of these vouchers (*vide* Rumsey in Stace *et al.* 2015).]

What is clear from the above list of vice-county records, is that the headquarters for *Asplenium onopteris* in Ireland firmly resides in counties Kerry (**H1-H2**) and Cork (**H3-H5**) – unless, of course, future research bears out the statement of G.H. Kinahan, that this species is of frequent occurrence in Connemara (West Galway, **H16**). What is equally clear, is that *A. onopteris* populations become progressively much rarer as one travels eastwards across the island of Ireland. Moreover, the majority of its Irish sites are coastal or subcoastal, with the notable exception of the *inland* Cloughjordan site in North Tipperary (**H10**), found by Praeger in 1900.

Table 2.

Modern-day (1965-2018) Irish records for *A. onopteris* & *A. x ticinense*

North Kerry (H2) [V9.8.]: One plant on a rock outcrop in Cahnicaun Wood, overlooking The Long Range, Killarney, 31 October 2018: R.L. Hodd. **Mapmate** communication to **BSBI Database**. Field identification (pers. comm. R.L. Hodd, December 2018).

South Kerry (H1) [Q4.0.]: Dingle, 1965: M. Long. Field identification. [**Note:** The **BSBI Database** states that the vouchers were confirmed at **DBN**, where they reside.]

South Kerry (H1) [V8.8.]: One plant on an earth-and-stone hedgebank at Ballyleder, 19 July 1980: A. Wilmot. Identification based on spore-size (Wilmot 1983).

West Cork (H3) [W2.3.]: A single plant on a dry, acidic rock-outcrop in a stream-valley near Connonagh, Ross Carbery: 23 August 1998. T. O'Mahony and G. Morgan (O'Mahony 1999). Identification confirmed from spore measurements by T. O'Mahony.

West Cork (H3) [W1.2.]: A single plant on a dry, calcifuge or slightly base-rich roadside embankment near Ballyally Lough, to the east of Lough Hyne: 17 October 2007: T. O'Mahony. Identification confirmed by the author from spore measurements.

West Cork (H3) [W1.6.]: A single plant on a southwest-facing rock crevice of a rock escarpment of Old Red Sandstone, at Derrineanig, northeast of Ballingearry village, November 2012: Kevin Corcoran. Identification made by staff of the Herbarium, National Botanic Gardens, Glasnevin, Dublin (**DBN**).

West Cork (H3) [V9.4.]: Three, small, hedgebank populations on Whiddy Island, in Bantry Bay: Akeroyd (2013) Field identifications. [**Note:** These records require validating by spore measurements, given the subsequent statement that: "Plants somewhat [visually] intermediate between Irish Spleenwort and Black Spleenwort ... occur on both Whiddy and Bere ..." To my knowledge, these are the only offshore island records for *A. onopteris* in Ireland.]

Mid Cork (H4) [W4.5.]: Castlenalact, near Bandon, 13 April 1975: Ms J. Keyes McDonnell. **DBN**. [**Note**: Roberts (1979) confirmed this record on the basis of spore measurements.]

Waterford (H6) [X2.8.]: In *one* site on the wet, dripping, coastal cliffs of Muggort's Bay, associated with *Asplenium adiantum-nigrum* (Black Spleenwort), *A. marinum* (Sea Spleenwort), *A. scolopendrium* (Hart's-tongue Fern), *Polystichum setiferum* (Soft Shield-fern) and *Osmunda regalis* (Royal Fern), 22 October 2001: Paul Green (Green 2002, 2008). **DBN**. New to the Waterford Flora. [**Note**: P. Green revisited this site on 20 June 2005 (where he had originally recorded *c.* fifteen plants), but the updated visit revealed that this population had suffered from damage to the cliff habitat as a consequence of a winter storm, resulting in the death of some plants, and a loss of vigour in others (P. Green, pers. comm. December 2018). This is clearly a very vulnerable, and edaphically atypical, habitat.]

***Asplenium onopteris* reinstated to the East Cork (H5) Flora after a gap of 116 years**

As outlined in **Table 1**, the former presence of *A. onopteris* in East Cork (**H5**), is based on two nineteenth century records (and vouchers) from the eastern side of Cork Harbour, in the zone between the villages of Aghada and Whitegate. The original record was made in the 1860s (Moore & More 1866) and the later records span the time-period 1884-1900 (Colgan & Scully 1898; Praeger 1902). Occasional searches for this species in this general area by M. Scannell and T. O'Mahony in the mid-1970s proved negative and, as far I am aware, no post-1900 East Cork records for *A. onopteris*, are known to exist.

On Wednesday, 15 February 2017, I made an impromptu 5pm botanical foray to a section of the East Cork hectad (**H5**, W6.7.), which lies to the south of Whitechurch village (**H5**, W64.81.). The objective of this hasty visit (in declining light) was to collect fronds of *Asplenium adiantum-nigrum*, in order to undertake a biometric analysis of spore size in this species – part of an ongoing study. Exasperatingly, many of the collected fronds had been damaged by the flailing blades of a hedgebank-cutter (a woefully frequent and destructive phenomenon throughout the Irish Republic over the past decade or more), but thankfully were still adequate for my study. In the course of microscopic examination of these fronds, I was astonished to find that *a single* specimen gave spore measurements at odds with the parameters known for *A. adiantum-nigrum* (Roberts 1979), but fitting comfortably within those for *A. onopteris*! To my dismay, however, I realised I had no precise

idea as to where the *A. onopteris* specimen had been collected. Consequently, in subsequent days' the original route was retraced and, by pure luck, the *A. onopteris* population was relocated; it consisted of just two, small, adjacent plants, with populations of the ubiquitous *A. adiantum-nigrum* growing nearby. Ongoing monitoring of this site throughout the year, was eventually rewarded, when the *A. onopteris* population produced some new, intact, fronds. [Note: A very vulnerable habitat, that is annually cut by flailing machines.]

Problems Associated with the Recognition of *A. onopteris* in the Field

The following points need to be borne in mind by botanists 'identifying' *A. onopteris* in the field:

- While *visual* identification of wild populations of *Asplenium onopteris* can, at times, appear straightforward and emotionally convincing, the stark reality is that this methodology can *never* be definitive, as microscopic measurements of the spores are *always* essential for an accurate determination of this species. (Yet ironically, most of the 19th century/early 20th century **DBN** vouchers for *A. onopteris* – named at the time as either *A. acutum* or *A. adiantum-nigrum* var. *acutum* – have proved, on examination of their spores (Roberts 1979), to be genuine *A. onopteris*, including Praeger's material from Glendalough, Co. Wicklow (**H20**) (see **Table 1** entry) of which he (Praeger 1919a) had expressed grave doubts as to its true identity.
- *A. adiantum-nigrum* and *A. onopteris* commonly cohabit in parts of their Irish and mainland European range and, given the considerable morphological plasticity exhibited by both species, it comes as no surprise to find that identification problems frequently arise in such situations. For example, *A. adiantum-nigrum* occasionally displays fine-cut blades with sub-caudate pinnae-apices, the blades thus closely mimicking those of *A. onopteris*. Conversely, the broader-pinnuled (and less distinctive) form of *A. onopteris* is *the dominant* form of that species in both Ireland and mainland Europe (this is Praeger's 'f. *ovatum*') and can all too easily be confused with *A. adiantum-nigrum*. In relation to this situation, the late Anne Sleep (a highly regarded pteridologist and cytogeneticist) stated (Sleep 1980: 106): "I have experienced great difficulty in separating plants of *Asplenium adiantum-nigrum* and *A. onopteris* in the Mediterranean region, because of their similar appearance." This delimitation difficulty is much less likely to arise in the field with Praeger's 'f. *lineare*' (see photo p. 40) – the most exquisite, lacy form of *A. onopteris* which, in Ireland, he

believed was *confined* to the southwest (i.e. counties Cork and Kerry). Regarding this taxon, he commented: “I have seen specimens from: Upper Lake of Killarney (Scully, Praeger) [H2] [and] Whitegate, E. Cork (R.A. Phillips)” (Praeger 1919a). [Note: ‘f. *lineare*’ also formerly occurred in the Killarney area at Muckcross and on nearby Torc Mountain and Purple Mountain (see **Table 1**), while it is still extant at its Garrycloyne, Mid Cork (H4) site, a location apparently not personally known to either Allin, Phillips, Scully or Praeger. Moreover, an excellent silhouette of a large-bladed ‘f. *lineare*’ is provided by Page (1997: 75), its provenance being given as County Cork, but the location, or collector of the specimen, is not stated.]

- To complicate matters further, their interspecific hybrid, *A. x ticinense* (see photographic negative of basal pinna, p. 40), *frequently occurs* with its sympatric parents, a scenario that often results in a bewildering spectrum of frond-morphology that embraces all three taxa, thus hopelessly blurring the distinctions between them, and consequently defying clarification/classification in the field (O’Mahony 2009; Rumsey in Stace *et al.* 2015). It is *this* situation that led experienced pteridologists such as Praeger (1919a, 1919b) and G.L. Allman (cited by Newman (1854)) to seriously doubt that *A. adiantum-nigrum* and *A. onopteris* were distinct species, even though both botanists were more intimately familiar with the rare and extremely fine-pinnuled form of *Asplenium onopteris* (i.e. ‘f. *lineare*’) than most of their Irish or British contemporaries. Intriguingly, relatively recent microscopic examination of Irish herbarium vouchers of putative *Asplenium onopteris* (19th century and 20th century material) has revealed that some herbarium sheets bear intermixed specimens of *both* *A. onopteris* and *A. x ticinense* – a fact obviously not known to the collectors’ of this material. For example, Scannell (1984) stated that this was the situation with regard to Praeger’s vouchers of Kilkenny material from Snowhill, collected on 11th August 1899 (see entry in **Table 1**). Moreover, D.M. Synnott has detected *A. x ticinense* in historical collections of putative *A. onopteris* vouchers in **DBN**, these mainly being of Co. Kerry (**H1-H2**) origin (see above records in **Table 1** and **Table 2**). In relation to *A. x ticinense*, Rumsey (in Stace *et al.* 2015) commented: “... in Ireland it [the hybrid] may persist after the loss of *A. onopteris*, as at Newtownards, Co. Down.”

The Autecology of *Asplenium onopteris* in Ireland and Mainland Europe

In the account of the genus *Asplenium* L. in *Flora Europaea* 1 (Crabbe *et al.* 1964), the habitat of *Asplenium onopteris* is described as “base-poor rock”. The majority of Irish sites for *A. onopteris* fully agree with this assessment, with the notable exception of Mackay’s original Killarney find, which grew on carboniferous limestone outcrops within the grounds of the Muckcross Estate, close to Killarney town. While *A. onopteris* often occurs in areas of high annual rainfall, *edaphically*, most of its Irish sites are on *moderately free-draining*, often shady, acidic rock outcrops, or on adjacent, man-made wall or hedgebank habitats (constructed of local stone) that have been colonised over time. Nevertheless, there are some notable exceptions, such as its presence on *permanently wet* coastal cliffs in Co. Waterford, and its occurrence in a shaley cave-habitat, bordering the tidal River Shannon in Co. Limerick, during the period *c.* 1870 to at least 1906 (Knowles & O’Brien 1907) (see **Tables 1 & 2**).

The Conservation of *Asplenium onopteris* in the Republic of Ireland

In 2000, I made a case for the conservation of *A. onopteris* populations in the Irish Republic (O’Mahony 2000), based on its national rarity and its unique phytogeographical position within our native fern-flora (pteridoptera). [Note: A particularly puzzling and worrying situation I forgot to highlight in the above paper, is the fact that most of the Irish *A. onopteris* populations *appear to be relict*, and consist of just a very few plants, there being *no* evidence of recruitment or enlargement of these populations from spores, though the latter are produced abundantly in each site.] In the work, *Ireland Red List No. 10: Vascular Plants* (Wyse Jackson *et al.* 2016), *Asplenium onopteris* is placed in the Vulnerable (VU) List of sixty-one species, this category being defined thus: ‘A taxon is vulnerable when the best available evidence indicates that it meets any of the following criteria A to E, for Vulnerable, and it is therefore considered to be facing a high risk of extinction in the wild.’ The criteria in this category are as follows:

- A) 30-49% decline in area of occupancy.
- B) 6-10 locations, and continuing to decline.
- C) 2,500-10,000 individuals and continuing decline.
- D1) 250-1,000 individuals.
- D2) 5 or under locations, and plausible future threats.

Of the above criteria, current data on known extant populations in the Irish Republic (as presented in this paper), would accord best with Criterion D1. However, I suspect that the present-day Irish metapopulation of *A. onopteris*, numbers less than 250 individual plants. While *Asplenium onopteris* is certainly somewhat under-recorded in the Irish Flora, there is no doubt but that this species holds a *very precarious existence* on the island of Ireland in this 21st century, as the majority of its populations *consist of just a very few plants* (some seemingly not thriving in modern times). Moreover, most of its relict populations are now confined to very vulnerable wall or hedgebank habitats in rural areas, whose future survival in the Irish Republic is literally under threat from year-to-year, given the ever-increasing surge of planning applications for ‘one-off’ housing or ribbon developments in these rural habitats. Such anthropogenic practises *are now a bane* in the Irish Republic, as their uncontrolled spread has led to the elimination of countless kilometres of irreplaceable hedgebanks and hedgerows (together with their species-rich flora and fauna) over the past twenty years or more. This chronic environmental catastrophe is particularly evident, and impacting, in the vast milk-producing regions of Munster, where roadside hedgebanks and their attendant ditches and grassy verges *are today the last refuges* for a biodiversity-rich native flora that was once ubiquitous in adjacent meadows. However, during the time period *c.* 1980-2000, these native meadows were replaced by re-seeded, denatured, biodiversity-barren wastelands of *Lolium* (Rye-grass) pastures – courtesy of massive financial grants to Irish dairy farmers from the European Union. To add to the litany of ongoing environmental woes, extant hedgebanks and hedgerows are currently being cut two or three times a year, destroying their tiered structure and aesthetics, and preventing the flowering and fruiting of our native flora, thus jeopardising its future survival, while simultaneously eliminating a vital annual food-source for wildlife. In the face of this deluge of environmental assaults on hedgebank habitats in the Irish Republic, legal ‘protection’ for the plant rarities they currently harbour (such as *Asplenium onopteris*), seems very much a toothless tiger.

Acknowledgements:

My thanks to Paul Green (BSBI Vice-county Recorder for Waterford (**H6**) and Wexford (**H12**)) for a very helpful information update on the Waterford and Kilkenny sites for *Asplenium onopteris*, and for providing me with a download of Co. Kerry (**H1-H2**) records for *A. onopteris* and *A. x ticinense* from the BSBI Database. I am also grateful to Rory Hodd and Caroline MhicDaeid (Joint BSBI vice-county Recorders for (**H1-H2**)) for vetting my Co. Kerry data, and supplying additional information for their county.

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***Atriplex* L. hybrids recorded from the maritime regions of Co. Meath (H22)**

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

The short coastline of Co. Meath stretches northwards from the Delvin River at Gormanton to the River Boyne at Mornington and is interrupted by the River Nanny at Laytown. The glacial outwash plain of the Gormanston to Laytown sandur has been exposed by wave action, its glacial sediments contributing to the formation of shingle deposits along much of the coastline from Laytown southwards. It is on these shingle and sand shores, where organic debris has accumulated at the strandline that many of the *Atriplex* L. (Orache) species and their hybrids are to be found. The nature of the coast alters northwards from Laytown to the R. Boyne with more extensive sand dunes present along much of this section. At the mouth of the R. Boyne the enclosed and sheltered estuary provides nutrient-rich deposits which create conditions favourable to the growth of *Atriplex*. Further inland, the regions of upper saltmarsh along the tidal stretch of the R. Boyne provide an additional habitat for *Atriplex* taxa.

A total of 12 sites were visited by M. Norton during 2017, some of which she had previously surveyed in 2006. All specimens collected were determined by P. Green in 2018. A brief account is given for each of four *Atriplex* hybrids, none of which appear to have been previously published from Co. Meath. The localities of these *Atriplex* hybrids are set out in Table 1. Taxonomy and nomenclature follows Stace (2010). Voucher specimens have been lodged in **DBN**.

Atriplex prostrata* x *A. glabriuscula

Atriplex prostrata (Spear-leaved Orache) x *A. glabriuscula* (Babington's Orache) is of limited occurrence in Co. Meath, and was encountered in only 3 of the 12 sites visited (Table 1). It was particularly plentiful near the ruined church in Mornington (O1376) where it grew along the base of a retaining wall on the tidal stretch of the R. Boyne. The parent species are common and widespread within the maritime regions of Co. Meath, but in no case were both parents observed growing at the same site as the hybrid.

First **H22** record: Laytown, N of R. Nanny (O1671); coastal, sand and shingle shore; 21 August 2006.

***Atriplex* x *hulmeana* (Tascher.) (*A. prostrata* x *A. littoralis*)**

A rare hybrid in Ireland, *A. x hulmeana* was recorded from a single site in Co. Meath where it grew in the vicinity of both its parents. Unlike the wide-ranging and common *A. prostrata*, the populations of its second parent *A. littoralis* L. (Grass-

leaved Orache) are localised and sparse within the vice county, which may account for the scarcity of this hybrid. The known distribution of *A. x hulmeana* in other Irish vice counties falls within the range of its *A. littoralis* parent (Anon. 2019). First **H22** record: Mornington, SE of Lady's Finger (O1576); estuarine, shingle bay at mouth of R. Boyne. 13 September 2017.

