

Flora News

Newsletter of the Hampshire & Isle of Wight Wildlife Trust's Flora Group

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Dear Flora Group member

The Flora Group committee hope that you and your family are keeping safe and well during these challenging and uncertain times in which we all find ourselves. Due to the COVID-19 pandemic, Flora Group events have had to be cancelled and the Committee will ensure that any future events are held in accordance with Government guidance aimed at minimising the risk of transmitting the virus. The Committee has adapted to the current situation by using video-conferencing facilities. We held our Committee meeting during Spring 2020 via Zoom, which proved to be very successful. Martin Rand and Andy Cross hosted a training session remotely on Saturday 18 July 2020 focusing on families of flowering plants associated with chalk grassland, as a substitute for the event they had planned to hold at Shawford Down in June.

Our Annual General Meeting (AGM), which was due to be held on Saturday 6 June 2020 in the Itchen Valley, had to be cancelled. Although we were hoping to have the AGM in December 2020 during our annual Exhibition Meeting at Testwood, unfortunately it will not be possible to hold the Exhibition Meeting this year. In the circumstances, the Committee members are keen to receive any ideas or comments that Flora Group members would have brought to the AGM so if you would like to make any comments or suggestions, please contact Catherine Chatters (Flora Group Secretary) at Catherine.Chatters@hiwwt.org.uk and she will add them to the agenda for our next Committee meeting. Hopefully we will be able to hold an AGM during a field meeting in 2021 or at next year's Exhibition Meeting at Testwood (assuming that the pandemic situation has improved by then).

During 2020 we had planned a field meeting to see coastal plants at Boscombe and Southsea, a visit to Hampshire & Isle of Wight Wildlife Trust's relatively new nature reserve at St Clair's Meadow near Soberton, a botanical survey of the arable reversion site at Barton Meadows nature reserve near Winchester and a botanical walk in the New Forest. We were also looking forward to Ron Allen leading a two-part course to introduce Flora Group members to wild soils of Hampshire, with a particular focus on the New Forest. Hopefully we will be able to re-arrange these events but this will obviously depend on relevant advice regarding the pandemic.

In the meantime, Martin Rand has very kindly offered to arrange monthly 'open chat sessions' via Zoom (a video-conferencing facility) for Flora Group members to keep in touch. Further details are given on p. 3.

Would you like to share transport to Flora Group events? Rob Still has set up a WhatsApp group so that people can contact each other and arrange lifts to Flora Group events. If you would like to participate, please send a text to Rob on 07702 737456 saying you wish to join the HFG WhatsApp group.

We are grateful to everyone who helps to organise Flora Group events and, as usual, we welcome your suggestions for future Flora Group activities. Please raise your ideas with any of the Committee members – Sarah Ball (Chairman), Catherine Chatters, Clive Chatters, Andy Cross, Isobel Girvan, Gareth Knass, Tony Mundell, John Norton, Martin Rand, Neil Sanderson and Cathy Wilson.

We are always keen for more people to provide contributions to *Flora News* on any relevant botanical topics. If you have enjoyed any of the Flora Group events and would like to write a report we would be very pleased to receive it. Please send your articles, notes or reports to Catherine Chatters (Flora Group Secretary) at Catherine.Chatters@hiwwt.org.uk or to her home address which is given at the end of this newsletter.

Edited and produced by Catherine Chatters (Flora Group Secretary) and John Norton, September 2020

Cover photo: Meadow Clary *Salvia pratensis*, Cholderton Estate, May 2020 (*John Moon*) (See VC12 records, p. 48)

Keeping in Touch

Flora Group Open Chat Session

A suggestion by Martin Rand

While we are unable to hold formal indoor and outdoor meetings of the Flora Group, I am wondering whether people would like to keep in touch on a face to face basis through a monthly Zoom meeting. I would host the meeting for a couple of hours in an evening (7pm-9pm), and you could drop in (and out again!) whenever you felt like it.

If this interests you, please contact me with your email address for mailings or your smartphone number for SMS messages, stating any days of the week that you won't

be able to take part (my contact details are given on the last page of this newsletter). I will then arrange days for the happiness of the greatest number (if necessary switching days in alternate months to be as inclusive as possible) and send you an invitation with details of how to log in using your Web browser or the Zoom app a few days before each session. I expect to run the first session at the end of September. If you don't yet know what Zoom is, how have you managed to avoid it? – but ask me about it when you contact me.

Signed-up members of the Flora Group only, please, otherwise this could become unmanageable!

Forthcoming Events

Due to the COVID-19 pandemic the events listed here will only take place if they are compatible with relevant Government guidance and HIWWT advice.

Bring a packed lunch, plenty to drink and suitable footwear to all meetings.

Saturday 5 June 2021, 10.30am–4pm

Visit to Itchen Stoke Mill

Leader: Tony Mundell

This meeting was originally scheduled for June 2020 but had to be cancelled due to the COVID-19 pandemic. The landowner, Roger Harrison, has invited us to survey the plants growing in water meadows near the mill. First Roger will show us the mill itself and talk about management of the water meadows. The Hampshire Conservation Volunteers have been helping to manage the site with annual visits for the last 39 years. One of their annual tasks is to open sluices to flood part of a meadow each year, in the time-honoured traditional way.

We will make a complete list of all plants seen, hopefully also with abundance on the DAFOR scale.

Meet and park in the grassy field immediately south of the mill house at SU5637 3177, Lat. & Long. 51.0825 -1.1966. This is accessed through a gate off the gravelled area. There is a ford just north of the mill house so if there has been a lot of rain it may be best to travel via Ovington. Bring a packed lunch and suitable footwear for very wet ground.

If you are interested in attending this event, you will need to check beforehand to make sure that the event will be taking place. Please contact Tony Mundell (details on back page) or refer to the Hants Plants website at www.hantsplants.org.uk.

Contact: Tony Mundell (details on back page).

Saturday 10 July 2021, 10.30am–4pm

Visit to Abbots Barton Meadows

Leader: Tony Mundell

This is another meeting originally scheduled for 2020 that had to be cancelled due to the COVID-19 virus. Abbots Barton Meadows HIWWT reserve is an arable reversion site where grazing has recently been introduced and wildflower reseeding was undertaken in 2017. The Flora Group has been asked to survey the plants to provide a baseline for monitoring future changes in species composition.

We will list all plants seen with their abundance on the DAFOR (Dominant, Abundant, Frequent, Occasional, Rare) scale. There are two fields so we will survey them separately.

Park somewhere in Courtenay Road, Abbots Barton, c. SU482311, Postcode SO23 7ER, and walk to meet at the north end of that road at SU4825 3132, Lat. & Long. 51.0791 -1.3126. Bring a packed lunch and suitable footwear for rough ground.

If you are interested in attending this event, you will need to check beforehand to make sure that the event will be taking place. Please contact Tony Mundell (details on back page) or refer to the Hants Plants website at www.hantsplants.org.uk.

Contact: Tony Mundell (details on back page).

Report of Recent Events

Atlas 2020 is over: What do we all do now?

Notes by Martin Rand following the Flora Group meeting 'Ideas for County Recording' held on Sunday 8 March 2020 at Testwood Lakes Education Centre

1. Atlas 2020 outcomes

Martin Rand [MR] explained that there would be no large, printed Atlas as produced in 1962 and 2002. Accounts would be prepared with similar content and format to *Atlas 2000*, but available only online. This will be a disappointment to many people, but down to the fact that no funding is currently forthcoming to produce it.

There will be a substantial published work of analysis detailing recent changes in the Flora, and summary accounts of findings will be produced for governmental and voluntary conservation bodies, with sections covering each nation separately.

[Note: there is some uncertainty around both the above paragraphs. Check the Hants Plants website for announcements.]

MR also demonstrated that the BSBI Distribution Database (DDb) can already provide a wealth of information, since all Atlas data up to the end of 2019 have now been gathered in (though validation and correction will continue for much of 2020). Mapping down to a tetrad level is available to all, and authorised users can map and search down to full resolution for almost all data. Maps are highly configurable, and there is documentation for this on the website. The URL is: <https://database.bsbi.org/>.

2. The new Hants Plants website

MR stated that with the end of Atlas 2020, he felt that it was time to give the Hants Plants website a thorough remodelling. Work on developing the site began in 2004, and available software technologies have progressed a long way since then (as has his understanding of them!) The initial focus was on content, sometimes at the expense of aesthetics or accessibility; design and development have been piecemeal; and for the last few years most of the development effort went to support Atlas 2020. As that draws to a close, much of the server-side code can be pensioned off or adapted to new projects, and the 'look and feel' of the new site can be greatly improved.

The main changes for users are as follows:

- The menu and paging structure of the whole site are being remodelled, in general avoiding long pages with huge swathes of text.
- Although it was possible to view the old website on a mobile device such as a smartphone, it was hardly a pleasant experience. Some features of the new site will still be best viewed on larger screen sizes, but the site now automatically adapts its layout to suit the dimensions of the device in use.