Atriplex x gustafssoniana (Tascher.) (*A. prostrata* x *A. longipes*)

Atriplex x gustafssoniana is the most common and widespread *Atriplex* taxon within the maritime regions of Co. Meath, occurring at 11 of the 12 sites visited (Table 1). Although its parent *A. prostrata* Boucher ex DC. is also common and widespread within the county, its second parent *A. longipes* Drejer (Long-stalked Orache) has not yet been recorded from Co. Meath, its known Irish locations being restricted to vice-counties **H6** (Green 2008), **H12** (Green 2015) and **H27** (Green 2018). However, Taschereau (1985b, 1986, 1989) considered that hybrid and hybrid derivatives involving *A. longipes* were more frequent and more widely distributed than the species itself. Sell & Murrell (2018), who follow the same classification as Stace (2010), postulate that *A. longipes* could in the future merit reclassification as a sub-species of the morphologically variable *A. prostrata* in accordance with the treatment by Aellen (1960-1961).

First **H22** record: Laytown, N of R. Nanny (O1671); coastal, sand and shingle shore; 21 August 2006.

Atriplex x taschereau Stace (*A. glabriuscula* x *A. longipes*)

A. x taschereau is both common and widespread within the maritime regions of Co. Meath occurring in 9 of the 12 sites visited (Table 1). Its parent *A. glabriuscula* Edmondston was recorded from more than half of the hybrid's 9 locations, an association which has also been noted by Taschereau (1985a) and Stace *et al.* (2015). In contrast, the *A. longipes* parent has not been recorded from Co. Meath, its apparent absence from sites where its hybrids and hybrid derivatives occur being a feature alluded to regarding *A. x gustafssoniana*.

First **H22** record: Laytown, N of R. Nanny (O1671); coastal sand and shingle shore; 21 August 2006.

Table 1.

Date(s)	Grid ref.	Location	<i>Atriplex prostrata</i> x <i>A. glabriuscula</i>	<i>Atriplex x hulmeana</i>	<i>Atriplex x gustafssoniana</i>	<i>Atriplex x taschereui</i>
13.09.2017	O1866	Gormanston; coastal, sand and shingle shore at mouth of Delvin R.				Present
11.10.2017	O1866	Gormanston east of train station; coastal, sand and shingle shore along base of sea cliff	Present		Present	Present
11.10.2017	O1767	Gormanston, southeast of Military Aerodrome; coastal, sand and shingle shore along base of sea cliff			Present	
11.10.2017	O1768	Benhead; coastal, shingle shore at base of partially eroded moraine			Present	Present
13.09.2017 & 29.09.2017	O1670	Laytown, south of R. Nanny; coastal, grassland verge at top of sandy shore			Present	
21.08.2006 & 13.09.2017	O1671	Laytown, N of R. Nanny; coastal, sand and shingle shore	Present		Present	Present
06.09.2017	O1673	Bettystown; coastal, sandy substrate at base of retaining seawall			Present	Present
06.09.2017 & 29.09.2017	O1575	Mornington, South Bull; coastal, sandy shore			Present	Present
06.09.2006 & 13.09.2017	O1576	Mornington, SE of Lady's Finger; estuarine, shingle beach by mouth of R. Boyne		Present	Present	Present
06.09.2006 & 29.09.2017	O1476	Mornington, c.0.8km NW of Lady's Finger; estuarine, upper saltmarsh on R. Boyne			Present	Present
29.09.2017	O1376	Mornington near ruined church on tidal section of R. Boyne, narrow strip of saltmarsh vegetation by retaining wall	Present		Present	
29.09.2017	O1175	Stragrennan; polder on tidal section of R. Boyne.			Present	Present

Acknowledgements:

Sincere thanks to Mr. Paul Green for his expertise and time so generously shared during the BSBI field meeting on *Atriplex* 24 September 2017. Thanks also for his subsequent determination of specimens, which were collected as a result of the enthusiasm he generated for this taxonomically challenging group.

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Recording for *Atlas 2020* in Kerry during 2018

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I spent 20 dry enjoyable days, recording across Kerry, from July to early October, for the *Atlas 2020* project. My aim was to record in the hectads that still had less than 200 species recorded post 2000. Before visiting each hectad, a list of species needing finding was extracted from the BSBI database: the DDb. I also printed the

available information for any species that had a monad or better map reference. A day was spent in each whole hectad, except where a large chunk of a hectad was in the sea, when several such partial-hectads were then visited in a day. On arriving in the hectad, the first place I could find to park, I would pull over, and give the monad I had parked in as good a visit as possible, hopefully getting a good species list. The rest of the day I would go habitat hunting to find species on my list, plus try and find some of the rare species I had printed information for.

It was the perfect year for visiting raised bogs and turf moors; as they were so dry underfoot, it was very crispy and crunchy. Every site I visited, I found *Trichophorum x foersteri* (*T. cespitosum* x *T. germanicum*), sometimes without the *T. germanicum* (Deergrass) parent. I have never been able to find the other parent *T. cespitosum* (Northern Deergrass) for myself, until I found one clump on a cut over turf moor at Drommurrin (Q9489934382), N. Kerry (**H2**); a new species for the county, and the most southern site in Ireland. A specimen was sent to the BSBI referee, Jeremy Roberts, who agreed with my identification.

The weedy margin of a field grazed by cattle at Gortnaglogh (Q8916404784), N. Kerry, had one *Chenopodium hybridum* (Maple-leaved Goosefoot), the first record for Ireland since 1846. Also new for the county and at



Chenopodium hybridum (Maple-leaved Goosefoot) Gortnaglogh. Photo P.R. Green © 2018

the same site, was *Amaranthus hybridus* (Green Amaranth) and *Echinochloa crus-galli* (Cockspur).

I had always wanted to see *Persicaria sagittata* (American Tear-thumb), noticing that there was a 6 figure grid reference (V589611) in the BSBI database the DDb, from 1992 when seen by Ian Denholm. I thought I had to go and have a look, now I knew where to search. As otherwise, I only knew it grew somewhere near Castlecove, S. Kerry (**H1**). Two books I read implied the *Persicaria* had been extinct since 1993: (Reynolds, 2002) and (Akeroyd, 2014). Another book (Stace, 2010) still said 1993, but said 'perhaps now extinct'. Ian's grid reference was for a small field on the side of the Kerry Way. There was a small stream in the field, along this stream I found three flowering patches of the *Persicaria* (see photo page 42). I almost didn't find the *Persicaria* as I had walked past the first two patches being too busy looking at the other interesting species such as *Cicendia filiformis* (Yellow Centaury) and *Eleogiton fluitans* (Floating Club-rush).

Mid-September I went hybrid *Atriplex* (Orache) hunting, alongside the recording I was doing. I visited all the coastal hectads from Kenmare to Waterville, S. Kerry (**H1**), finding *A. x taschereaui* (*A. glabriuscula* x *A. longipes*) in all eleven hectads I visited, and *A. x gustafssoniana* (*A. longipes* x *A. prostrata*) in ten hectads. The highlight was a second county site for *Atriplex praecox* (Early Orache) at Assore (V8573569783). My search was rewarded with finding a patch of *Lathyrus japonicus* (Sea Pea) on the shingle bank in front of Waterville (V5022466043).

My last visit to the county was in early October where, on waste ground at Blennerville (Q8139213004), N. Kerry (**H2**), I had two new county records: *Calamagrostis epigejos* (Wood Small-reed) and *Erigeron acris* (Blue Fleabane), both a long way from other known sites in Ireland. Also self-sown on the waste ground was *Cortaderia selloana* (Pampas-grass) and *Cortaderia richardii* (Early Pampas-grass). This is the first time I have seen both Pampas-grasses naturalised at the same site.

Overall I collected 6635 records. Cross referencing these with the DDb, 1010 were new species / hybrid hectad records and of these 51 were new species / hybrids for the county.

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Distribution of *Crambe maritima* (Sea-kale) in Counties Cork (H3-H5) and Waterford (H6) in 2018, with remarks on its recent and historic status

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Introduction

Crambe maritima (Sea-kale) is a coastal perennial, often transient in nature and typically occurring on shingle banks and the upper reaches of sandy beaches where these overlay shingle (Green 2008, O'Mahony 2009, Sanyal & Decocq 2015). It is long-lived and is capable of regeneration from root-fragments as well as from seeds (Preston *et al.* 2002). Its occurrence in Ireland was summarised for three time-periods, as follows: pre-1970 = 18 hectads; 1970-1986 = 13 hectads; 1987-1999 = 15 hectads (Preston *et al.* 2002), while Sanyal & Decocq (2015) recorded its presence post-1970 in 28 hectads, 16 of them in Counties Cork and Waterford (**H3-H6**). Historically, therefore, it has always been regarded as a rare species in the Irish flora (Scannell & Synnott 1987), and it was believed to be approaching extinction about 1960, but it had increased by 1990 and was present at many stations, at least some of which were new rather than previously overlooked (Webb & Akeroyd 1991). Recording effort within the present study area in the past had always been carried out on an *ad hoc* basis, and the coastline had never been surveyed in one year. The survey described here set out to redress that situation.

Study area and methods

One author (PS) has been observing *Crambe maritima* on the East Cork (**H5**) and Waterford (**H6**) coasts since the 1980s, while the other (CH) has an extensive knowledge of the plants of West Cork (**H3**), especially the western peninsulas. PS conducted a survey of all known and potentially suitable sites for *C. maritima* along the mainland coasts of Cork and Waterford extending from Bantry Airport (V9748) to Passage East (S7010) in July and August 2018. The islands of Spike in Cork Harbour (W8064) and Ballycotton (lighthouse and small) (X0063, X0163) and Capel (X1069, X1070) off the East Cork coast were visited for ornithological work, and *C. maritima* was searched for where suitable habitat existed. CH provided data from the West Cork coast, especially the Beara peninsula, and we consulted colleagues with knowledge of certain areas, whose names will be acknowledged later.

Sites for surveying were selected from (a) personal knowledge of the coastline, (b) perusal of Ordnance Survey of Ireland Discovery Series maps, and (c) examination of Google satellite imagery of parts of the coast which were least known to the authors or which were remote from public roads. The survey

concentrated on parts of the coast where there was a ‘soft’ shoreline with boulder, shingle, gravel or sand substrates, and estuarine habitats were excluded, although an exception was made in the case of Cork Harbour where there has been a history of records of *C. maritima* dating from the present time back to the 1800s, and where several apparently suitable shingle banks still exist.

Rock-bound parts of the coast were included in the survey when there was evidence from maps and satellite imagery of coves and small bays with a suitable substrate. A small number of selected sites could not be visited because of difficulties of access such as dense vegetation on the clifftop approach or because of fenced off private property. It is not claimed that all suitable sites were selected for survey as *C. maritima* was found to grow on very small areas of shingle barely 10 m across sandwiched between heavily rock-bound coasts; some of these sites could not be identified either from maps or satellite imagery. Potential sites are more likely to have been overlooked in Cork than in Waterford because of its more complex, varied and indented coastline.

Results

The results are given in the form of an Annotated List with the sites arranged from west to east. It should be noted that this paper is not intended as a full status review of the species at each site in the two counties; rather it is presented as the first survey of the mainland coastline carried out within one year, an important factor given the inconstancy of the species at many sites. All sites known to have been occupied by *Crambe maritima* in the past, but from which the species was not recorded in 2018 have their names enclosed in square brackets [] in the Annotated List. Previously published records are referenced in the normal way, unpublished data supplied to the authors are indicated by the full names of the record providers, while all other unreferenced records and observations are those of the authors of this paper. A brief analysis of the current situation is shown in the Table below.

Status	Cork; H3-H5	Waterford; H6
Sites (and hectads) occupied in 2018	16 (14)	3 (1)
Former sites (and hectads) unoccupied in 2018	18 (9)	4 (4)

Annotated List

Reenabulliga (Adrigole) (**H3**) (V794477): Discovered about 2000; had 10 to 12 non-fruiting plants in 2018.

[Bantry] (**H3**) (V94/V95): James Drummond recorded *Crambe maritima* ‘on the strand near Bantry’ (Power 1845). There has been no positive record from this area since that date.

Rock Island (Crookhaven) (**H3**) (V816267): Discovered in 1993 (Declan

- O'Donnell) (Curtis 2014). At least 80 plants in 2018, many fruiting.
- Tranalicka (Toormore) (**H3**) (V858303): Known since before 2010 (Declan O'Donnell) (Curtis 2014). At least 10 plants in 2018, one fruiting.
- [Calf Island Middle] (**H3**) (V9525/V9526): Discovered in 1994 (Akeroyd 1996); *Crambe maritima* has not been seen here in recent years (Declan O'Donnell, Sam Bayley).
- [Kilkilleen] (**H3**) (W025313): Discovered about 2013 and recorded again in 2017; beach storm-damaged in late-2017 and no plants appeared in 2018 (John Earley, Terri Kearney).
- Tranabo Cove (Ballyally Quay) (**H3**) (W107280, W108279): Has been colonised since the 1990s (Declan O'Donnell); occupied in 2013, or earlier (John Earley). At least six plants in 2018, one fruiting; at least a further 52 non-fruiting plants separated by a rock outcrop.
- [Tranabo Cove (south of Ballyally Quay)] (**H3**) (W108278): Discovered about early 2000s (Patrick Graham, Declan O'Donnell); excavation and rock-armouring work at this small site may have destroyed the plants, and *Crambe maritima* has not been seen here since then.
- Coosdoolane (Sweeney's Cove) (**H3**) (W156278): Discovered in 1976 (O'Mahony 1985, 2009). Wide scatter of fruiting and non-fruiting plants at base of cliff in 2018.
- [Castlehaven] (**H3**) (W191316): One non-fruiting plant discovered in 1999 (O'Mahony 2000, 2009). One large clump on south side of shingle spit in 2004, and subsequently. This site was destroyed during works on access road to area shortly before 2018. [Note: O'Mahony (2009) stated, incorrectly, that this site occurred within the same 10 km square as that at Coosdoolane (Sweeney's Cove) which see above.]
- Blind Harbour (**H3**) (W202314): One non-fruiting plant in 2018 (independently reported by Fiona O'Neill).
- [Owenahincha (Rosscarbery)] (**H3**) (W3135): Recorded in National Parks and Wildlife Service rare plants database (Goodwillie 1986). *Crambe maritima* has not occurred here in recent years.
- Dirk Bay (**H3**) (W345323): Two large patches of plants (about 20 and 50 respectively) in 2018, many fruiting.
- Ballinglanna Cove (**H3**) (W441383): Two plants in 2018, one fruiting.
- Dunworly Bay (**H3**) (W477375): Three fruiting plants in 2018.
- Coolbaun (**H3**) (W520399): Discovered in 2015; seven non-fruiting plants in 2018.
- Broad Strand (**H3**) (W513409): Has been known as a site since about 1960 but was washed away in a storm in 1989 (O'Mahony 1985, 1995, 2009). One non-fruiting plant re-discovered in 2018 (independently reported by Danny O'Keeffe).
- Oysterhaven (**H4**) (W694491): Discovered in 2005 (independently reported by

- Paul O'Donoghue). Occupied annually since then, including 2018.
- Man-of-War Cove (**H4**) (W765518): Discovered in 2007 (Chris Cullen, William Crowley, Paul O'Donoghue) (O'Mahony 2009). One fruiting plant in 2018.
- ['Beach west of Cork'] (**H4**) (W86): There is a record of *Crambe maritima* in the National Parks and Wildlife Service rare plants database given as 'Beach west of Cork' (Goodwillie 1986). The only sites suitable for this species within the 10 km square W86 to the west of Cork Harbour are Poulnacalla Bay (W8060) and Graball Bay (W8061), both of which have suitable habitat, but there are no recent records of *C. maritima* from these sites.
- Paddy's Point (**H4**) (W793645, W794646): Discovered in 2002, occupied annually to 2018. One clump 8 m across fruiting profusely, and one new non-fruiting plant nearby in 2018.
- [Lakeland Strand (Douglas)] (**H4**) (W7370): Thomas Power recorded *Crambe maritima* 'by Douglas channel, near Lakelands' in 1840 (Power 1845). What is probably this record is referred to (incorrectly) in the National Parks and Wildlife Service rare plants database as W710795 (Goodwillie 1986), which refers to an area 8 km inland between Sallybrook and Carrignavar. There has been no evidence of presence since the 1840s, the habitat now being marginal for *C. maritima* due to wall-building and rock-armouring.
- [Dunkettle] (**H5**) (W7272): A few plants for several years on the river bank between Tivoli and Dunkettle (Phillips 1895). This site has been unsuitable for *Crambe maritima* since the early to mid-1900s due to development and reclamation.
- [Harper's Island (Harpur's Island)] (**H5**) (W7872): Recorded in National Parks and Wildlife Service rare plants database (Goodwillie 1986). This site has been unsuitable for *Crambe maritima* for over 100 years.
- [Rossmore Bay] (**H5**) (W8270): Recorded here about 2013 (Ross Macklin); not seen since.
- [Finure] (**H5**) (W8560): A former site, *Crambe maritima* was last recorded here 'over 25 years ago' (Judy Cassells).
- [Ballyshane Strand] (**H5**) (W904610): One non-fruiting plant in 2002 and 2003, not present in 2007, or subsequently.
- Ballycotton Pier (**H5**) (W999637): Known since before 2010 (Curtis 2014). About 18 plants in 2018, one fruiting.
- [Ballynamona Strand] (**H5**) (W985648): Known from this site since at least 1981 (O'Mahony 1985, 2009). Present annually up to 1990 until the shingle bar separating the lagoon from the sea was breached in March 1991 (Smiddy & O'Halloran 2006); *Crambe maritima* has not re-colonised this site since (see Ballycotton Pier above and Ardnahinch Strand below).
- [Ardnahinch Strand] (**H5**) (W990664): One plant present from 1998 to 2003, not

- present in 2007, or subsequently; fruiting in most years.
- [Garryvoe Strand] (**H5**) (X0168): Recorded in National Parks and Wildlife Service rare plants database (Goodwillie 1986). *Crambe maritima* has not occurred at this site in recent years, although generally suitable, but the most suitable area has been subject to reshaping by machinery.
- Ring Strand (**H5**) (X075713): Discovered in May 2017; three small non-fruiting plants in 2018.
- [Pilmore Strand] (**H5**) (X078732): This site was occupied regularly between 1986 and 2012, but the site was washed away during exceptionally high tides in August 2012 and has not been subsequently re-occupied (see Ring Strand above).
- [Clonard Strand] (**H5**) (X083737): One non-fruiting plant in 1985 and 1986, not present in 1987, or subsequently. This plant grew on a pathway at the top of the beach and was regularly driven upon by tractors. [Note: O'Mahony (2009) stated that *Crambe maritima* grew at Redbarn Strand, which is an extension to the north of Pilmore and Clonard Strands.]
- Ferry Point (**H6**) (X111779, X115779): Two separate sites have been occupied, the first near the tip of the shingle spit and the second 300 m to the east on the seaward side. The first site has been occupied annually from 1985 to 2018. The second site was occupied during 1990 to 1998, but not subsequently.
- Monatray West (**H6**) (X115772): Discovered in 2002 (Green 2008). Two fruiting and two non-fruiting plants in 2018.
- Whiting Bay (**H6**) (X159776): Discovered in 2009 (McGrath 2011). One fruiting and one non-fruiting plants in 2018.
- [Ballynaharda] (**H6**) (X2781): Patch discovered in 1971; not seen subsequently (Green 2008). May have disappeared during subsequent track excavation and alteration of upper shore.
- [Cunnigar] (**H6**) (X2691): Discovered in 1966 and 1971; not seen subsequently (Green 2008).
- [Tramore Strand] (**H6**) (S60A): Discovered in 1973 and 1995; not seen subsequently (Green 2008, McGrath 2011).
- [Saleen (Tramore Bay)] (**H6**) (X6299): Discovered in 1995; not seen subsequently (Green 2008, McGrath 2011).