- The page structure will incorporate a simple 'dashboard' where summaries of latest news and upcoming events are always visible, and more details are available with a single click.
- The built-in (Google) calendar will be replaced with a customised calendar better suited to our needs.
- New projects will be supported only on the new website. Atlas 2020 support will be reduced to a brief retrospective and links to the BSBI's national website.
- New material related to the Hampshire Notables list and Hampshire Rare Plant Register will be confined to the new website, as will updated documents for the Hampshire Axiophyte list.
- Perhaps the most important change will be a secure sign-in system for people wishing to contribute to news or activities publicised through the site. Apart from name, email address and a (heavily encrypted) password, no other personal details will be held. People who sign up at the basic level will be able to contribute items of news and details of events of botanical interest in the county. All content will be mediated by the site administrators. In addition, people can request to be contributors to individual projects, and on approval will have access to the resources and data for those projects. The site administrators will bar anyone maliciously or repeatedly posting inappropriate content or otherwise abusing their privileges. Signed-up users will also be able to ask for notifications by email of new news items or events.

The old website continues to exist as <https://hantsplants.org.uk> and will continue to do so for a while. The new website is based for the time being at <https://hantsplants.org.uk>, but will migrate to the old address when it has taken over all necessary functions from the old. For the time being, the events calendar and news items will continue to be posted only to the old site, but it is hoped that the new user registration system, news log and calendar will be migrated before the end of 2020.

People are welcome to use the new site, which has had a lot of the static content ported from the old site, and already holds new material for Hampshire Notables and Hampshire Axiophytes. Features not yet implemented, or in development, will not be accessible from the menus. It is possible to go through the motions to register as a contributor, but one can't complete the process. Occasionally there will be some maintenance work on facilities that are already in place and this may cause the site to misbehave; please ignore these events and try again later. For any other issues, either of content or presentation, MR will be very pleased to have reports.

3. Threatened plant monitoring

This proved to be one of the two most popular projects for continuing survey and recording in the county. MR noted that the project originated as a national BSBI project running from 2009 to 2013, culminating in the

BSBI publication *Threatened Plants in Britain and Ireland* (2017). The analysis was based on randomly selected known sites of threatened species spread across Britain and Ireland, but participants were also encouraged to record at further known sites in their area. It is possible that the BSBI will re-run the project nationally, but meanwhile there was no reason that recording should not continue on any known site at local level, to continue to build up a repository of information of conservation value. Sheets for 'no-finds' are just as important as for refound populations.

It was asked whether it was worth revisiting sites that had been recorded in the original project. MR's view is that one of the weaknesses of the project was that all site visits for a given species had been limited to one year, successive years being given a different set of species to check. So resurveying sites covered then will be worthwhile, as will looking at new sites repeatedly.

The group looked at the standard recording sheet used for the national project, which is quite complex and caters for a lot of detail about the individual species and its site. There are no prima facie reasons for making changes to the form, and MR will make this available electronically for individuals to print off. [This is now done.] It was asked whether a version could be provided for online completion; MR said this was certainly possible but because of its complexity it would take a while to get it implemented, given competing requirements for web development.

After discussion it was decided that it would be worthwhile to have some small-group field workshops to help people complete the forms. MR and Tony Mundell [ARGM] will publish some dates on Hants Plants for this. They will be informal 'Recorders' Meetings' rather than HFG workshops. There is a set of notes issued by BSBI for the national project on completing the forms, and MR will investigate making them available on Hants Plants.

MR has developed a list of 89 candidate species in Hampshire meriting Threatened Plants treatment. This was circulated and is also published on Hants Plants. It may be worth prioritising some of these. Future priorities may be influenced by the revival of the national project.

Participants asked how to deal with recording more than one threatened species at the same site. MR proposed that a recording card should be prepared for each species, but detail that was common to all need only be completed on one, provided that the other cards were cross-referenced to it.

There is already an archive of recording cards from the national project which is currently only available to BSBI HQ and the VCRs. There are also similar detailed recording cards for individual species from other projects such as Biodiversity Action Plan surveying. Some of these have now been scanned and will be made available to participants in the project once the project is fully supported on the new website. Volunteers for scanning more are welcome!

Alison Bolton [AEB] raised the question of seasonal access to sensitive sites such as known sites for breeding wetland birds on the New Forest. MR pointed out that there was not always a formal ban on visiting such sites, and sometimes the need to monitor other species was important. However, anyone who finds that they are causing disturbance should retreat quickly and quietly, and this would be appropriate behaviour on any site, regardless of whether the public were requested not to go there.

4. Localised Floras

Opportunities for producing a Site Flora are varied:

- National Nature Reserves may lack the detailed record of plant localities that they merit. Some may be rather large for comprehensive treatment by one person, but an area within them could be selected.
- Wildlife Trust reserves often need more updating, new acquisitions need baselining and subsequent monitoring, and management initiatives need monitoring.
- Local Nature Reserves often have keen volunteer teams but may lack specialist knowledge.
- Sites of Special Scientific Interest (SSSIs) have infrequent condition assessments that are based solely on the features given in their citation. Other valuable features may be overlooked and would benefit from closer study, where access can be obtained.
- Sites of Importance for Nature Conservation (SINCs) receive periodic but infrequent monitoring from the County Ecologists. Again, where access can be obtained, closer and more frequent recording could be valuable.
- Farm clusters are a relatively new initiative, and some areas within them (e.g. ancient woodland, arable plant hotspots) could benefit from a Site Flora. Access would usually need to be negotiated with the landowner, but Wildlife Trust personnel may be able to mediate.
- Informal open spaces with some botanical interest may be deserving cases, especially where there is some commitment by the local authority and/or local residents to conserving or restoring the habitat.
- Road verges are a special case and the better ones may have good documentation from the past. Many of those previously found to be species-rich may present safety challenges in today's traffic conditions, and should not be worked alone or without hi-vis clothing.

For anyone wanting to undertake a Site or Parish Flora, MR can provide data from the county database that is clipped to a site or civil parish boundary. For sites he will need a sketch of the boundary related to existing geographical features. For people using Living Record, Adrian Bicker has also offered to digitise site boundaries for us to appear on the mapping and satellite imagery.

Quite often sites and parishes have historical records that have not been digitised but are available in printed material, some of which is archived on the Web. MR and ARGM may be able to advise on sources.

Some people may want to incorporate maps in their localised Floras, even if only for an overview and key. One way to accomplish this slickly is by using GIS software. Commercial GIS packages are expensive but there is a very capable contender known as QGIS which is completely free (although the maintainers always welcome a donation!). No GIS package is famous for its ease of use, but there are some basic operations that everyone can learn and some tools to make data import and presentation straightforward. MR offered to run small-group QGIS workshops in 2020/21 winter season if there is interest.

Many sites and parishes will have local groups taking an interest in their wildlife and its conservation, and there will usually be advantages for both sides in making contact with these groups. Parish Councils will often also have interested members. These groups may provide information on the occurrence of species, the history of a place or its management. On the other hand, botanists may be able to provide expert help with the plants and heighten local interest. For more on this, see the next topic.

Usually a desirable outcome from a localised Flora project is a printed document, especially if it can be produced relatively cheaply and sold to a wider local and/or visiting audience. Several HFG committee members may be able to offer advice and help in bringing this to fruition.

5. Mentoring

Felicity Woodhead [FAW] raised the point that those engaged with caring for a site, whether amateurs or as paid managers, often lacked botanical ID skills, which were now hard to come by or non-existent on many professional courses. Recording projects could offer an opportunity for BSBI/HFG members to engage with people in such roles through mentoring or leading training sessions. She stressed that one didn't need to be a high-powered botanist to take this on, as often the level of knowledge was very low. The localised Flora projects are likely to be the best springboards for this.

6. Monad (1km) monitoring

This project received a certain amount of support at the meeting. It would fall between the 'square bashing' that was required for Atlas 2020 and the sort of activity required for a localised Flora, typically without producing a printed account.

Participants would select one or more 1km squares which they would visit several times a year (Eric Clement [EJC] suggested at least 6), recording all vascular plant species to at least the 1km resolution and trying to cover all the ground that was accessible to them within the monad. Visits would be repeated in successive years. This level of recording effort could be valuable at showing changes and perhaps their drivers at this very local level.

Given the number of monads in the county, one would not expect more than a small proportion to get coverage. For effort at a local level, there would be no attempt to impose statistical respectability through random selection of monads to record. The recording effort required probably means that most people will select squares close to them; and given human nature, probably many of the squares would have a bias towards the more diverse, attractive or botanically rich. But it would be just as relevant to conduct monad surveys in less appealing areas.

This has also been discussed by the BSBI as a national project to bring on in the next few years. In order to be able to draw inferences about change at a national level, monads would have to be selected using an unbiased method, so it is likely that a whole range of extra monads would be thrown into the ring to be taken on board.