Discussion

According to O'Mahony (2009) most *Crambe maritima* populations are transient, mainly due to the constant re-shaping of its coastal habitat by the sea. Plants are frequently uprooted by autumn and winter storms, and it may then take several years to re-colonise at the same site or at a nearby one. An additional negative factor at some sites has been brought about by human-related modifications of shorelines

through protective rock-armouring and other works; several sites have been lost or damaged, at least temporarily, due to such activities (see Annotated List).

However, the species is believed to be more frequent today in County Cork than at any time in recorded history, although most populations are small (O'Mahony 2009). Nevertheless, three of the 2018 populations in County Cork are large by Irish standards with populations of between 50 and 100 plants at each, and there is evidence of modest expansion at others. *Crambe maritima* does best at sites of low human activity, and holiday resort beaches rarely hold the species for long, at least partly because such sites are too sandy, but also probably because of human pressure and machine beach-cleaning activities.

Based on the results of the 2018 survey the outlook for *C. maritima* in the two study counties appears to be mixed with just 46.3% of the 41 known sites occupied, although 53.6% of the 28 known hectads were occupied. However, given that so many of the extant populations were seed-bearing in 2018 and given their proximity to formerly occupied sites, then it may reasonably be expected that some old sites will be re-colonised, or new sites established, in the next few years. Most of the sites unoccupied in 2018 have been occupied within the last few decades and their present habitat is, in general, suitable for the growth of *C. maritima*. However, future global climate change may have an overall negative impact on coastal areas due to increased storminess and rising sea levels, and this may negatively affect *C. maritima* populations in the longer term. Currently, *C. maritima* is listed as 'Near Threatened' on the 'Irish Red List of Vascular Plants' with future population reductions expected (Wyse Jackson *et al.* 2016).

Acknowledgements:

We sincerely thank all those whose names are given in the Annotated List for supplying records and for additional information on sites and site occupancy. Additionally, we thank the following who discussed the subject species with us and/or for reading the manuscript in draft: Judy Cassells, Edwina Cole, Paul Green, Declan McGrath, Declan O'Donnell, Paul O'Donoghue, Tony O'Mahony, Finbarr Wallace and John Wallace. Pádraigín O'Donoghue is thanked for invaluable assistance in the field.

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Rough Crew
Island Trip to West Donegal (H35)
Rutland and Inishsirrer

Ralph Sheppard. Email: rsheppard@eircom.net

The Rough Crew exists to record plants at remote and inaccessible locations. Uninhabited islands off the NW coast of County Donegal (**H35** West Donegal) certainly qualify. But "Rough" doesn't describe our weekend experience on Rutland and Inishsirrer. The weather was blissful. The boat crossings could have

been on millponds, and took only minutes. Both islands were untracked and unfenced, low-lying and easily traversed. The personnel numbered 12, with 11 on Saturday and 10 on Sunday.

Rutland (in B71) is a fairly large (122ha) island which had a fish processing industry in the 19th century. It operated within a thin strip of long-abandoned dwellings on the NE shore, a couple of which have recently been replaced or restored as holiday homes. Otherwise the island is a vast, undisturbed expanse of pure machair and grey dunes. Three monads are confined to the island, and two are shared - one with the mainland and one with other islands. The two tetrads are both shared. It had been surveyed for the previous atlas, but with only hectad records, we don't even know what species were found on the island pre-2000. There have been no botanical visits since then. The Atlas doesn't concern itself with island status, so as well as the full island list, we made sure we recorded in all monads.

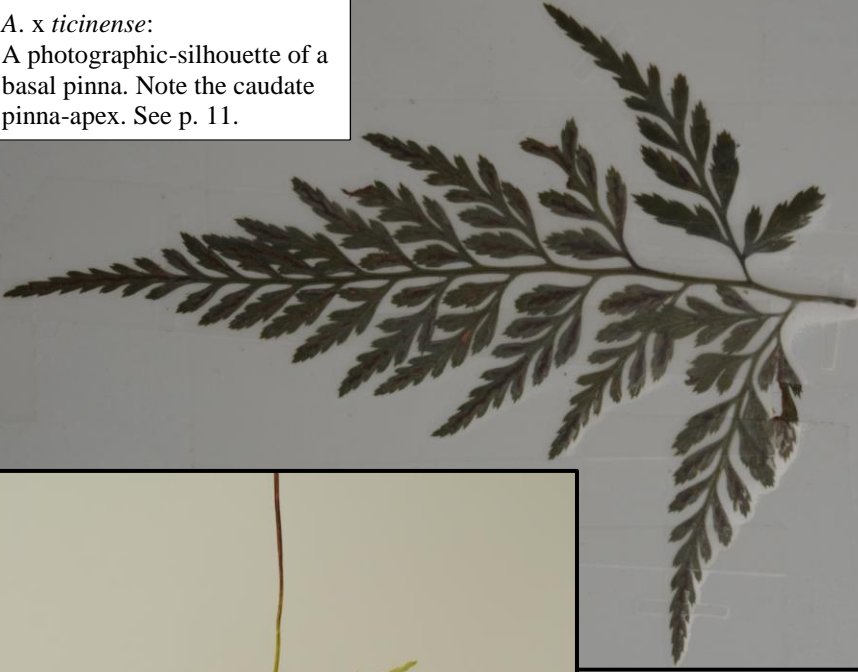
The Aranmore car ferry dropped us off, and we split into two groups. John Faulkner led a small group on a meandering tour around the western dune system; Robert Northridge took the rest on a speed-botanising route down the less pristine, but more diverse east. Between us we came up with 397 monad records, of 176 species. In keeping with expectations, rarities were few, but the sheets of attractive species at the peak of their season, and the rarity of aliens, were fulsome compensation.

The groups merged for lunch on the east coast, and later at one of the glorious west coast beaches – when we re-dividing into those who kept going westward, and the sceptics who just watched.

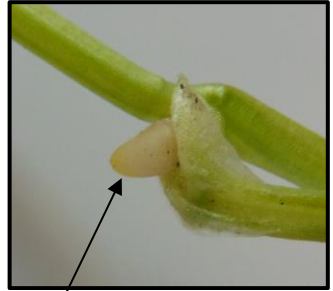
One local speciality we found was *Dactylorhiza fuchsii* subsp. *hebridensis*. *Pimpinella saxifraga* (Burnet-saxifrage) and *Leontodon saxatilis* (Lesser Hawkbit) are both rare at this end of the country. But the abiding memory is the industrial quantity of such species as *Galium verum* (Lady's Bedstraw) and *Thymus polytrichus* (Wild Thyme), peppered with what might elsewhere be deemed large quantities of *Parnassia palustris* (Grass-of-Parnassus), *Coeloglossum viride* (Frog Orchid) etc.

Next morning, ten minutes in a fast rib took us to Inishsirrer (or Inishirrer). It was not at all sandy like Rutland, being largely surrounded by storm beaches or cliffs. Habitation was abandoned in 1955 and since then it has been reverting to nature, with a heathy interior, and ruderal species still to be found near the settlement ruins. Most of its 43 ha make up the only land in hectad B73, which has three monads (one is only a tiny corner of storm beach) in two tetrads. B72 has two monads in the south, in a single tetrad. There is only a single historical record – *Zostera marina* (Eelgrass), from 1999. We quickly refound that in the large lagoon, and brought the island totals to 281 monad records of 139 species. The lagoon also held *Potamogeton pectinatus* (Fennel Pondweed). Our best find was

A. x ticinense:
A photographic-silhouette of a
basal pinna. Note the caudate
pinna-apex. See p. 11.



Asplenium onopteris
'f. lineare'
(O'Mahony 2009).
See p. 11.



Bulbil in leaf-axil of
Ficaria verna subsp. *verna*.
See p. 49. Photos taken 4th
March 2019, P.R. Green.





Crambe maritima (Sea-kale). Above: Rock Island, Crookhaven. Photo C. Heardman © 2017. Below: Castlehaven. Photo C. Heardman © 2004. See p. 32.





Persicaria sagittata
(American Tear-thumb)
– note the prickles along the stem. Castlecove, Co. Kerry. Photo P.R. Green © 2018. See p. 29.



Rutland Machair with Oonagh Duggan, Gillian & John Faulkner, John O'Boyle.
Photo R. Sheppard © 2018. See p. 38.



The above two photos taken on the Mayo field recording event 8th – 12th August 2018, see p. 73. Photo E. Delaney © 2018.

probably *Allium scorodoprasum* (Sand Leek). There were two clumps of this, one in each hectad.

Many species were shared with Rutland. *Radiola linoides* (Allseed) and *Isolepis cernua* (Slender Club-rush) are widespread, but easily overlooked, coastal species. Identifying *Euphrasia tetraquetra* (Western Eyebright) was only a token achievement – it was certainly not the only Eyebright present. *Blysmus rufus* (Saltmarsh Flat-sedge) and *Ophioglossum vulgatum* (Adder's-tongue) were also found on both islands, but the fern was particularly abundant on Inishsirr.

So as with Rutland, Inishsirr lacked many species of particular interest, but there was no denying that on both islands, nature was in charge, and in good heart. Long may it continue.



Lunch on Rutland. Photo Ralph Sheppard © 2018.

The personnel in the lunch photo - back, from left Oonagh Duggan (rear view), Rory Hodd, Mairéad Crawford, Oisín Duffy. Front from left - Hanna Northridge, John Faulkner, Robert Northridge, John O'Boyle. Largely hidden - Gillian Faulkner. Not seen, Cliona Byrne, Ralph Sheppard.

Additions to the *Taraxacum* Wigg. flora of Co. Meath (H22) 2016 & 2018

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

The *Taraxacum* Wigg. flora of Co. Meath has to date received scant attention. The records listed below are a culmination of fieldwork conducted by M. Norton during 2016 and 2018. This fieldwork included the meeting led by T. Rich, on behalf of the Botanical Society of Britain and Ireland, and the Dublin Naturalists' Field Club, to Co. Meath on 5 May 2018. All specimens have been determined by A.J. Richards 2018/2019 and will be deposited in **DBN**. Only those species hitherto unrecorded from Co. Meath are listed, with details given of the first known record for each of these species from within the vice-county. Nomenclature follows Dudman *et al.* (2006), Margetts (2007), and Richards & Doogue (2017).

Section *Erythrosperma*

Taraxacum argutum Dahlst.; Bettystown (O1573), car park of coastal village;
5 April 2018.

Taraxacum degelii G.E. Haglund; Bettystown (O1573), car park of coastal village;
5 April 2018.

Taraxacum inopinatum C.C. Haw.; Mornington, South Bull (O1575), coastal sand
dunes; 5 April 2018.

Section *Obliqua*

Taraxacum platyglossum Raunk.; Mornington, South Bull (O1575), coastal sand
dunes; 5 April 2018.

Section *Spectabilia*

Taraxacum faeroense (Dahlst.) Dahlst.; Lough Doo (N5174), lakeside pasture;
19 May 2018.



T. ronae. Photo M. Norton © 2018

Section *Naevosa*

Taraxacum euryphyllum (Dahlst.)
Hjelt; Mornington, South Bull (O1575),
coastal sand dunes; 5 May 2018.

Taraxacum ronae L.J. Margetts;
Balrath Woods (N9964), SW of Balrath
Cross Rds, trackside in open mixed
woodland; 14 April 2016.

Taraxacum ronae L.J. Margetts var.
immaculatum A.J. Richards; Duleek Commons, SE corner, (O0469); 14 May 2018.

Section Celtica

- Taraxacum aesculosum* A.J. Richards; Kentstown (N9765), on tall shaded roadside bank; 14 April 2016.
- Taraxacum akteum* Hagend., Soest & Zevenb.; Duleek Commons, SE corner, (O0469); 14 May 2018.
- Taraxacum bracteatum* Dahlst.; Hilltown Great, c.0.7km NW of Bellewstown (O0868), shaded roadside; 5 May 2018.
- Taraxacum gaelorum* A.J. Richards; Adamstown, c.3.5km SE of Trim (N8355), part of the Trim esker; 16 May 2018.
- Taraxacum gelertii* Raunk.; Summerhill Demesne (N8447), by trackway through mixed woodland; 29 April 2016.
- Taraxacum hibernicola* A.J. Richards; Moy, c.2km SW of Summerhill (N8247), amongst leaf litter on shaded roadside; 29 April 2016.
- Taraxacum inclinorum* A.J. Richards; Duleek Commons, SE corner (O0469); 14 May 2018.
- Taraxacum nordstedtii* Dahlst.; Bellewstown (O0967); 05 May 2018.
- Taraxacum pietii-oosterveldii* H. Ollg.; Bellewstown (O0967), gravelled car park; 5 May 2018.
- Taraxacum unguilobum* Dahlst.; Slieve na Calliagh (N5877), short grass sward on side of cairn; 19 May 2018.

Section Hamata

- Taraxacum atactum* Sahlin & Soest; Balrath Woods (N9863), SW of Balrath Cross Rds, trackside in open mixed woodland; 14 April 2016.
- Taraxacum boekmanii* Borgv.; Laytown, c.1km W of train station (O1571), base of wall by car park; 05 May 2018.
- Taraxacum hamatiforme* Dahlst.; Drogheda, Mary Street by Millmount (O0974), roadside embankment by Gerrard's Church; 5 May 2018.
- Taraxacum hamatum* Raunk.; Kentstown (N9765), on tall shaded roadside bank; 14 April 2016.
- Taraxacum hamiferum* Dahlst.; Mornington, South Bull (O1575), coastal sand dunes; 5 April 2018.
- Taraxacum lamprophyllum* M.P. Christ.; Moy, c.2.5km SW of Summerhill (N8147), amongst leaf litter on shaded roadside; 29 April 2016.
- Taraxacum lancidens* Hagend., Soest & Zevevb.; Balrath Woods (N9963), SW of Balrath Cross Rds, trackside in open mixed woodland; 14 April 2016.
- Taraxacum marklundii* Palmgr.; Bellewstown (O0967), grassland adjoining heath; 5 May 2018.
- Taraxacum pruinaum* M.P. Christ.; Bellewstown (O0967), grassland adjoining heath; 5 May 2018.
- Taraxacum pseudohamatum* Dahlst.; Mornington, South Bull (O1575), coastal

sand dunes; 5 April, 2018.

Taraxacum quadrans H. Ollg.; Greenan (N5274), amongst leaf litter on shaded roadside; 19 May 2018.

Taraxacum sahlinianum Dudman & A.J. Richards; Summerhill Demesne (N8447), mixed woodland; 29 April 2016.

Taraxacum subhamatum M.P. Christ.; Ballyhoe Lough (N8495), grassland by open woodland; 7 May 2018.

Section Ruderalia

Taraxacum aequilobum Dahlst.; Duleek (O0468), graveyard by Priory Church; 14 May 2018.

Taraxacum altissimum H. Lindb.; Drogheda, Mary Street by Millmount (O0974), roadside embankment by Gerrard's Church; 5 May 2018.

Taraxacum ancistrolobum Dahlst.; Drogheda, Mary Street by Millmount (O0974), graveyard by Gerrard's Church; 5 May 2018.

Taraxacum cordatum Palmgr.; Laytown, c.1.5km W of train station (O1471), roadside by R150; 5 May, 2018.

Taraxacum dilaceratum M.P. Christ.; Drogheda, Mary Street by Millmount (O0974), roadside embankment by Gerrard's Church; 5 May 2018.

Taraxacum horridifrons Rail.; Moy, c.2.5km SW of Summerhill (N8147), shaded roadside with leaf litter, 29 April 2016.

Taraxacum laeticolor Dahlst.; Bellewstown (O0967), grassland adjoining heath; 5 May 2018.