For anyone wanting to take on monad recording, the two VCRs would be able to provide lists of digitised records for the monad. If there is sufficient interest, MR will implement a monad checklist and recording sheet similar to the tetrad sheet provided for Atlas 2020.

7. Alien monitoring

Robin Walls [RMW] suggested that if one was going to have a Threatened Plants recording scheme, it might be just as valuable to have 'Threatening Plants' studied in the same way – in other words, horizon scanning for non-native plants that showed early signs, or provided evidence from elsewhere in the world, of becoming invasive.

There was general approval for this. Surveys might be written up on a form like the Threatened Plants form but with some minor adjustments. MR will consider this and draft a modified form for circulation and comment.

MR also said that to focus effort and make it a manageable project, we needed a checklist of candidate taxa. He offered to produce a draft of this.

8. RPR update

MR showed the new Hampshire Notables list, which is available on the new Hants Plants website only. Changes to content partly reflect better knowledge of distributions of some plants, and partly respond to changes in the criteria to be used by HBIC for species- and habitat-based designations of Sites of Importance for Nature Conservation (SINCs) within the county. Changes to format aim to present more information about the county status of plants, and to present it in a more eye-catching way.

Updates to the Hampshire Rare Plant Register are certainly needed as it is now nearly 10 years since the text was completed. Some updates and additions have been prepared in the intervening years and have been issued as electronic documents for the individual taxa concerned. This is the basis on which any future updates will be handled.

Much of the work of updating is likely to fall on the VCRs, although MR invited other people to become involved

if they wished, and offered support. There was not a strong response to this, and MR and ARGM agreed that this would not be a priority in their work in the immediate future. Other projects are likely to offer fresh data to be incorporated later.

9. FoH Supplement

MR showed the state of play with the Online Supplement to the 1996 Flora of Hampshire, which remains unchanged from a year ago. The current website service provider (who is different from the provider hosting Hants Plants) offered a good framework for development of this quite complex website, but MR had found during the year that the site's responsiveness and reliability presented some problems, and there was no-one else providing a better service within the same framework. He now intends to port the project into the new Hants Plants site. Unfortunately, this means some considerable rewriting of the server software, since the server software support is different, and this is not likely to be tackled before the autumn/winter. Meanwhile, the current FoH website will be kept open and if anyone wants to contribute, then the content in the database would still be relevant and would be ported into the Hants Plants environment. There is a document explaining how to make contributions, available on demand from MR.

10. Intraspecific taxon recording

MR proposed that it would be worthwhile improving our understanding of the distribution of some subspecies and

varieties, either because they represented native taxa with differing ecological requirements, or because some native species included both native and exotic plants that could be distinguished on morphology and confused the picture of distribution, abundance and threat status for our native forms.

People needed to know species of most importance for this exercise, and also to have access to ID information which is not always available in the mainstream field guides and Floras that most people own, and can be widely scattered. MR offered to bring these two aspects together in a document. ARGM pointed out that before leaving the county Adam Lucas had prepared lists of all infraspecific taxa given in Stace, and he would send these to MR as a starting point. [Note: done]

11. Digitising the herbaria

ARGM raised the subject of digitisation of the Hampshire County Museums Service herbarium (now Hampshire Cultural Trust, but the international code remains HCMS) at Chilcomb House. This is something whose feasibility MR and ARGM investigated well over a year ago with the equipment at hand on site and digital cameras. This gave very workable results, and the curator with overall responsibility (Ross Turle) is keen to see it progressed. Tony would like to get on with it, and there is scope for others to participate. It would be good to do the same for the Portsmouth City Herbarium, but the logistics may be a bit trickier.

Botany during the Coronavirus Lockdown

Kingsclere Churchyard Wild Flower Area SINC

An article by Sarah Ball

Churchyards are often repositories of some special botany and St Mary's churchyard in Kingsclere is a good example. It is on the chalk of the North Hampshire Downs (not far from Watership Down). The churchyard is an important community space for outdoor events, sales and fêtes on grass areas among mature trees beside the picturesque Norman church and with a war memorial on one corner where people gather for Remembrance Sunday in November.

Early in the new millennium bad weather meant that the usual contract mowing of the churchyard was delayed until April and in that time, to everyone's surprise, meadow saxifrages appeared near the outer walls. The Parish Council agreed to leave a strip uncut until the autumn. Orchids and other chalk downland flowers followed so the area was gradually enlarged and today there is a small rectangle (c. 18m x 15m) with over 50 species, including chalk grassland flowers that must once have covered the whole churchyard and beyond.

After many years of careful tending and monitoring by keen local naturalist, the late Ralph Cook, the Wild Flower Area was declared a Site of Importance for Nature (SINC) by Basingstoke and Deane Borough Council in 2016. Other locals took on the job of cutting the patch twice a year, raking and removing all the cuttings and putting up a protective post and wire fence in February. In spring, following splendid displays of Primroses, then Cowslips *Primula vulgaris* and *P. veris*, there is a stunning show of Meadow Saxifrage *Saxifraga granulata* both on the site and on the churchyard walls. Even as those are fading, leaves and flowering shoots are appearing of no less than six orchid species! Twayblade *Neottia ovata* and Greater Butterfly-orchid *Platanthera chlorantha*, then Common Spotted-orchid *Dactylorhiza fuchsii*, Bee Orchid *Ophrys apifera*, Pyramid Orchid *Anacamptis pyramidalis* and Fragrant Orchid *Gymnadenia conopsea*. Until recently there were also a few White Helleborines *Cephalanthera damasonium* but too much shading from a nearby holly seems to have brought about their demise; the tree is due to be reduced in the autumn so we hope that they might reappear in due course.

The assemblage of chalk flowers continues into the summer and autumn, including the pretty Quaking-grass *Briza media*, Greater Knapweed *Centaurea scabiosa* and



Kingsclere churchyard, May 2020 with Meadow Saxifrage *Saxifraga granulata* and Cowslips *Primula vulgaris*; note edge of war memorial site adjacent. Sarah Ball

usually its associated Knapweed Broomrape *Orobanche elatior*, Meadow Crane's-bill *Geranium pratense*, Oxeye Daisy *Leucanthemum vulgare*, Hairy St John's-wort *Hypericum hirsutum*, Field Scabious *Knautia arvensis*, Hoary Plantain *Plantago media*, Bulbous Buttercup *Ranunculus bulbosus*, Yellow-rattle *Rhinanthus minor* (important because it is a hemi-parasite of coarse grasses), Goat's-Beard *Tragopogon pratensis*, Great Mullein *Verbascum thapsus* and good numbers of other more common species.

Binswood in Spring – The Ramblings of a Budding Botanist

An article by Cathy Wilson

Living on a sliver of Upper Greensand that forms part of the eroded rim of the Weald anticline, I am surrounded by a wealth of differing habitats. Within one walk I can escape the arable desert around my house, cross flinty chalk downland, drop down through the wooded hangers of East Hampshire, pass streams and ponds where water filtered through chalk and sandstone springs out on meeting Gault Clay, then on to the acid heathlands of the Lower Greensand. During 'lockdown' this local variety has been especially welcome.

My spring walks often took me through Binswood (SU 764 371), an area of ancient semi-natural woodland and wood pasture that was once part of Woolmer Forest. Sitting on Gault, Binswood's 61 hectares are poorly drained with areas that become waterlogged in wet conditions. Two

small seasonal streams run across it but dry up quickly in spring.

Binswood is managed by the Woodland Trust with light cattle grazing, brush cutting to control scrub, coppicing and mowing to maintain grassland rides, and occasional pollarding for veteran trees¹. The site is a Site of Special Scientific Interest (SSSI), falls within the South Downs National Park and forms part of the Selborne Landscape Partnership, a group of landowners and managers collaborating to farm more sensitively and enhance the local environment.

Woodland covers about 75% of the site and includes mostly Pedunculate Oak *Quercus robur*, with some Beech *Fagus sylvatica*, Ash *Fraxinus excelsior*, Silver birch *Betula pendula*, Holly *Ilex aquifolium*, Hawthorn *Crataegus monogyna* and Elder *Sambucus nigra*. The trees support a wealth of fungi and lichens.

Ground flora includes Ancient Woodland Indicators and other familiar species such as Bluebell *Hyacinthoides non-scripta*, Sanicle *Sanicula europaea*, Pignut *Conopodium majus*, Wood and Germander Speedwells *Veronica montana* and *V. chamaedrys*, Yellow Archangel *Lamium galeobdolon*, Wood Sorrel *Oxalis acetosella*, Wood Anemone *Anemone nemorosa*, Wood Spurge *Euphorbia amygdaloides*, Yellow Pimpernel *Lysimachia nemorum*, Foxglove *Digitalis purpurea*, Violets *Viola* spp, Primrose *Primula vulgaris*, Wood Avens *Geum urbanum*, Red Campion *Silene dioica*, Lesser Celandine *Ficaria*

¹ Binswood Management Plan 2016-21, Woodland Trust

verna, Bugle *Ajuga reptans* and Self-heal *Prunella vulgaris*. Sedges include Remote Sedge *Carex remota*, Wood Sedge *C. sylvatica* and Thin-spiked Wood Sedge *C. strigosa*; this last one new to me this spring.