Taraxacum laticordatum Markl.; Duleek (O0468), graveyard by Priory Church; 14 May 2018.

Taraxacum latissimum Palmgr.; Hilltown Great, c.0.7km NW of Bellewstown (O0868), wooded area at top of retaining wall; 5 May 2018.

Taraxacum maculatum Jord.; Mornington, South Bull (O1575), coastal sand dunes; 5 April 2018.

Taraxacum oblongatum Dahlst.; Hilltown Great, c.0.7km NW of Bellewstown (O0868), wooded area at top of retaining wall; 5 May 2018.

Taraxacum pallescens Dahlst.; Greenan (N5274), amongst leaf litter on shaded roadside; 19 May 2018.

Taraxacum pallidipes Markl.; Bellewstown (O0967), grassland adjoining heath; 5 May 2018.

Taraxacum piceatum Dahlst.; Drogheda, Mary Street by Millmount (O0974), roadside embankment by Gerrard's Church; 5 May 2018.

Taraxacum pulchrifolium Markl.; Laytown, c.1.5km W of train station (O1471), roadside by R150; 5 May, 2018.

Taraxacum rhamphodes G.E. Haglund.; Duleek (O0468), graveyard by Priory Church; 14 May 2018.

Taraxacum sellandii Dahlst.; Summerhill Demesne (N8447); 29 April 2016.
Taraxacum stenacrum Dahlst.; Drogheda, Mary Street by Millmount (O0974),
roadside embankment by Gerrard's Church; 5 May 2018.
Taraxacum undulatum H. Lindb. & Markl.; Blackcut, c.8km SE of Trim (N8651),
roadside at intersection of Trim esker and Galtrim moraine; 14 May 2018.
Taraxacum valens Markl.; Laytown, c.1km W of train station (O1571), base of
wall by car park; 5 May 2018.

Acknowledgements:

Sincere thanks to Dr Tim Rich for so generously sharing his taxonomic expertise, fieldwork skills and perennial enthusiasm for all matters botanical. A huge debt of gratitude is also due to Prof A.J. Richards for determination of *Taraxacum* specimens.

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***Polycarpon tetraphyllum* (Four-leaved Allseed), new to Co. Dublin (H21)**

Richard McMullen, 75 Silchester Park, Glenageary, Co. Dublin

On 24/04/2018 I came across a single plant of *Polycarpon tetraphyllum* (Four-leaved Allseed) growing on the surface of a dirty pavement on Pigeon House Road (O189339). Plants growing nearby included *Sisymbrium orientale* (Eastern Rocket), *S. officinale* (Hedge Mustard), *Lamium amplexicaule* (Henbit Dead-nettle), *Saxifraga tridactylites* (Rue-leaved Saxifrage), *Cerastium glomeratum* (Sticky Mouse-ear), *Polypogon viridis* (Water Bent), *Poa annua* (Annual Meadow-grass) and *Fumaria muralis* (Common Ramping-fumitory).

This appears to be a new record for Co. Dublin.

There are four records for Ireland in the BSBI database, two in Cork and two in Wexford and all four are, like the Dublin record, close to ports. (Ringaskiddy and Rosslare). The earliest records are the Rosslare ones, both on 5/6/2014 (Paul R. Green).

Which subspecies of Lesser Celandine (*Ficaria verna*) do you have in your area?

Paul R. Green. E-mail: paulbsbivcr4h12@gmail.com

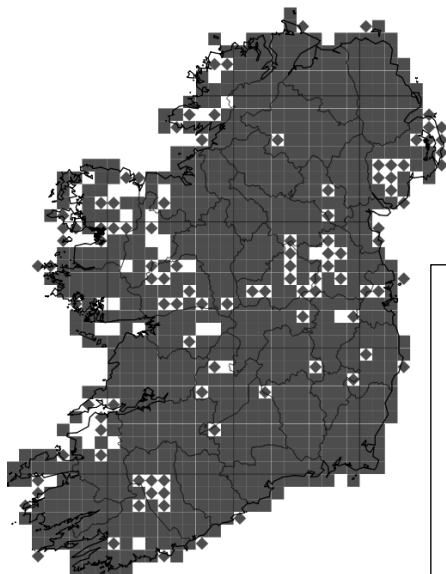
You can just record *Ficaria verna* (Lesser Celandine) and be done with it. But if you want to be more precise, you have a choice of two subspecies in Ireland: subsp. *fertilis* and subsp. *verna*.

Lesser Celandine is a common plant over much of Ireland, found in woods, along river banks, on road verges and banks, as a garden weed, etc. Even though rare in mountainous areas, Lesser Celandine can be found in river valleys and flushes high up in the mountains.

A quick description would be green round-heart shaped leaves with yellow flowers.

Simple guide on how to separate the two subspecies

	Subsp. <i>fertilis</i>	Subsp. <i>verna</i>
Leaves	Glossy green, margins entire or shallowly lobed. Lobes always blunt. Leaf surface often mottled with pale green or white blotching, and sometimes with black blotches. Leaves very seldom brown or black	Matt green, margins normally shallowly lobed. Lobes blunt or slightly pointed. Leaf surface is evenly green. Never with mottled markings
Flower stalk (pedicel)	Usually green	Often pinkish-red or brown
Petals – dimensions taken March 2019	Up to 20mm long, 5-9mm wide	Up to 18mm long, up to 5mm wide
Fruit (achene)	Many formed and maturing	Usually absent or no more than 6 maturing in each head
Bulbils	Never	In leaf-axils of flowering stems. Bulbils are creamy-brown and look like tiny potatoes. See photos p. 40



Key to maps

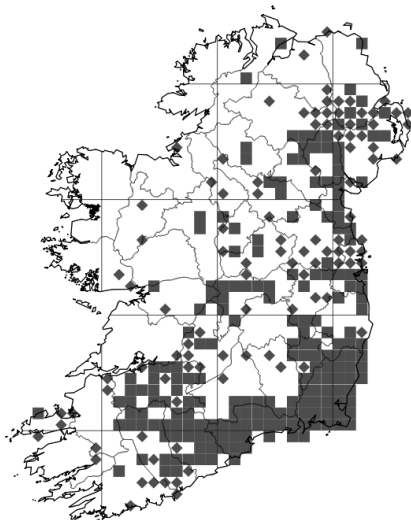
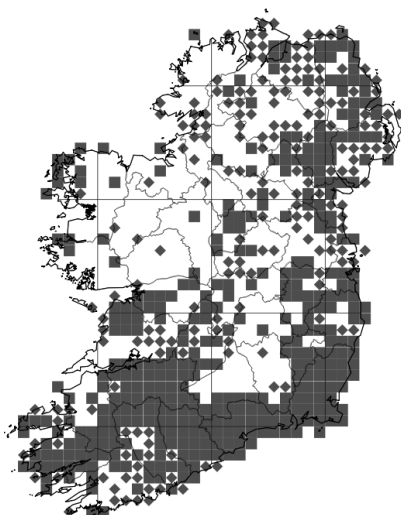
- Hectad since 2000
- ◆ Hectad pre 2000

Left: map of all records of *Ficaria verna*.

Bottom left: map of subsp. *fertilis*.

Bottom right: map of subsp. *verna*.

Maps produced from DDb on 15th Feb. 2019.



The only way to be certain of the correct subspecies

You should never try and record the subspecies too early in the year, as you need to give the achenes and bulbils a chance to form. Once the plants are flowering well, normally in March or April, identification starts to be possible. If you have plants with well-developed achenes you have *Ficaria verna* subsp. *fertilis*. If very few achenes are developed and there are bulbils in the leaf axils you have *Ficaria verna* subsp. *verna*.

Habitat for both subspecies:

Both can be found growing together occasionally.

Subsp. *fertilis*

Damp woods, river and stream banks, road banks and verges, sea-cliffs, mountain flushes, weed of gardens, and about habitation, including churchyards, graveyards and cemeteries.

Subsp. *verna*

Damp woods, river and stream banks, shaded road verges, often abundant as a garden weed, and about habitation, including churchyards, graveyards and cemeteries. Rare habitats are dunes, sea-cliffs, on wall tops and on dumped soil.

Distribution in Ireland

Ficaria verna is recorded from almost every hectad in Ireland.

Subsp. *fertilis* is almost certain to be found in every hectad Lesser Celandine is known from.

Subsp. *verna* likely to be under recorded, but certainly much the rarer of the two subspecies. The distribution map shows recorder bias, but despite this, subsp. *verna* is likely to be rare in the western half of Ireland because of the lack of habitat.

Other subspecies

There are two other subsp. known from the UK. **Subsp. *chrysocephala*** and **subsp. *ficariiformis*** if these two do occur in Ireland, and they could, they will be rare garden escapes. Subsp. *chrysocephala* is like a larger version of subsp. *fertilis* and subsp. *ficariiformis* is like a larger version of subsp. *verna*, but differs in the achenes maturing.

***Diplotaxis tenuifolia* (Perennial Wall-rocket) in Co. Dublin (H21)**

Richard McMullen, 75 Silchester Park, Glenageary, Co. Dublin

A single plant of *Diplotaxis tenuifolia* (Perennial Wall-rocket) was found growing in a pavement crack in Sallynoggin Co. Dublin close to waste ground seeded with a Wildflower mix, the same area which produced *Fumaria densiflora* (Dense-flowered Fumitory) last year.

The provenance of this specimen may well be the Wildflower mix although there are two previous records for *D. tenuifolia* in Dublin, the first in 2015 (Richard McMullen). Although *D. tenuifolia* has been recorded in 10 Vice-counties, it is rare.

Vice-county reports

Interesting plants in Co. Waterford (H6), 2018

Paul R. Green. E-mail: paulbsbivcr4h12@gmail.com

2018 was a surprisingly productive year with many interesting records being made, all reported below.

Shane Farrell was the first to send me records, from along the coast in March and April. Shane added three new monads for *Trifolium occidentale* (Western Clover) from the same hectad X69, Con Breen had found the clover in, new for the county in 2017. His *Erodium moschatum* (Musk Stork's-bill) from a driveway at Curragh (X1954179061), is a new hectad record, and only the third county record since 1971. Shane had *Olearia paniculata* (Akiraho) self-sown on the ruins of St Declan's Well, Ardmore (X1977), this being the first established record of this tree for the county.

The first record for May came from Alexis Fitzgerald, when he found *Festuca ovina* subsp. *ophiolithicola* (Sheep's-fescue) on thin soil over rocky acidic outcrop in the Comeragh Mountains (S3455411199); this being a new subspecies for the county. The last day of the month, Cliona Byrne found one *Neottia nidus-avis* (Bird's-nest Orchid) in Glenshelane Wood (S1231902864), a new hectad record. Cliona and Mary Harris, both independently, told me via email about finding *Pinguicula grandiflora* (Large-flowered Butterwort) from Glenshelane Wood (S1195300024), on the side of the forest track on the same day and both sending me photos to confirm the identity of their butterwort. Even though they had both visited the site within a day of each other in 2018, the prize has to go to Mary as she had first seen the butterwort in 2017 without flowers. This is now the most easterly site in Ireland for this native species. It has been suggested, that as it is on the side of a forest road, that the butterwort could have arrived by forestry vehicles. However the butterwort arrived, it is a great species to have added to the county list.

In June I was commissioned to produce a list of plants growing along the length of the Waterford Greenway, I did the return journey over five days, a distance of 92km. 468 species were found. Six new county records were made. Three of these had most likely escaped from Mount Congreve Gardens (S51): *Cotoneaster hylmoei* (Hylmö's Cotoneaster), *Euphorbia oblongata* (Balkan Spurge) and *Phytolacca acinosa* (Indian Pokeweed). *Hedera algeriensis* (Algerian Ivy) is established on the banks of what was once Kilmacthomas Railway Station (S3982305998). The other two are likely to be the only survivors from areas that were planted up when the Greenway was opened, and now converted back to native



Lamium album. Photo P.R. Green © 2018

flora: *Carex comans* (New Zealand Hair-sedge) and *Osteospermum jucundum* (Osteospermum). The most interesting find was of *Lamium album* (White Dead-nettle) (S4112905742), as this is only the second county record, and the first since 1900.

Nick Scott was kayaking along the River Blackwater in June with Rory Hodd and Micheline Sheehy Skeffington. Below Cappoquin, Nick noticed a large patch of *Zantedeschia aethiopica* (Altar-lily) established on one of the islands (X103975) in the river, this being a new county record.

On 28 June Cliona Byrne found *Utricularia minor* (Lesser Bladderwort) in a boggy pool at Monameean (X2148385868), this is a new hectad record, and the first county record since the 1950s.

During August, I spent 3 days surveying Kilbarry Bog (S60) with Lisa Dolan. We had lots of *Utricularia australis* (Bladderwort) in a pond, this being the third county record, and the first record since 1999. A patch of *Rubus cockburnianus* (White-stemmed Bramble), on the side of the road through the bog, turned out to be a new county record. *Scutellaria galericulata* (Skullcap) was new for the site, which seemed a surprise as we saw it in several locations within the bog.

I led a willow workshop at Cappoquin for the National Biodiversity Data Centre, Waterford, in late August. While out collecting specimens, I found *Salix x capreola* (*S. aurita* (Eared Willow) x *S. caprea* (Goat Willow)) in a roadside hedge at Tinnalyra (X1878483529), a new hybrid for the county. The afternoon of the workshop was spent walking along the River Blackwater (X09). Besides the many willow species we looked at, Megan Morris showed us *Epipactis helleborine* (Broad-leaved Helleborine), and I found *Humulus lupulus* (Hop), both being new sites. After the workshop, I went and took a look at *Pimpinella major* (Greater Burnet-saxifrage) on a road verge at Kilbree East (X0970499412) found by Mary Harris, this being a new site and the first record for the hectad since 1884.

On 7 September I was looking for hybrid *Atriplex* on the coast at Ballynacourty (X3076392196) when I came across *Cichorium intybus* (Chicory), *Guizotia abyssinica* (Niger) and *Phalaris canariensis* (Canary-grass), all three along the top of the strandline, and all new hectad records.

Aponogeton distachyos (Cape-pondweed) was the last new county record for the year, found by Clare Heardman, on 2 December, in an artificial pond at Mount Melleray (S09730434).

A report on fieldwork in Limerick (H8), 2018

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Before the start of the 2018 season Limerick was considered to be quite well covered for *Atlas 2020*. Nonetheless Julian Reynolds and I continued to fill gaps mainly in the western half of the county while the trio of Mike Quirke, Paul Murphy and Tom Harrington did the same, but more thoroughly, in the eastern half. They spent 26 days in the field compared to our 16 days, including three joint meetings. Julian and I also helped out in Wicklow (16 days) and Longford (3 days). A selection of sites visited and species found in Limerick is given below, and records from other sources.

We started the season properly on 21 April when we met up with Rob Lynch and Veronica Santorum in Kilfinnane. Rob was checking sites prior to the publication of his *Field guide to the woodland and scrub of the Ballyhoura Mountains* (Lynch 2018); he lived in that area in the early 2000s and describes those communities in detail. At his Mount Russell site (R6119), apart from the expected spring flora in oak woodland with *Quercus petraea* (Sessile Oak), there were *Viola* plants in flower among *Anemone nemorosa* (Wood Anemone) and *Blechnum spicant* (Hard-fern) which were neither true *V. riviniana* (Common Dog-violet) nor true *V. reichenbachiana* (Early Dog-violet), and similar plants have been noted elsewhere in Ireland. Good *V. riviniana* occurred in other parts of the same woodland. From past experience with a BSBI *Viola* referee it is not easy to confirm the hybrid from apparently intermediate plants. I now also realise that when I was recording in the 1980s I mistakenly called some such plants *V. reichenbachiana*, e.g. on Foynes Island (Reynolds & Reynolds 1992) and specimens with that name from the early 1900s in the Foynes area will need to be checked.

For various reasons, most of our fieldwork took place from mid-July on. One of my and Julian's best days out was to Coolavehy on the side of Coolfree Mountain (30 August, R6815). It was Rob Lynch who told us about this site where he had recorded *Scutellaria minor* (Lesser Skullcap), new to Limerick, and *Hypericum elodes* (Marsh St John's-wort) at its second known Limerick site. The upper part of the slope was dominated by *Molinia caerulea* (Purple Moor-grass) and *Juncus acutiflorus* (Sharp-flowered Rush). The lower part was wetter, peatier, with rills, more open patches and with *Sphagnum*, and showed more species diversity. We refound all the good species recorded by Rob in 2000, including the above two species, *Cirsium dissectum* (Meadow Thistle), *Carex rostrata* (Bottle

Sedge), *Pedicularis palustris* (Marsh Lousewort) and *Anagallis tenella* (Bog Pimpernel), and we added *Eleocharis multicaulis* (Many-stalked Spike-rush) and *Carex dioica* (Dioecious Sedge) to the list, both at their second Limerick sites, as well as *Comarum palustre* (Marsh Cinquefoil), *Viola palustris* (Marsh Violet) and poorly-growing *Menyanthes trifoliata* (Bogbean).

Adding to a spring card south-east of Feohanagh (3 September, R3624) a downy rose from a roadside hedgerow was kindly determined by Declan Doogue as *Rosa x andegavensis* (*R. stylosa* x *R. canina*; Short-styled Field-rose x Dog-rose). This hybrid is quite common in mid-south Limerick, previous records all made by Tony O'Mahony. Later the same day we were pleased to find a few plants of flowering and fruiting *Spergularia rubra* (Sand Spurrey) with *Sagina procumbens* (Procumbent Pearlwort) on a gravel forestry road at Dromdeeven west-south-west of Broadford (R2820) and, somewhat unexpectedly, *Galium uliginosum* (Fen Bedstraw) in damp ground on a disused shale quarry floor, with *Juncus effusus* (Soft-rush), *Potentilla erecta* (Tormentil), *Ranunculus flammula* (Lesser Spearwort), *Lythrum portula* (Water-purslane) and *Agrostis canina* s.s. (Velvet Bent).

The following day also resulted in a good find north-west of Seeconglass near the Cork border (4 September, R1920). One plant of *Polystichum aculeatum* (Hard Shield-fern) was growing on a stone bridge and several more on the roadside bank where associated species included *Digitalis purpurea* (Foxglove), *Vaccinium myrtillus* (Bilberry) and *Galium saxatile* (Heath Bedstraw), with *Blechnum spicant* (Hard-fern) and *Teucrium scorodonia* (Wood Sage) nearby. The only other record of that fern was reported by Tom Curtis from woodland on the lower slopes of the Ballyhoura Mountains in 1989 (Reynolds 2013).

On 5 September we walked two stretches of abandoned railway (now The Great Southern Trail), finding more *Rosa x andegavensis* east-north-east of Ardagh (R3039). *Persicaria amplexicaulis* (Red Bistort) was seen in several places by the railway west-north-west of Newcastle West (R2534) and *Galium album* (Hedge Bedstraw) was well established at the level crossing. Many plants of *Epilobium roseum* (Pale Willowherb), growing with *Chaenorhinum minus* (Small Toadflax), had survived the use of herbicide south-west of the level crossing (R2434). Filling more gaps in the tetrad map on 25 September we spotted *Sambucus ebulus* (Dwarf Elder) in a hedgerow south of Kilmeedy (R3728), then headed north towards the Shannon Estuary. On the roadside by the estuary south-east of Beagh Castle (R3656) a rose with small sharply-toothed cuneate-based leaves and glands on the underside and with distinctive hips indicated *Rosa agrestis* (Small-leaved Sweet-briar), not common in Limerick and later confirmed by Declan Doogue.

The three joint expeditions with our Limerick friends Mike Quirke, Paul Murphy and Tom Harrington were, as usual, good fun and very productive. On 18 July we took advantage of the long spell of hot dry weather to cross the extensive,

normally inaccessible, swamp bordering the north end of Blue Lough at Kilcornan (R4051). Among the dominant *Phragmites australis* (Common Reed) and *Cladium mariscus* (Great Fen-sedge) were *Carex elata* (Tufted-sedge), *C. diandra* (Lesser Tussock-sedge), *C. lasiocarpa* (Slender Sedge), *Epipactis palustris* (Marsh Helleborine) and scattered *Thalictrum flavum* (Common Meadow-rue). Just north of the swamp (R4052) we saw one plant of *Utricularia australis* (Bladderwort) in flower in shallow muddy water, confirmed by John Day. On our way home, Julian and I went to Lacka north of Castleconnell (R6664) to check the *Mimulus* at the edge of the River Shannon which Mike had told me about in July – it was *M. guttatus* (Monkeyflower) with ripe capsules, shedding seeds. We thought we knew the Lacka site well, but also found *Thalictrum flavum* (Common Meadow-rue) exactly where Tom described to us earlier that day.

On 31 July the five of us met to update records at Grageen Fen in the Slievefelim Mountains. *Eriophorum vaginatum* (Hare's-tail Cottongrass) was abundant in the bog just west of the fen and the transition between bog and fen consisted of tall tussocky *Molinia caerulea* (Purple Moor-grass) with *Juncus acutiflorus* (Sharp-flowered Rush), difficult to get through. Again, because of all the dry weather we were able to walk across the fen which would normally be too wet. Most of the same species (over 60) as had previously been noted among the stunted *Phragmites australis* (Common Reed) at Grageen Fen (R7956) were refound. There were eight *Carex* species, including *C. paniculata* (Greater Tussock-sedge), *C. hostiana* (Tawny Sedge), *C. limosa* (Bog-sedge) and *C. dioica* (Dioecious Sedge), as well as *Pedicularis palustris* (Marsh Lousewort), *Vaccinium oxycoccos* (Cranberry) and *Empetrum nigrum* (Crowberry); *C. lasiocarpa* (Slender Sedge) was not seen this time. The orchids had mostly gone over, but *Neottia ovata* (Common Twayblade) and one *Coeloglossum viride* (Frog Orchid) were seen in the more northerly part (R7957), and many *Pinguicula vulgaris* (Common Butterwort) in the peaty firebreak with *Carex demissa* (Common Yellow-sedge), *C. pulicaris* (Flea Sedge) and *Veronica scutellata* (Marsh Speedwell).

A month later on 29 August we all met again south of Castleconnell to look for *Teucrium scordium* (Water Germander) by the River Shannon near the Doonass Falls. This species was one of the first to be recorded in Limerick, but it had not been seen since 1905 (Reynolds 2013). Our search was unsuccessful, no doubt due to changes in the river since the building of the Ardnacrusha power station in the 1920s. However, we did record 156 other species in R6461, including an extensive patch of *Hydrocharis morsus-ranae* (Frogbit) in a millrace and *Galium odoratum* (Woodruff) in woodland, and adding *Crepis paludosa* (Marsh Hawk's-beard) by the river in R6561.

Mike, Paul and Tom recorded regularly together throughout the summer field season and then beyond until mid-December, also sending me miscellaneous records, e.g. *Phacelia tanacetifolia* (Phacelia) in a newly sown lawn at Castletroy

(Paul, 30 May, R6255). They did more recording of characteristic species, such as *Oxyria digyna* (Mountain Sorrel), *Salix herbacea* (Dwarf Willow) and *Vaccinium vitis-idaea* (Cowberry), high in the Galty Mountains (10 July, R8523), updated a hectad record for *Rhamnus cathartica* (Buckthorn) north-west of Adare (25 July, R4348) in the same area of an old Praeger record, and got a new site for *Trifolium fragiferum* (Strawberry Clover) by the Shannon Estuary near Newtown Point (14 August, R4958). When they told me that they had found and identified *Rorippa islandica* (Northern Yellow-cress), dozens of plants in disturbed ground of a damp field near the estuary at Newtown (14 August, R4857), I was my usual doubting self and thought it was probably the more common *R. palustris* (Marsh Yellow-cress)! They were sure they were right and collected specimens on 30 August which I sent to Tim Rich, who checked the seeds and confirmed their *R. islandica*, new to Limerick.

On 11 October, the trio found many plants of *Sinapis alba* (White Mustard) in a field of *Miscanthus* (Silver-grass) north of Fedamore (R5945), *Carex spicata* (Spiked Sedge) with fruits on 1 November at Derryknockane (R5551) and *Stachys x ambigua* (*S. sylvatica* x *S. palustris*, Hybrid Woundwort) and *Veronica agrestis* (Green Field-speedwell) in several places. Also on 1 November they discovered a small fen-like area at Roxborough on the outskirts of Limerick City (R5951) with *Galium uliginosum* (Fen Bedstraw), worth exploring earlier in the season in 2019. They recorded 140 species, including *Calluna vulgaris* (Heather), *Galium saxatile* (Heath Bedstraw), *Erica tetralix* (Cross-leaved Heath), *Hydrocotyle vulgaris* (Marsh Pennywort) and *Lycopus europaeus* (Gypsywort), on 16 November south-east of Ballysimon (R6453) where there was a disused flooded quarry and swampy ground. Pre-2000 hectad records were updated and new records made in exploited raised bog at Ballynacourty north-east of Annacotty (R6659) on 29 November, including *Andromeda polifolia* (Bog-rosemary), *Vaccinium myrtillus* (Bilberry) and *V. oxycoccos* (Cranberry), and they noted the relatively uncommon *Brassica nigra* (Black Mustard) in a quarry at Annagh (R6958). Their last joint card for 2018 was at Gardenhill (14 December, R6761) where they got over 100 species, including *Osmunda regalis* (Royal Fern) and *Persicaria wallichii* (Himalayan Knotweed). Finally, when hiking after Christmas Mike found a new site for *A. polifolia* and *V. oxycoccos* in the Slievefelim Mountains, on the northern slope (30 December, R7858).

At my request Paul Green joined Julian and me in Limerick on 16 September to look at *Atriplex* (Oraches) at seven sites along the Shannon Estuary, starting west of Glin (R1147). The hybrids *A. x taschereaui* (*A. glabriuscula* x *A. longipes*) and *A. x gustafssoniana* (*A. prostrata* x *A. longipes*) were apparently common and identified by Paul in four hectads (R14, R25, R35, R45), and *A. prostrata* x *A. glabriuscula* much less common (records are in the DDb). Some *A. prostrata* (Spear-leaved Orache) was seen, but no true *A. glabriuscula* (Babington's

Orache). Plants close to *A. longipes* (Long-stalked Orache) were seen at the top of the shore near Barneen on Foynes Island (R2452) and where the grassy sward bordered hedgerow above saltmarsh at Ringmoylan (R4057).

Miscellaneous garden escapes and discards, nearly all New County Records, included *Diplotaxis tenuifolia* (Perennial Wall-rocket) self-sown on a grass verge away from parent plants at Kilcornan (18 July, R4052), also one plant in disturbed ground south of Fedamore (Mike Quirke et al., 11 October, R5942); *Oenothera glazioviana* (Large-flowered Evening-primrose) with dumped garden material at Killeen east of Kilfinnane (30 August, R7022); *Fallopia sachalinensis* (Giant Knotweed) on a roadside south-south-west of Broadford (3 September, R3318); *Persicaria campanulata* (Lesser Knotweed) well established in a deep roadside ditch at Knockanimpuha (5 September, R2134); *Olearia traversii* (Ake-ake) self-sown in a stone wall by the Shannon Estuary west of Glin (16 September, R1147, det. Paul Green); and *Limnanthes douglasii* (Meadow-foam) apparently self-seeding and established on a long stretch of roadside north-north-east of Emly (30 September, R7738).

Other people also provided interesting records in 2018. Paul Green found himself in Limerick by mistake near the Kerry border and passed on records, and David Nash crossed the border from his vice-county south of Rear Cross (21 June, R8356), sending me a list of over 100 species including *Trifolium medium* (Zigzag Clover), rare in Limerick. Tanya Slattery sent an updated record in June for the protected species *Hordeum secalinum* (Meadow Barley) at Ballycummin near Limerick City (R5452). Then I was very pleased to hear from John Fogarty that he, Liam Burke and Anne Lloyd had refound *Pseudorchis albida* (Small-white Orchid), another protected species, at Ballygeana on the north-west side of the Galty Mountains (17 June, R8425), first reported from there by Ro FitzGerald in 1991 but not seen since. When they returned a week later to show someone else the orchid in flower, it was gone – grazed down! Dave Riley kindly determined some *Salix* specimens collected in 2016, including *S. x stipularis* (*S. viminalis* x *S. caprea* x *S. aurita*, Eared Osier) from west-south-west of Longford Bridge (31 August 2016, R8245). A specimen of *Dryopteris affinis* subsp. *kerryensis* (Golden-scaled Male-fern) collected by Jim Dennison was confirmed in 2017 and published by Roger Golding (2018). Jim gave me details of its site in woodland at Curragh Chase (R4150), where he saw it again in 2018.

I want to thank especially Julian, Mike, Paul and Tom for all their work in 2018; also Paul Green for such a productive day looking at Limerick *Atriplex* (Oraches); those who passed on records; Declan Doogue and Dave Riley for determining specimens, and the inestimable BSBI referees. Now it is a relief to know that there is only one more year left to record for *Atlas 2020* and then we can get on with our own projects!

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Recording in Wexford (H12), 2018

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2018 was another exceptional year of recording. The main aim was to try and visit as many of the monads with no records. This was almost achieved with just two monads with no records, out of the 2559 monads in the county. We have also been trying to record 100 plus species per monad. There were 158 monads still needing to top the 100 mark by the end of the year, many are around the margin of the county where the majority of the monad is in the neighbouring county or the sea. Overall the average number of species recorded for each monad runs at 158, a much higher total than I had expected.

15 new species and hybrids were added to the county list and, if you include subspecies and varieties, there are 17. Of these, 4 are native and include 1 species, 1 subspecies, 1 hybrid and a variety.

The most surprising of the 17 must be *Thelypteris palustris* (Marsh Fern), as there was a very large population of this native fern in an open area of the fen behind the dunes at Ballinesker (T1128), and scattered patches under the willow carr.

I also found the hybrid *Epilobium x novae-civitatensis* (*E. ciliatum* (American Willowherb) x *E. hirsutum* (Great Willowherb)), which had formed a large clump in a conifer plantation at Cullentra (T1548447032).

The subspecies was found by Alexis Fitzgerald: *Festuca ovina* subsp. *hirtula* (Sheep's-fescue) on thin soil over rocky acidic outcrop at Drinagh (T0534620078), this is the only record in the county for Sheep's-fescue identified to subspecies level.

Paula O'Meara found the variety: *Solanum dulcamara* var. *marinum* (Bittersweet) on edge of dune cliff, Kilgorman (T23186315), this prostrate variety has much thicker flesher leaves.

The first of the non-native species: *Mahonia japonica*, was found by Dara Kilmartin while taking part in the BSBI New Year Plant Hunt, on 2 January, at Donagh More (T2050).

Paula O'Meara found 6 further non-natives:

Centaurea montana (Perennial Cornflower), surviving where discarded on road verge at Cullenstown (S86022104); *Eucalyptus gunnii* (Cider Gum) one metre sapling self-sown out of rock crevice at Norrismount (T07685219); *Euphorbia maculata* (Spotted Spurge) weed of planted traffic island at Ballymoney Lower (T20376048); *Lactuca sativa* (Garden Lettuce) many plants surviving from dumped plugs on steep bank of arable field at Ballyknockan (T07833627); *Sempervivum tectorum* (House-leek) established on windowsill of derelict shed at Creagh Lower (T14456102); *Trifolium incarnatum* subsp. *incarnatum* (Crimson Clover) a small patch in set-aside field at Killowen (S69722032).

The other 6 new species were found by me:

Briza minor (Lesser Quaking-grass), plentiful as weed in broad bean field at Corbetsown (T0618949191). This is the first record for Ireland since 1859; *Ceratochloa cathartica* (Rescue Brome) small patch on road verge by farm at Ballyhast (T1052655018); *Dicksonia antarctica* (Australian Tree-fern) one self-sown on bank in wood, near parents in John F. Kennedy Arboretum (S7219); *Helianthus tuberosus* (Jerusalem Artichoke) a large patch on bank of river flowing into the sea at Donagh More (T2115950005); *Nymphoides peltata* (Fringed Water-lily) plentiful in pond in corner of field at Ballywalter More (T1662152703); a patch of *Symphoricarpos x chenaultii* (Pink Snowberry) on road bank at Clonjordan (S92654642), where it was probably originally dumped and survived.

Other interesting finds of the year include: *Draba muralis* (Wall Whitlowgrass) on bridge at Newtown (S834431) found by Joanna Hodgton, the fourth record for the county. Bruce Walker found one *Filago vulgaris* (Common Cudweed) in his garden at Screen (T080304), a new hectad record. While on a visit to the county, Eamon Gaughan found *Melampyrum pratense* (Common Cow-wheat) in Bigwood (S74963521), this is a new site. Cow-wheat is the most under recorded native species in the county, with 8 hectads with no record since 1990. Roy Watson came across a patch of *Clematis tangutica* (Orange-peel Clematis) established on the dunes at Carna (T1274906601), this is a 2nd county record. The Wexford Naturalists' Field Club held a Bio Blitz meeting in the grounds of Rosegarland (S8615) where *Lemna gibba* (Fat Duckweed) was found covering the surface of a pond, this being a new hectad record. Paula O'Meara found *Erigeron acris* (Blue Fleabane) at Enniscorthy (S96354118), this being the first hectad record since 1866, when it was the first Wexford record for this species. Shane Farrell came

across *Asparagus prostratus* (Wild Asparagus) on the coast at Ballytrent (T1345308420), this is a new site on the east coast of the county for this rare species. The nearest site being from the dunes at Ballyteige Burrow almost 15km away.

Erysimum cheiranthoides (Treacle-mustard) is a rare species in the county and was found in five new monads during the year by Paula O'Meara, doubling the number of records since 2000. There are no reported sitings for Treacle-mustard in the county between the years 1994 and 2013.

Recording in Leitrim (H29) 2018

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In 2018, **16728** records were collected from Leitrim. This is the greatest no of Leitrim records collected and uploaded to the DDB in a single year since recording for *Atlas 2020* started in the year 2000. The total from the year 2000 is 43653. Therefore, recording for 2018 alone has contributed over a third of all the records collected in the 19-year period from 2000 to 2018.

Apart from the VCRs, Aoife Delaney and myself, significant contributions were made by others. Notably Robert and Hannah Northridge who found *Pyrola minor* (Common Wintergreen) in south Leitrim (the first Leitrim record since Praeger's old records of 1899). Robert and Hannah also found both *Hymenophyllum* (Filmy-fern) species in a new site on a mountain in north Leitrim. Don Cotton VCR for Sligo found *Hammarbya paludosa* (Bog Orchid) in a north Leitrim bog (a first county record for this elusive orchid). In June John Faulkner examined sites where *Carex acuta* (Slender Tufted-sedge) was recorded in Leitrim and reassigned them to *Carex aquatilis* (Water Sedge). This rare sedge is now well represented in Leitrim but *Carex acuta* remains a desideratum.