Willows *Salix* spp. and Rushes *Juncus* spp. abound in wetter areas and Bracken *Pteridium aquilinum*, Gorse *Ulex europaeus*, Brambles *Rubus fruticosus* and Blackthorn *Prunus spinosa* continually threaten to engulf grass rides and open pasture areas.

The backdrop of birdsong is a joy, Cuckoos *Cuculus canorus* still appear every spring, Buzzards *Buteo buteo* drop out of trees in front of one's eyes and in recent years I've heard and seen Ravens *Corvus corax* close by. Roe bucks *Capreolus capreolus* peer quizzically at you down the rides before bounding off, white rumps bobbing. The site is said to support 27 species of butterfly and moth *Lepidoptera* spp. and eight species of grasshopper and cricket *Orthoptera* spp. I found myself becoming rather fond of the chirpy *Orthoptera* as they skittered and scattered from my every footstep in late May.

My botanical rummaging was largely in the open and wet areas, as they are where I have most to learn. I found many plants I know well including bright sunny sprays of Lesser Spearwort *Ranunculus flammula*, Creeping Buttercup *R. repens*, Meadow Buttercup *R. acris* and Silverweed *Potentilla anserina*, Cuckoo-flower *Cardamine pratensis* looking pretty in pink and its less flamboyant relation Wavy Bitter-cress *Cardamine flexuosa*, Sorrel *Rumex acetosa*, Field Wood-rush *Luzula campestris*, Marsh Thistle *Cirsium palustre*, Water Mint *Mentha aquatica*, Hairy Sedge *Carex hirta* and False Fox Sedge *C. otrubae*. I also spotted a dainty Grass Vetchling *Lathyrus nissolia* dangling its fuchsia-coloured flowers among the grasses.

A few finds are worth particular mention. I was pleased to spot Common Marsh-bedstraw *Galium palustre* before it flowered as it's a spindly thing and easy to miss. Its



Lesser Spearwort *Ranunculus flammula*
(All photos by Cathy Wilson)

blunt-ended leaves have no mucronate tip and the weak marginal prickles point backwards. I identified it to subspecies *palustre* by its smaller leaves relative to other subspecies. By late May it was speckling the grasses with dainty white flowers.

Greater Bird's-foot-trefoil *Lotus pedunculatus* was not in flower but easily distinguishable from Common Bird's-foot-trefoil *L. corniculatus* by its hollow stems and hairiness.

A grass new to me was Marsh Foxtail *Alopecurus geniculatus*. The specific epithet tells you that one of its distinguishing features is its extremely bent knees. It's also wonderfully glaucous so its grey/blue stems were easy to spot once I'd got my eye in.

I've seen Lousewort *Pedicularis sylvatica* many times before but never in such abundance. In other years I've looked for it at Binswood, finding only a handful of plants if any. But this spring it was everywhere, subspecies *sylvatica* (calyx glabrous with a few hairs around the throat), in great purple carpets... except that I was thrilled to find amongst the purple a few of the rarer white-flowered form. Brewis et al. (1996) has no mention of these at Binswood but includes a 1987 note by Francis Rose saying 'white-flowered form common' at Woolmer Forest. Interestingly the first Hampshire record for this species was in 1768, by renowned naturalist Gilbert White, whose Selborne home was only a couple of miles away.



White form of Lousewort *Pedicularis sylvatica*

Finding Marsh Speedwell *Veronica scutellata* was a perfect lesson in how valuable it is to learn the characteristics of plant families (my thanks here to the online Identiplant course² and tutor Dawn Nelson). At first I couldn't make out what I was looking at, but suddenly realised that the

² Identiplant course run by Field Studies Council and BSBI

form of the tiny delicate pale pink flowers clearly put it in the Veronicaceae family. From there I was quickly able to pin it to species.



Marsh Speedwell *Veronica scutellata* clearly telling me its flower has the form of a member of the Veronicaceae family

I found three species while trying not to break my ankle crossing muddy craters created by cattle and farm vehicles. This was another lesson: don't ignore the less glamorous spots on your way to the much more interesting-looking bit of habitat over there. Toad Rush *Juncus bufonius* was a familiar find. I hadn't met Common Water-starwort *Callitriche stagnalis* before but knew it had been recorded at Binswood so was on the lookout for it, which helped me quickly identify it.