Recording for Leitrim began in earnest in March and continued right through the year to December. Generally, monads/tetrads were selected which had few or no past records or few or no records from the year 2000. Several non-indigenous species were recorded for the first time in Leitrim in 2018; notably *Arum italicum* (Italian Lords-and-Ladies), *Ribes sanguineum* (Flowering Currant), *Acaena ovalifolia* (Two-spined Acaena), *Tellima grandiflora* (Fringecups), *Diplotaxis tenuifolia* (Perennial Wall-rocket), *Papaver dubium* (Long-headed Poppy), *Vulpia myuros* (Rat's-tail Fescue) among others. Some of these are commoner in other parts of Ireland but are rarely encountered in Leitrim. Perhaps in time some will become more widespread or may have been overlooked in the past. For example, *Valerianella carinata* (Keeled-fruited Cornsalad) first recorded in Leitrim last year turned up at a second site early this year.

Of native taxa apart from a few mentioned above, significant finds were *Carex lasiocarpa* (Slender Sedge) in a new hectad in August, *Eleocharis acicularis* (Needle Spike-rush) & *Potamogeton x angustifolius* for the first time on the Leitrim side of Lough MacNean in July, *Carex diandra* (Lesser Tussock-sedge) in south Leitrim in August, *Populus nigra* (Black Poplar) on the west side of Lough Allen, four new or updated sites for *Circaea x intermedia* on Lough Melvin and Lough Gill, a new site for *Persicaria minor* (Small Water-pepper) in September, and a first post 1999 record for *Asplenium marinum* (Sea Spleenwort) on the very limited coastline of Leitrim. There is a great variety and abundance of *Salix* species and hybrids in the county. This year new sites were found for *Salix pentandra* (Bay Willow), *S. purpurea* (Purple Willow), *S. alba* (White Willow), *S. repens* (Creeping Willow) and some of the hybrids. Also new sites for some *Potamogeton* species but there is work to be done on that genus. Sites for the nationally rare *Trollius europaeus* (Globeflower), *Leucojum aestivum* (Summer Snowflake) and *Pseudorchis albida* (Small-white Orchid) were revisited this year and the plants were found to be thriving.

Late season recording produced a few surprises. *Veronica agrestis* (Green Field-speedwell) turned up at two sites in November. The last record of this rare speedwell in Leitrim was in the 1920s. In December the uncommon crucifer *Erysimum cheiranthoides* (Treacle-mustard) was seen still in flower and fruit.

On June 23rd/24th there was a two-day field outing in Co. Leitrim. Up to 9 people attended including some experienced botanists and the event was both enjoyable and educational. They also produced some new hectad records for the areas recorded. The venues recorded were Lough Melvin, Lough Allen and a small hill and lake in south Leitrim. Notable taxa recorded included *Circaea x intermedia*, *Galium boreale* (Northern Bedstraw), *Carex oederi* (Small-fruited Yellow-sedge), *C. pallescens* (Pale Sedge), *Potamogeton filiformis* (Slender-leaved Pondweed), *P. x nitens*, *Lysimachia nummularia* (Creeping-Jenny), *Populus nigra* (Black Poplar), *Scutellaria galericulata* (Skullcap), *Platanthera chlorantha* (Greater Butterfly-orchid), *Cicuta virosa* (Cowbane) and the alien willowherb *Epilobium ciliatum* (American Willowherb) which seems to be spreading in the vice county.

The last recording session of the year was during the New Year Plant Hunt in Carrick on Shannon on December 30th. Over 90 taxa were recorded including 30 in flower. Of interest was the abundance of the diminutive *Saxifraga tridactylites* (Rue leaved Saxifrage) in flower. Although now common in Sligo there are only a few Leitrim sites. The very mild early winter weather extended the season for useful recording this year and brought forward the flowering of some early season plants.

Looking forward to 2019, we hope to cover a lot more ground. There are bound to be some exciting species hiding in the many and varied habitats in a county that stretches from the northwest coast to well into the middle of Ireland.

We would be keen for others to come and join us. With that in mind we plan to set aside a number of days in 2019 when anyone who is free can come to Leitrim to record as a group. Dates, venues and meeting points will be communicated beforehand.

Co. Down (H38) recording in 2018

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Ad hoc field trips and monthly field meetings were organised to make records for the forthcoming *New Atlas*, and in support of the proposed flora of Co. Down. The focus was on under-recorded hectads and taxa of shorter flowering period. Six monthly meetings took place at Belfast, Newcastle, Slieve Croob hills, Crawfordsburn, Ballyhornan and Comber. Thanks to the members of the Ulster BSBI group for supporting these and the records accrued. I also give grateful thanks to Roy Anderson, Lesley Crawshaw, Alexis FitzGerald, Margaret Marshall, Anne McComb, Ian Rippey, Suzanne Belshaw and Ian McNeill who sent additional plant records to me.

On the first day of January, despite wild weather, the New Year plant hunt in Dundrum produced over 30 flowering taxa, including *Erigeron karvinskianus* (Mexican Fleabane).

The first monthly meeting, in late April at the Connswater Greenway yielded a colony of *Galium album* (Hedge Bedstraw) and several *Poterium sanguisorba* (Burnet) plants. *Erophila verna* var. *praecox* (Common Whitlowgrass) and *Saxifraga tridactylites* (Rue-leaved Saxifrage) were also seen.

In early May, walking from Chapel Island to Gores Island along the south shore of Strangford Lough *Viola x bavarica*, *Cochlearia anglica* (English Scurvygrass), *Juncus inflexus* (Hard Rush), *Rumex hydrolapathum* (Water Dock) and *Catabrosa aquatica* (Whorl-grass) were recorded.

Walking the Granite Trail at Newcastle for the meeting in mid-May produced *Crassula tillaea* (Mossy Stonecrop) at its most southerly station so far in Down. Also seen were *Ulex minor* (Dwarf Gorse), *Festuca altissima* (Wood Fescue) and in the quarry on Slieve Donard, planted *Juniperus communis* (Common Juniper). *Arbutus unedo* (Strawberry-tree) was still present at the well-known site by the Glen River, although its numbers seemed much reduced, and much of the surrounding forestry and scrub had been cleared.

Dryopteris cambrensis (Narrow Male-fern) was found on a meeting with the Belfast Naturalists Field Club at the Ulster Museum Cultra manor in mid-May, and saw us puzzling over *Alchemilla filicaulis* subsp. *vestita* (Hairy Lady's-mantle) on a lawn.

In late May, a walk in the dunes at Tyrella produced many of the specialities including *Vicia lathyroides* (Spring Vetch) and *Erodium moschatum* (Musk Stork's-bill).

It took some time to leave the car park for the monthly meeting at the Slieve Croob hills as several interesting species, e.g. *Dryopteris borrieri* (Borrer's Male-fern), *Myosotis discolor* (Changing Forget-me-not) and *Potentilla erecta* subsp. *strictissima* (Tormentil) were found. The walk along the tracks from the Windy Gap was very pleasant in good weather, and many typical taxa were found. Blue *Jasione montana* (Sheep's-bit) and yellow *Potentilla erecta* subsp. *erecta* flowers on the walls of the tracks were abundant.

A joint field clubs meeting at Murlough NNR led by Jo Whatmough in early June was interesting and botanically rich. Finds included *Carex pilulifera* (Pill Sedge), *Viola canina* (Heath Dog-violet) and *Salsola kali* subsp. *kali* (Prickly Saltwort).

In late June, a report from Roy Anderson of *Papaver nudicaule* (Iceland Poppy) in Newtownards was confirmed. This was a probable first record for Co. Down. *Matricaria chamomilla* (Scented Mayweed) was also found at the site, a field used for storage of top-soil from a nearby construction site.

The walk along the Edith of Lorne Glen by Crawfordsburn in early July was notable for many *Epipactis helleborine* (Broad-leaved Helleborine) plants. Also recorded were *Poa nemoralis* (Wood Meadow-grass) and *Heracleum sphondylium* x *H. mantegazzianum*.

A report of a large flowering *Crambe maritima* (Sea-kale) from Anne McComb led me to Minerstown beach, where *Mertensia maritima* (Oysterplant), *Polygonum oxyspermum* (Ray's Knotgrass) and *Atriplex littoralis* (Grass-leaved Orache) were also seen - the last growing in an atypical situation where works on the road verge had taken place. Anne also sent records of *Mertensia maritima* and *Glaucium flavum* (Yellow Horned-poppy) from the Bloody Bridge coastal path. The former was of note because it had seemed to be missing from the well-known site for some years, perhaps due to sheep grazing.

In early August we were at Ballyhornan for the monthly meeting with the intention of visiting the *Limonium procerum* subsp. *procerum* (Tall Sea-lavender) station to the south. This proved to be one of the highlights of the year as there had been a significant increase in numbers, a colony of perhaps over one hundred plants covering a rocky strip about 50m long.

In late August I visited Mount Stewart where a field had been given over to wild flowers. It was a spectacular sight containing many introductions, but also plants typical of east Down agricultural soils which had taken advantage of the conditions. *Agrostemma githago* (Corncockle), *Centaurea cyanus* (Cornflower), *Papaver rhoeas* (Common Poppy), *Poterium sanguisorba* (Burnet) were seen and could be expected; but there was also *Helminthotheca echioides* (Bristly

Oxtongue), and of the locals, *Veronica agrestis* (Green Field-speedwell), *Lamium confertum* (Northern Dead-nettle) and *Solanum nigrum* (Black Nightshade).

In early October, beaches in Carlingford Lough were visited as part of the CEDaR bio-blitz with the intention of recording *Salicornia* species and *Atriplex* taxa. A Greencastle salt marsh was notable for having two *A. littoralis* (Grass-leaved Orache) hybrids, *A. littoralis* x *longipes* and *A. littoralis* x *prostrata*.

In mid-October the meeting at the Comber estuary was rather disappointing, as *Atriplex*es were fewer than normal. I suspect many died during the very dry spell in May and June. *Salicornia europaea* (Common Glasswort) and *Cochlearia anglica* (English Scurvygrass) were found.

In late October Anne McComb sent me photos of a plant growing in a car park in Ballynahinch which close examination proved to be *Galinsoga parviflora* (Gallant-soldier). This was a probable first record for Co. Down. *Urtica urens* (Small Nettle) was also recorded at the site.

On the last day of December, the New Year plant hunt produced 49 taxa in flower in Portaferry, the most we have ever recorded in this event. Thanks to those braves who turned out!

Of the 42 hectads in County Down, 17 were visited in 2018. 115 new hectad records were made, mostly of non-native, sub-species and hybrids. 42 records were date-class upgrades from the previous Atlas.

Antrim (H39) Field Trips of 2018

David McNeill. Email – dw.mcneill13@gmail.com

As the cars eventually came into view, five bedraggled figures descended wearily from the edge of the wet but wonderful Garron Plateau. The final pilgrimage of 2018 was drawing to a close and we had just shared the privilege of counting the seed-heads of the last surviving patch of Marsh Saxifrage (*Saxifraga hirculus*) in County Antrim. It was time to disperse, to sink into hibernation and gather our energy for the challenges of another year.

With the enthusiastic support of Maria Long, we have recently formed an Ulster BSBI Group to encourage an interest in field botany in Ireland's northern counties. In 2018, I led members of this group on 6 major fields trips in County Antrim – one each month between April and September.

A beautiful spring day in April saw us gathered at the Mill Race Trail in the valley of the Six Mile Water. Beside the car park we saw Cherry Plum (*Prunus cerasifera*) and in the woods there was lots of Wild Garlic (*Allium ursinum*) and a mystery *Allium* which is quite common along the Six Mile Water, but stubbornly refuses to flower. We explored the riverside paths as far upstream as Muckamore, stopping to admire a treecreeper and then a dipper.

A royal gun salute meant that Clotworthy House was closed to the public until early afternoon, so we had lunch at Antrim Loughshore Park. Common Whitlowgrass (*Erophila verna*) was pointed out on bare ground here, and both Few-Flowered Leek (*Allium paradoxum*) and Cowslip (*Primula veris*) were seen beside the river. We meandered slowly towards Antrim Castle Gardens, picking up Wall Lettuce (*Mycelis muralis*) and Box (*Buxus sempervirens*) near the footbridge. The gardens have a beautiful combination of formal beds and semi-natural areas. The best plants were Toothwort (*Lathraea squamaria*) in abundance and Rigid Hornwort (*Ceratophyllum demersum*) in some of the ponds.

Once Clotworthy House re-opened, we were able to visit the exhibition of botanical art by Ulster BSBI Group member Alison Walker. Everyone was able to admire her work and I enjoyed an ice-cream.

Cushendun was our venue in May. We spent the morning around the village, naming quite a few species on a wall beside the car park, before crossing the road to a strip of grassland behind the beach. This was more species-rich than expected, partly thanks to local conservation efforts. The most eye-catching species was Wood Cranesbill (*Geranium sylvaticum*), a rare native of the county, but which had been introduced at this site. We also saw Pignut (*Conopodium majus*), Bulbous Buttercup (*Ranunculus bulbosus*) and Ragged Robin (*Silene flos-cuculi*).

A new riverside path gave us access to the banks of the Glendun River and, in particular, to a new site for Heath Groundsel (*Senecio sylvaticus*) – the only post-2000 record for the north of the county. Completing a loop around the village, we found a fine stand of Wood Meadow-Grass (*Poa nemoralis*) and a rare county record for the bulbil-producing form of Lesser Celandine (*Ficaria verna* subsp. *verna*).

After lunch, we moved inland to visit Craigagh Wood. This beautiful site, set on a steep slope above the Glendun River, is famed for its red squirrels, but is also County Antrim's only site for Tunbridge Filmy Fern (*Hymenophyllum tunbrigense*). Although the upper parts of the woodland are dominated by planted beech, the lower rocky ground retains a more natural feel, and it was here that we headed in search of our prize. There were many rocks to look under and many boulders to trip over. So many, in fact, that we had to return to the path for our own safety, picking up Wood Melick (*Melica uniflora*) on the way.

We climbed to the top of the wood and then returned via the road, recording as we went. After re-uniting a distraught child with his mother, we entered the wood by another gate and a few brave souls battled into the undergrowth again. We were called off the scent by the rest of the group, although we saw Wood Goldilocks (*Ranunculus auricomus*) for our pains.

From the cars, we passed through a quiet churchyard and over a footbridge to join a picturesque riverside path. The best plant on this stretch was Wood Fescue (*Festuca altissima*). After the last car had pulled away from the car park, Craigagh

Wood pulled me back. If only the others had been with me to admire the shimmering cascades of blue-green filmy fern. I was thrilled to learn that another group member returned to see it for himself in August.

In June, we paid a visit to Montiagh's Moss in the south of the county. This ASSI is home to a number of plants which are locally rare. Access to the site required completion of a very strict health and safety form and the threats of sunstroke and tick bites loomed over us. Also looming over us was the vegetation, which had responded enthusiastically to the removal of grazing. As a result, the meadow habitat was almost impossible to penetrate. The better ground was the lowland bog.

Despite our disappointment at the site condition, we came away with a nice list of plants. Royal Fern (*Osmunda regalis*) was everywhere. In the pools we saw White Beak-Sedge (*Rhynchospora alba*), Great Sundew (*Drosera anglica*), Many-Stalked Spike-Rush (*Eleocharis multicaulis*) and Cowbane (*Cicuta virosa*). One particularly rich area yielded Lesser Butterfly Orchid (*Platanthera bifolia*), Bog Pimpernel (*Anagallis tenella*) and Red Rattle (*Pedicularis palustris*). Our best find was Least Bur-Reed (*Sparganium natans*) in its only modern county site.

After lunch, we moved to Bartin's Bay on the shores of Lough Neagh and walked from there to a small nature reserve at Tolan's Point. We passed Hemlock (*Conium maculatum*) growing in a piece of waste ground and saw some of the typical Lough Neagh flora in the nature reserve, including Flowering Rush (*Butomus umbellatus*), Yellow Loosestrife (*Lysimachia vulgaris*) and Purple Loosestrife (*Lythrum salicaria*). Maybe I should have carried out a more thorough health and safety assessment for Tolan's Point as, further into the reserve, we had an unexpected encounter with a couple of horses and were swarmed by Lough Neagh flies.

Undeterred, we embarked on a long weekend of botany in July. This event was advertised in the main BSBI field trip programme, so we had quite a few extra pairs of eyes, including those of the Rough Crew's intrepid Rory Hodd, who was keen to join us for the Friday outing to Fair Head. In the morning we scrambled down at the west end of the cliffs and saw Aspen (*Populus tremula*) nearby. However, the weather was soon to deteriorate, and the ground conditions became treacherous. Ciaran Kinney was our local guide, and his experience and patience was vital in getting us out safely. Plant-spotting was far from easy, but we saw Roseroot (*Sedum rosea*) on the cliffs below Lough Doo where we ascended again.

We drove round to the eastern end of the cliffs for a much-needed lunch break. Thankfully, the weather improved. The clouds lifted and so did our spirits. Botanising was much easier in the afternoon, although the steep wooded slopes were often tricky to traverse. In the woods, we saw quite a bit of Hay-Scented Buckler Fern (*Dryopteris aemula*) and luxuriant Wilson's Filmy Fern (*Hymenophyllum wilsonii*). Rory searched diligently for the gametophyte of

Killarney Fern (*Trichomanes speciosum*) which we knew to be in the vicinity. Eventually, he emerged triumphant from the darkness and everyone took turns to crawl in and see the plant for themselves. On the lower slopes, we came across Grass-of-Parnassus (*Parnassia palustris*) and an abundance of Agrimony (*Agrimonia eupatoria*). We had an enjoyable meal in Bushmills to round off a rewarding day.

On Saturday, we met at Dunseverick Castle and were joined by Ruth Linton of the National Trust, which looks after some of the spectacular coastal sites which we hoped to explore. Our aim was to walk fairly quickly along the cliffs to the Giant's Causeway, seeing Zigzag Clover (*Trifolium medium*) on the way, have lunch at the stones, and then spend the afternoon at Aird. However, I had totally underestimated how long the cliff-top walk would take us. Reluctantly, I decided that most of the group would not have time to visit the Causeway. Ruth took everyone else directly onto the Aird heathland whilst I led the two visiting Rough Crew members on a forced march down to the shore to see Oysterplant (*Mertensia maritima*). As we sped along, we also spotted Parsley Water-Dropwort (*Oenanthe lachenalii*), the pink-flowered Hedge Bindweed (*Calystegia sepium* subsp. *roseata*) and Sea Rush (*Juncus maritimus*), the latter a first post-2000 county record. Gasping for breath, we re-joined the others

.....who were wading in a wonderland of lace. Aird was awash with the beautiful blooms of Whorled Caraway (*Carum verticillatum*). The mixture of dry and wet heath was home to Mountain Everlasting (*Antennaria dioica*), Fir Clubmoss (*Huperzia selago*), Pale Butterwort (*Pinguicula lusitanica*) and Lesser Tussock-sedge (*Carex diandra*) amongst many others. But no sign of our main target species. Ruth had brought an old photograph of Irish Lady's Tresses (*Spiranthes romanoffiana*) on her phone. The background in the photograph reduced the search area but it seemed that we were maybe a week early. Finally, there was a shout and the photographers fell to their knees.

A few members visited a lovely site at Dunseverick before meandering home. Here we picked up Saltmarsh Flat-sedge (*Blysmus rufus*), Hard-grass (*Parapholis strigosa*) and Common Saltmarsh-grass (*Puccinellia maritima*). Only the first of these had been seen anywhere in the county since 2000.

Sunday was a quieter day, spent around Portrush. A small group of us visited the White Rocks in the morning and Ramore Head in the afternoon. At the White Rocks, we saw Sea Rocket (*Cakile maritima*) on the shore, Common Twayblade (*Neottia ovata*) on the sea slopes and a profusion of Field Scabious (*Knautia arvensis*) on the wall of a chalk quarry beside the coast road. The last of these is the only post-2000 record for the north of the county and we can say from first-hand experience that the site is extremely well protected by brambles. At Ramore Head, records included Spring Squill (*Scilla verna*) and Heath Pearlwort

(*Sagina subulata*) on the cliffs, and Tree-mallow (*Malva arborea*) and Seaside Daisy (*Erigeron glauca*) naturalised nearby.

We made another visit to Lough Neagh in August - a much more enjoyable experience than the previous one. We parked at the edge of Randalstown Forest and walked on the forest roads to the edge of the nature reserve at the lough shore. On the way we came across Broad-leaved Helleborine (*Epipactis helleborine*) but much better was to come.

A narrow path led to the bird hide overlooking Farr's Bay. Beside the path there was Orpine (*Sedum telephium*) and in the adjoining wet woodland we saw Wood Club-rush (*Scirpus sylvaticus*) and Thin-spiked Wood-sedge (*Carex strigosa*). Beyond the bird hide, the shoreline was more open with reed beds and shallow lagoons. We paddled around here for ages. Our plant-list included clumps of Hemp-agrimony (*Eupatorium cannabinum*) a little of both Nodding and Trifid Bur-marigolds (*Bidens cernua* and *B. tripartita*), one flowering plant of Narrow-leaved Water-plantain (*Alisma lanceolatum*), scattered plants of Gypsywort (*Lycopus europaeus*) and an intense blue bed of Skullcap (*Scutellaria galericulata*). Our afternoon stop at Cranfield Old Church couldn't dim the memories of the morning.

And so it was that, in September, we gathered beside the Inver River upstream from where it tumbles down into Glenariff. The wellingtons which we were going to need for the plateau made the rocks in the Inver River gorge very slippery. Here, we saw Goldenrod (*Solidago virgaurea*) and Northern Bedstraw (*Galium boreale*). A few aspen trees found shelter at the top of the gorge, but climbing further led us out onto the vast and treeless wilderness of the Garron.

We trudged to an upland lough with little other than Shoreweed (*Littorella uniflora*). Then across another tract of bog to a reported site for Bog Orchid (*Hammarbya paludosa*). More interest here, including Cranberry (*Vaccinium oxycoccos*) and Great Sundew (*Drosera anglica*) but no orchid. Then on to an unnamed lough with Slender Sedge (*Carex lasiocarpa*) and Bog-sedge (*Carex limosa*) at the margins.

We were beginning to lose count of loughs, beginning to question our sanity, as we hopscotched crazily across a maze of glistening bog-pools. Barely afloat, we finally reached the fenced-off, but otherwise unremarkable, wet piece of ground where the Marsh Saxifrage was first reported in 1920. Almost exactly 100 years later, and exhausted by our efforts, we could only admire its resilience.

Field meeting reports, 2018

Summary of the 2018 BSBI field meetings in Ireland

During 2018 a total of eleven field meetings took place over twenty-seven days throughout the length and breadth of the island of Ireland and these attracted a large

number of participants of varying botanical abilities. It is always difficult to figure out exactly how many botanical records are collected during the official meetings however it is likely that somewhere in the region of 15,000 records were made during the official 2018 meetings, which shows their immense value to the general recording efforts. The lions's share of these records (c. 7,000) were collected during the five-day, west Mayo trip which took place in early August. This meeting included a number of days on Clare Island (**H27**) and saw the confirmation of a number of rare Arctic-alpine plant species from the north-facing summit of Knockmore such as *Silene acaulis* (Moss Campion), *Salix herbacea* (Dwarf Willow) and *Oxyria digyna* (Mountain Sorrel). The three day June meeting in East Donegal (**H34**) also increased the recording coverage on the Inishowen peninsula where important records for a number of local rarities, such as *Mertensia maritima* (Oysterplant), *Carex limosa* (Bog-sedge) and *Saxifraga oppositifolia* (Purple Saxifrage), were made. Accounts of a number of the 2018 field meetings are presented in the following pages.

In 2019 there will be a total of eight official BSBI meetings, details of which are available on the BSBI website. In some of these trips there will be a greater focus on the recording wetland plant species groups, such as pondweeds and charophytes, which have been somewhat under-recorded since 2000.

John Conaghan, Field Meeting Secretary

Woodlawn area, North-east Galway (H17), 9th June

Five people attended, John Conaghan, John Faulkner, Dervla O'Dowd, Pat Roberts and Chris Peppiatt. Six sites were recorded, spanning a range of habitats including woodland, raised bog, cutover bog, rough pasture, rough ground adjacent to Woodlawn railway station and lake. The highlights were *Carex laevigata* (Smooth-stalked sedge) (first VC record), *C. strigosa* (Thin-spiked Wood-sedge) (first VC record), *Lathraea squamaria* (Toothwort) and *Equisetum sylvaticum* (Wood Horsetail) at Clooncah Wood as well as a large 5.8 hectare transition mire area at the western end of Lough Nahinch. At the latter *Vaccinium oxycoccos* (Cranberry) (huge numbers), *Carex canescens* (White Sedge) (second VC record; first 1899), *C. diandra* (Lesser Tussock-sedge) and *C. limosa* (Bog-sedge) were recorded. A total of 236 taxa were recorded mainly within hectad M63. Many thanks to all attendees, but in particular to Pat Roberts for his local knowledge and hospitality and to John Faulkner for his Carexology.

Chris Peppiatt

Wolfhill and Ballynakill areas Laois (H14), 7th – 8th July

A small group of 6 botanists spent an enjoyable sunny and hot two days in Laois this July. We were able to welcome Pat Lanham, a new BSBI member living in Laois. The first morning was spent at a site near Wolfhill in SE Laois, an area that has not been explored extensively. This field is owned by Hugh Sheppard, a fellow Laois naturalist. Hugh led us through his amazing garden and into some diverse sedge-rich wet grassland. Highlights from this site included some *Carex pallescens* (Pale Sedge), only the second recent record of this species from Laois. Both *Dactylorhiza maculata* (Heath Spotted-orchid) and *Dactylorhiza fuchsii* (Common Spotted-orchid) were recorded, as well as some presumed hybrids. *Platanthera bifolia* (Lesser Butterfly-orchid) and *Neottia ovata* (Common Twayblade) were also present. Hugh also showed us some *Epipactis helleborine* (Broad-leaved Helleborine) planted in the garden that had been rescued from nearby conifer forestry.

The afternoon took us to an old disused clay pit nearby (that formerly provided clay for brick-making). This area was quite scorched from the heat-wave but there were several interesting species recorded including *Equisetum sylvaticum* (Wood Horsetail).

On Sunday we headed to Ballinakill. We explored the surroundings of Mass Lough and the adjacent mature Beech woodlands of Heywood Demesne. The Beech woodlands were quite dry but we managed to see much of the typical woodland flora including *Carex divulsa* (Grey Sedge). The margins of Mass Lough were not very productive so we moved over to Gill's Pond, the long narrow lake created during the landscaping of Heywood Demesne. The wet grassland and wetland margins of this waterbody were more interesting with species such as *Sparganium erectum* (Branched Bur-reed) and *S. emersum* (Unbranched Bur-reed). One highlight was *Oenanthe aquatica* (Fine-leaved Water-dropwort). We then visited a disused gravel pit to search for the last remaining fresh Bee Orchids. This site was also very scorched with much of the vegetation in poor condition but several fresh Bee Orchids (*Ophrys apifera*) were spotted out of numerous specimens that had gone over.

Many thanks to Hugh Sheppard for providing access to his lands and also organising access to several other potential sites for botanising and to all those that attended.

Mark McCorry

Inishbofin, Connemara, Co. Galway (H16), 13th – 15th July

Inishbofin (Inish Bo Fhinne – Island of the white cow) is a small island located approximately 5 kilometres off the west coast of Co. Galway. The island measures approximately 5.5 km long by 2.5 km wide and is largely dominated by dry heath

and semi-improved grassland habitat with smaller areas of other important habitats such as lake, sand dune and blanket bog, which has mostly been cutaway in the past. The flora of the island has been well studied and documented in the past with approximately 380 species previously recorded during the various surveys. Recording activity since 2000 has however been sporadic. On the weekend of the 13th to the 15th of July a field meeting took place with the aim of increasing the number of post-2000 records. Prior to the weekend meeting there had only been approximately 180 species recorded from the island since 2000.

Eight people participated over the three days of the meeting. On Friday the north-eastern corner of the island was visited on what was to be the last day of the 2018 heatwave. This remote part of the island is dominated by dry heath and cutaway blanket bog with some scenic sea-cliff areas also present. Among the good finds were *Juniperus communis* subsp. *nana* (Dwarf Juniper), *Eriocaulon aquaticum* (Pipewort) and *Sedum rosea* (Roseroot). All of these species have a restricted distribution on the island and it was good to reconfirm their occurrence. The evening weather was ideal and a quick visit to Church Lough after dinner reconfirmed the presence of *Saxifraga spathularis* (St. Patrick's-cabbage) growing at the only known site on the island along with a nice patch of *Spergula arvensis* (Corn Spurrey) on a track.

On the Saturday we awoke to a thick mizzle, which is a much more familiar climatic occurrence on Inishbofin. The day had an eventful start which involved the recovery of a small wader from a cattle grid. The Saturday walk took us up the middle/north of the island. Notable species seen during the day included *Hypericum elodes* (Marsh St John's-wort), *Radiola linoides* (Allseed), *Lythrum portula* (Water-purslane) and *Eleogiton fluitans* (Floating Club-rush). *Radiola* proved to be especially common in areas of bare peat and is one of the most characteristic species of the island.

Sunday was similarly misty however the conditions were an improvement on Saturday. On this final day we explored the western end of the island which comprises a mix of heavily, sheep-grazed maritime grassland, dominated by *Plantago maritima* (Sea Plantain), and cutover/eroded blanket bog. Examination of sea-cliffs along the south coast produced *Samolus valerandi* (Brookweed) and *Crithmum maritimum* (Rock Samphire), both of which appear to be rare on the island. A small colony of *Rosa spinosissima* (Burnet Rose) was seen on a rock outcrop above the main western track. Walking back through areas of eroded blanket bog we came across a good amount of the alien *Juncus planifolius* (Broad-leaved Rush) growing in a wet runnel in cutover blanket bog. This species is locally common on the nearby Connemara mainland and is the first record from the island. It also appears to be the first record for any of the islands off the west coast of Ireland. On the home straight, just when our botanical interest was starting to flag, we came across a small bog flush which yielded both *Pinguicula vulgaris*

(Common Butterwort) and *Pinguicula lusitanica* (Pale Butterwort) which was the only location for both species on the island that we came across.

The recording which took place during the weekend has resulted in the increase of the number of post-2000 plant species recorded from c. 180 to 275. Many of the species which were not refound on the island are weed/ruderal species which were more common in the past when arable farming was widespread.

John Conaghan

Mayo Field Recording Event (H26 & H27) 8th – 12th August 2018

This was the main field recording event for BSBI Ireland in 2018 taking place over five days between August 8th and 12th 2018. The event staged across two distinct locations, the first being the beautiful and welcoming Clare Island between August 8th and 10th before recording efforts moved to Castlebar to continue recording throughout mainland Co. Mayo on August 11th and 12th.

The event sought to build on the extensive recording week held in 2015, where 42 botanists collected 10,824 plant records, as well as providing much needed coverage of targeted hectads within vice-counties **H26** (East Mayo) & **H27** (West Mayo) for Atlas 2020. With this in mind, 26 botanists, ecologists and nature lovers attended the recording event over the five days. The event collected over 5,000 plant records, covering 80 monads and providing valuable coverage for both Vice-counties.

Survey effort on Clare Island between August 8th and 10th resulted in records collated for almost all monads on the Island. Clare Island's north coast and in-situ cliff face remains the botanical standout and on the morning of August 9th members of the 'Rough Crew' crested Knockmore, the highest point on Clare Island, and proceeded to botanise the windswept and steeply sloping northern face recording species including; *Polystichum lonchitis* (Holly-fern), *Salix herbacea* (Dwarf Willow), *Sedum rosea* (Roseroot), *Hymenophyllum wilsonii* (Wilson's Filmy-fern), *Oxyria digyna* (Mountain Sorrel), *Trichomanes speciosum* (Killarney Fern) (gametophyte) and *Silene acaulis* (Moss Champion). Two other equally industrious groups of botanists recorded along the northern and western ends of the island respectively. Both groups recorded within coastal habitats and cliff side areas, acid grassland, roadside verges and areas of regenerating peatland. Notable species found included *Empetrum nigrum* (Crowberry), *Crithmum maritimum* (Rock Samphire), *Lysimachia nummularia* (Creeping-Jenny), *Isolepis cernua* (Slender Club-rush), *Solidago virgaurea* (Goldenrod), *Spergularia rupicola* (Rock Sea-spurrey), *Eleogiton fluitans* (Floating Club-rush), *Pinguicula lusitanica* (Pale Butterwort), *Selaginella selaginoides* (Lesser Clubmoss) and *Eleocharis uniglumis* (Slender Spike-rush). Maria Long's group bookended their day by refinding the colony of *Lycopodiella inundata* (Marsh Clubmoss) at the Capnagower townland.

Friday 10th August signalled the second and final day of recording on Clare Island for this event and three groups of botanists covered 9 monads, yielding 1105 records. Notable records collected included *Chara virgata* (Delicate Stonewort), *Drosera intermedia* (Oblong-leaved Sundew), *Hypericum humifusum* (Trailing St John's-wort), *Hymenophyllum tunbrigense* (Tunbridge Filmy-fern), *Huperzia selago* (Fir Clubmoss), *Mentha spicata* (Spear Mint), *Sparganium angustifolium* (Floating Bur-reed), *S. emersum* (Unbranched Bur-reed), *Scrophularia auriculata* (Water Figwort) and *Trifolium campestre* (Hop Trefoil).

On the evening of August 10th Rory Hodd led a break-away team of three adventurous botanists to Inisturk Island to undertake recording on August 11th. This resulted in the recording across the vast majority of the island incorporating 8 monads and 194 species. Notable species identified and recorded included *Euphorbia hyberna* (Irish Spurge), *Gentianella campestris* (Field Gentian), *Lathyrus linifolius* (Bitter-vetch), *Lepidium coronopus* (Swine-cress), *Lobelia dortmanna* (Water Lobelia), *Ophioglossum vulgatum* (Adder's-tongue), *Pinguicula lusitanica* (Pale Butterwort), *Sedum rosea* (Roseroot), *Saxifraga spathularis* (St Patrick's-cabbage), *Rosa spinosissima* (Burnet Rose) and *Sagina subulata* (Heath Pearlwort).

While Rory's group headed for Inishturk Island, the remainder of the group were mainland bound toward Roonagh Pier and thereafter Lough Lannagh Holiday Village, Castlebar. Lough Lannagh served as our base, as it had done for the 2015 recording event, on Saturday 11th and Sunday 12th. On Saturday morning, four groups of highly organised and well versed botanists left our base in Lough Lannagh radiating outward from Castlebar covering areas in north and west Mayo as well as nearby parts of eastern Mayo. Two groups of botanists mobilised to different parts of nearby M48, a hectad requiring coverage for Atlas 2020. Notable plant species from M48 included *Gnaphalium uliginosum* (Marsh Cudweed), *Gymnadenia conopsea* (Fragrant Orchid), *Melampyrum pratense* (Common Cow-wheat), *Parnassia palustris* (Grass-of-Parnassus), *Pimpinella saxifraga* (Burnet-saxifrage), *Sparganium natans* (Least Bur-reed), *Utricularia intermedia* (Intermediate Bladderwort) and *Knautia arvensis* (Field Scabious). The two other groups ventured to areas within vice county **H27** (West Mayo) targeting hectads west of Killala (hectad G12) and Ballycastle (hectad F94). Botanical highlights included *Dryopteris borrieri*, *Dryopteris cambrensis*, *Polystichum aculeatum* (Hard Shield-fern), *Sagina filicaulis* (Upright Pearlwort), *Trifolium medium* (Zigzag Clover) and *Utricularia australis* (Bladderwort).

Sunday August 12th marked the final day of the Mayo recording event and again resulted in a coordinated effort by four groups of botanists culminating in the coverage of 22 monads across 4 hectads. One lucky group visited the diverse shores of Lough Carra where they recorded *Antennaria dioica* (Mountain Everlasting), *Oenanthe crocata* (Hemlock Water-dropwort), *Rhamnus cathartica* (Buckthorn), *Gentiana verna* (Spring Gentian) (at its most northerly site in Ireland), *Chara aculeolata*, *Chara tomentosa* (Coral Stonewort),

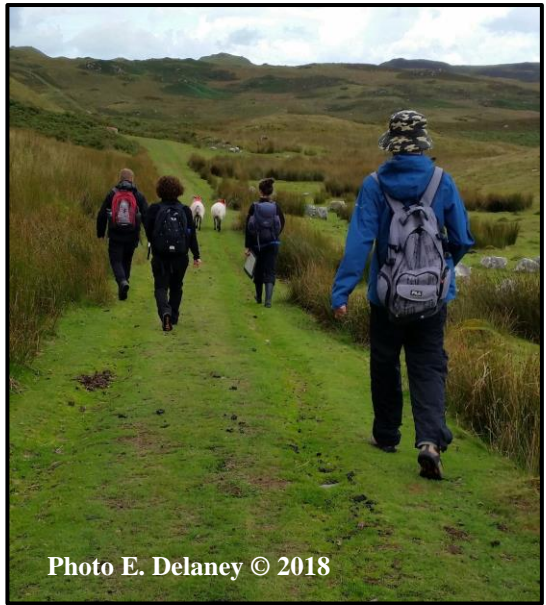


Photo E. Delaney © 2018

Galium boreale (Northern Bedstraw), *Lysimachia vulgaris* (Yellow Loosestrife) and *Carex diandra* (Lesser Tussock-sedge). Another lucky group of botanists visited the shores of Lough Conn to refind (successfully) *Spiranthes romanzoffiana* (Irish Lady's-tresses) amongst abundant *Parnassia palustris*, *Lysimachia vulgaris* and *Sanguisorba officinalis* (Great Burnet). The remaining two groups of botanists divided and conquered hectads M28 and M29 targeting its turloughs, lakes, wet grassland and raised bogs. Noteworthy records included *Carex elata* (Tufted-sedge), *Galium uliginosum* (Fen Bedstraw), *Lysimachia nummularia* (Creeping-Jenny), *Carex paniculata* (Greater Tussock-sedge), *Pimpinella major* (Greater Burnet-saxifrage), *Potamogeton berchtoldii*, (Small Pondweed), *Potamogeton berchtoldii* x *P. coloratus* (Fen Pondweed) = *P. x lanceolatus* and *Sparganium emersum* (Unbranched Bur-reed).

The efforts by those botanists and nature lovers who attended and supported the Mayo recording event has contributed significantly towards coverage for BSBI Atlas 2020. This includes the successful targeting and recording within hectads that had less than 200 taxa recorded since 2000, or less than 60% of species re-recorded since 2000.

To read more about the Mayo recording event, Louise Marsh (BSBI's Publicity and Outreach Officer) compiled a daily account of the recording event which is available online on the BSBI's blogspot:

<http://bsbipublicity.blogspot.com/2018/08/bsbi-mayo-recording-event-2018.html>.

Eamonn Delaney

Irish field meetings programme 2019

Please get in touch with leaders in advance so that they have an idea of potential numbers attending.

Saturday 18th & Sunday 19th May (G,R) – Foxford & Charlestown areas, East Mayo (H26)

Leaders: Eamonn Delaney and John Conaghan

The meeting will focus on recording in the northern and north-eastern parts of the vice-county for *Atlas 2020* and habitats visited will include raised bogs, wet heath, marginal wetlands, lakes and riparian habitats. Meet at 10.30am on the 18th at Charlestown (G 47884 01893) and Foxford (G 26973 04121) on the 19th.

For further details contact Eamonn Delaney (eamonn.delaney@hotmail.com, Phone 353-87-7784284)

Saturday 25th May (G,R) – North Longford (H24)

Leader: Ciaran Bruton

This meeting will focus on recording in a relatively under-recorded hectad in the north of the county. A range of habitats will be visited including wetland/lakeshore. Please bring a packed lunch and suitable footwear. Meet 11am at Moyne cross roads (N 24308 96236).

Please contact Ciaran Bruton (crnbruton66@gmail.com) for more information.

Saturday 22nd June (G,R) – Monasterboice, Louth (H31)

Leaders: Kate Harrington & Cliona Byrne

Cartanstown is a promising fen/marsh site in need of exploration at an optimal time of year for sedges. If we have time in the afternoon we'll drive to Glack Bog which is in the most under-recorded hectad in Louth. A pair of wellington boots will be essential. Meet at Donegans, Monasterboice Inn on the R132 just off M1 Junction 11 (O 056 812) at 10:30am.

Please confirm your attendance with Kate Harrington (harringtonkm@gmail.com or 353-86-3856713) so we can plan ahead for parking as it is very limited at both sites.

Saturday 6th July (G,R) – Youghal, Co. Cork (H5)

Leaders: Edwina Cole & Finbarr Wallace

The plan is to record around the environs of Youghal. Possible habitats include marsh at Ballyvergan, amenity walks, coastal areas, waste ground and suburban areas. Meet at 10.00 a.m. at the carpark beside the beach (X 09714 75788). Please bring suitable footwear, clothing and a packed lunch.

Enquiries to Edwina at edwinacole@eircom.net or 353-86-8200060

Saturday 13th July & Sunday 14th (G,R) – West Sligo (H28)

Leaders: Jesse Tregale and Bridget Keehan - assisted by Róisín NigFhloinn

This field trip will explore a range of habitats located in the western end of County Sligo. **Rain gear, boots and lunch are essential.** The meeting on Sunday is subject to confirmation.

Contact: Róisín NigFhloinn at: rnigfhloinn@gmail.com for further details.

Thursday 25th to Sunday 28th July (G,R) – Connemara, West Galway (H16)

Leader: John Conaghan

This four day meeting will explore the wonderful botanical country of west Connemara. The base for the meeting will be the town Clifden which boasts a large number of accommodation options. On each day a range of habitats will be explored including blanket bog, heath, lake and coastline. A focus of the meeting will be lake/wetland species, especially pondweeds.

Please contact John Conaghan (johnconaghan18@gmail.com or Phone 353-87-2239858) for more information.

Saturday 3rd & Sunday 4th August (G,R) – East Tyrone (H36) & Derry (H40)

Leaders: Ian McNeill (Sat), Dave Riley (Sun), assisted by Sharon Spratt

A number of sites in east Tyrone, such as Lough Neagh shore and the Ballinderry River, will be explored on the Saturday. Meet at the bridge in Coagh village, H891786, at 10.30am on Saturday. Waterproof footwear essential.

A visit to Ballynahone Bog, Co Londonderry (**H40**) is planned for Sunday 4th August. Meet at 10.30am at the gate at H 8526 9754 on Ballynahone Road. Waterproof footwear again essential.

Contact Ian McNeill (0044-48-86762939; ian@imcneill.plus.com) for further information on Saturday, and Dave Riley (dhriley04@gmail.com) for information on Sunday

**Saturday 10th & Sunday 11th August (G,R) – Slieve Aughty Mountains,
South-east Galway (H15)**

Leader: Micheline Sheehy Skeffington

The Slieve Aughty Mountains are dominated by blanket bog habitat much of which has been afforested with conifers in the past. Despite this there are several interesting fen/flush/wet bog areas worth exploring.

Meet at 10.30 am both days Egan's Bar, Derrybrien North H62 HX81 (M596020). Please contact Micheline at michelinesheehy@gmail.com if you intend to come, so she knows who to expect each day. This is rough terrain and may require tough walking through bog. Stout waterproof boots or wellingtons are important. Please bring clothing for exposed, possibly wet weather and food and beverage for the whole day each day.

Book Reviews

Wild Flowers – a sketchbook by Charles and John Raven, edited by H.J. Noltie.
Royal Botanic Garden Edinburgh, 2012 (216pp). £23.00

I was looking into the life of Charles Earle Raven (1885-1964), with particular regard to his writing about birds, when this title came to my attention and the book duly arrived by post. The first impression is that it is beautifully bound with one third cloth and two thirds pictorial boards, the latter showing a life-size painting of the melancholy thistle along with original labelling. The second aspect is that it is not a sketchbook of wildflowers as such but an autobiographical work about a father and son's project to paint all the wildflowers of Britain and Ireland. The book includes one hundred and twenty of those paintings—well-presented (several are full-page) and well-reproduced. A third aspect soon becomes clear—Ireland features significantly, having almost two full chapters. It was to acknowledge these hitherto little known Irish botanical excursions that I felt a review of this book, with its unusual theme and strong sense of family, would be useful and interesting.

Charles E. Raven (the father) was undoubtedly a well-respected, influential but independent thinker in academia and Christian theology. He was ordained in 1909 and was Chaplain to King George V from 1920, Canon of Liverpool from 1924 and Professor of Divinity at Cambridge from 1932 until his retirement in 1950. With these credentials it would be elitist not to call him a parson-naturalist and indeed he called himself a parson in relation to “the mixed folk” he met as amateur entomologist and ornithologist ¹. He was a busy and ardent speaker and writer on Christian themes, often relating to biology, and he espoused Natural Religion. He considered that (if I may woefully summarise) the naturalist and his subject had the same source (as per Darwin) and same spiritual relationship to God. Charles was President of the Botanical Society of the British Isles BSBI from 1951 to 1955 and President of the Field Studies Council from 1953 to 1957. John (the son, 1914-1980) followed his father into academia and writing, but it was in the Classics that he rose to prominence. John became an energetic and expert field botanist, as his obituary in the BSBI journal *Watsonia* makes clear ². This book is their posthumously published account of the first half of their twenty-five year collaboration, seventy years or so after it was written. It produced 3,860 drawings of 2,109 plant species, the names of over four hundred of which feature on the pages of this book.

Charles’ work as a parson, preacher, lecturer, writer on Christian theology and botanist (as well as ornithologist) all had expression in Ireland, despite “having not a drop of Irish blood” ³. His first visit was during the winter of 1916/17 to preach in Trinity College Chapel, Dublin, the occasion of a comical mix-up of speakers, well-told in the book. The next visit was in 1919 when he delivered the Donnellan lectures in Trinity’s then School of Hebrew, Biblical and Theological Studies, lectures on which he founded his book *Christian Socialism 1848-1854* (1920) on the exhortations of his invitee, the colourful Provost Sir John Pentland Mahaffy before his death in 1919. The Ravens brought their young family on six holidays to Co. Cork between 1925 and 1930. Charles had fairly light preaching obligations while acting as locum in a number of Church of Ireland parish churches and this gave him and his family ample time to explore the landscape and natural history together with their hosts. He made another couple of trips with his family in 1938 and 1939. In the latter year, on their way to Roundstone, they travelled to Lough Derg at Portumna in an unsuccessful search for Irish fleabane *Inula salicina* and to Woodford where they easily found, and painted, Blue-eyed-grass *Sisyrinchium angustifolium* “taller and more lush than one sees it in an English rock-garden”. Incidentally, the Ravens followed the nomenclature of the ‘ninth’ edition of Bentham and Hooker and these have been retained in the book, with up-to-date names given in the index.

Sixteen Irish portraits are depicted in the book and fifty-one Irish species are mentioned along with the manner of their finding and their location. Two

examples illustrate the nature of their odyssey. Armed with Praeger's *A Tourist's Flora of the West of Ireland* (1909), they knew where to expect some of the rarities. Charles painted London rocket *Sisymbrium irio* sitting on "a dump of packing cases, a puddle for paint-water ..." at Dublin docks. Another time, John spotted a single piece of the very rare aquatic Hydrilla *Hydrilla verticillata* lying detached on the shoreline of the lake at Renvyle. Charles "painted it as it lay in the water there and then". He painted Babington's leek *Allium babingtonii* where it grew down by the harbour at Roundstone.

Two of the Irish painted specimens were of great significance. The very first species painted after the idea of "a family album of life-sized portraits" was mooted in 1930 was a Devil's-bit Scabious *Scabiosa succissa* within sight of the very rare Spotted Rock-rose *Helianthemum guttatum* on Three Castles Head, Co. Cork. Probably the last species he painted in Ireland, and one that moved him most, was a red-leaved, finely veined and semi-transparent Fen Pondweed *Potamogeton coloratus* in the far west of Co. Galway on 25th August 1939. It was retrieved from a lake by John and "drawn in a large jam-jar on the quay at Bunowen" by Charles. A pacifist, he had seen action in all its facets at the Front in 1917/18 whilst chaplain in the army. He painted the pondweed watching his youthful family playing cricket and the full impact of the recently heard news of the impending new war came upon him.

There are eight more chapters. One chapter, with thirteen illustrations, follows their quest for orchids, starting at Marlborough where John was at school from 1931-33, and ending in his painting a rediscovered Military Orchid *Orchis militaris* in Buckinghamshire in 1950. One chapter tells us, with interesting asides and thirteen paintings, how they gradually completed all sixty or so Umbellifers from the "detestable" Goutweed *Aegopodium podagraria* (in someone else's garden) to the rare Hartwort *Tordylium maximum* from the Thames in London. Another, written by John, describes their day-long exploration of the natural rock gardens of Teesdale when they added eight new paintings to their collection, including Alpine Pennycress *Thlaspi alpestre* on scree and Mountain Pansy *Viola lutea* on the flat meadow beside the river. Their focussed ramblings around Scotland in search of alpine plants are given two chapters. Their first trip to the Southern Uplands around Lough Trool yielded "no rarities in the more brilliant families", a reason Charles gives for having time to make inroads into rushes and then "the vast labyrinth of *Carex*", then grasses and then ferns, during several successive visits. Chapter eight is set in Finland, July 1934, on the occasion of an ecclesiastical conference. This has a very moving account of the hospitality of the host Bishop's family at Vihti and involved an unexpected botanical meeting of minds with the host's thirteen year old son. This boy's enthusiasm and knowledge reminded Charles of his own son John during those first years in Co. Cork when the big

project was started. Yellow Chamomile *Anthemis tinctoria* was one of the paintings that Charles worked into the night to complete at Vihti.

The beauty of this book is not the project itself—others have painted comprehensive sets of British plant species, as Noltie points out. Nor is it only the paintings—botanical artists, and other readers, may have opinions as to the varied quality of their rendering, as indeed did the Ravens themselves. The beauty is in the story and the unique manner of its telling, which is botanical, personal and familial. The collaboration between father and son is obviously central and each sometimes has gentle comments about the other. The decision to publish letters from John to Charles, reproduced in Appendix, consolidates this relationship in the reader's mind. The picture of those family holidays in Co. Cork is drawn with affection. All the children were involved in botanical artistry and easily imagined family squabbles over specimens and entitlement are hinted at. Twelve-year old Peg's Sea-holly *Eryngium maritimum* made it to the collection and to this book. Mary, to whom the book is dedicated, was one hundred years old at the time of publication and as a teenager drew about forty of the outlines in the collection which were then coloured by young John. John died in 1980 but for many years his wife Faith, who writes the preface for this book, had felt that the text and a selection of the watercolour paintings, which had been carefully preserved in the family's attic archives, should be published.

Henry Noltie, recently retired botanist at the Royal Botanic Garden Edinburgh, went further afield in his botanical career but he found many parallels in the Ravens' story, including three, month-long family camping/botanising trips as a child around Ireland in the late 1960's, which included the thrill of finding St Dabeoc's Heath.

Stephen Heery, sheery@eircom.net

¹ Raven, C.E. (1942). *John Ray – Naturalist. His Life and Works*. Cambridge University Press (Preface).

² David, R.W. (1981). John Earle Raven (1915-1980) - Obituary. *Watsonia*, **13**: 244-246.

³ Raven, C.E. (1950). *In Praise of Birds*. George Allen and Unwin, London. p27.

Contributions intended for Irish Botanical News No. 30

Should reach the Editor Paul Green before January 31st 2020

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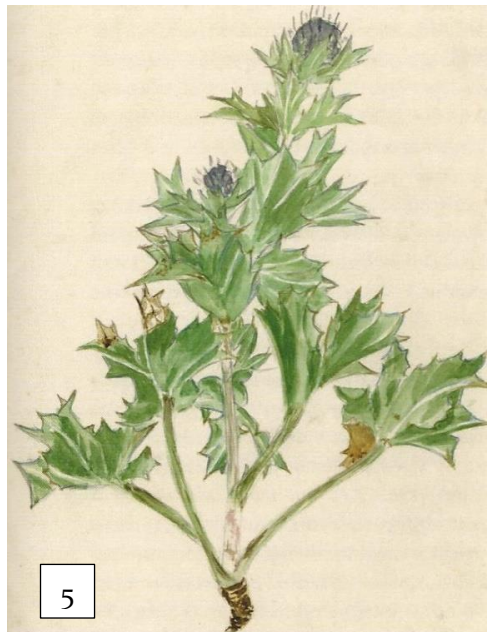


Colour plates from:

Wild Flowers – a sketchbook by Charles and John Raven.

1. *Daboecia polifolia*, St Dabeoc's heath
2. *Daboecia polifolia* (white form)
3. *Allium babingtonii*, Babington's Leek

4. *Potamogeton coloratus*, Fen Pondweed
5. *Eryngium maritimum*, Sea-holly





Utricularia australis (Bladderwort) in July at Blue Lough, Co. Limerick.
Photo P. Murphy © 2018 (p. 54).