By far my best muddy puddle find was Blinks *Montia fontana* subsp. *chondrosperma*. I'd not seen this before and knew it only from its minute but exquisitely sculptured seeds, the details of which determine the subspecies. Tony Mundell had kindly given me three seeds last year to marvel at down the microscope. Finding the plant itself was a thrill even though it's not much to look at, and it kindly rewarded me with seeds of my own.

Water-pepper *Persicaria hydropiper* was another familiar find with its tongue-blowing peppery taste. On another 'lockdown' walk I sampled something that looked similar without paying close attention. Whatever it was tasted foul and I spent the rest of my walk hoping I hadn't poisoned myself. Another lesson: botany is a hazardous pursuit in many ways but above all beware what you put in your mouth! I'm tempted to do as the Germans do: snaffle some of the copious amounts of Tormentil *Potentilla erecta* at Binswood, steep them in schnapps and carry a flask of it on botanical excursions. Apparently, this makes a digestif that will deal with the worst stomach upsets – and if nothing else it might take nasty tastes away.

Finding Ragged Robin *Silene flos-cuculi* was an unexpected pleasure as I rarely see it locally and haven't spotted it before at Binswood. Indeed, my record of it turned out to be the first there since 1986.

Oval Sedge *Carex leporina* caused me a merry identification dance. When I saw it in early May I thought I recognised it as just that. But doubts quickly crept in. Its inflorescence seemed too spindly. Moreover, the lowest bract was tiny and the stem was hollow, neither

of which matched descriptions in the books I consulted... which in any case didn't agree with each other. Stace (2019) says the lowest bract is 'sometimes as long as the inflorescence', the BSBI Sedges Handbook (Jermy et al. 2007) says it's 'occasionally longer than head' and Streeter et al. (2016) says it's 'longer than spike'. Stace (2019), Streeter et al. (2016) and Rose (1989) are all silent about whether the stem is hollow or solid and the BSBI Sedges handbook describes it as ' \pm solid'. What to make of it? My photos and descriptions even had Tony Mundell and Martin Rand scratching their heads. But then I did what I should have done all along and consulted Poland & Clement (2020). Lo and behold the stem is described there – even underlined – as 'v hollow'. That, together with other features described in that marvellous book, clinched it.



Oval Sedge *Carex leporina* looking rather different in early and late May

This was a valuable reminder always to consult 'The Veg Key' when puzzled, whether or not you're using it to key out and whether or not the plant has flowers. John Poland and Eric Clement have a special talent for including details other books miss or get wrong.

It was also a classic example of that circular problem the 'Budding Botanist' faces. Many species can only be identified at 'the right time', when particular features – often fruits – are present and fully developed. But faced with an unknown plant, you can't know what it is about that species that you need to be able to see before you can reliably identify it. By late May, the inflorescences on the Oval Sedge had filled out and the bracts had grown. By then, I wouldn't have thought twice about its identification... and wouldn't have got into the stem conundrum at all.

I was also led a dance by Stitchwort *Stellaria* species. Greater Stitchwort *S. holostea* feels unmistakable, so that wasn't a problem. But Lesser Stitchwort *S. graminea* seems much more variable. Their starry flowers have lit up Binswood in great profusion this year and I was hoping I might also find Marsh Stitchwort *S. palustris* among them in wetter areas. So I measured and photographed and studied countless flowers and bracts while scratching my head, not least because again the books don't agree. Streeter et al. (2016) says Marsh Stitchwort bracts have a

central green stripe, Lesser Stitchwort bracts don't, and in both species bracts have hairy margins. But Stace (2019) says Lesser Stitchwort bracts often have a green stripe and differ from Marsh Stitchwort in having hairy margins. He also mentions that 'leaf hairiness' may distinguish them, whereas other books say neither species have hairy leaves. And that's all before one considers hybrids. Whatever is the 'Budding Botanist' to make of it?



Lesser Stitchwort *Stellaria graminea* giving me the runaround

In the end I remain unsure but suspect all the plants I found were Lesser Stitchwort, not least as no-one else has recorded Marsh Stitchwort at Binswood. Sadly I also failed to find Bog Stitchwort *S. alsine*, which has been recorded there.

More experienced botanists might not think twice about species I've highlighted and would certainly have found many more, though I doubt Binswood qualifies as botanically rich by many standards. Nevertheless, there's plenty to interest a comparative novice like myself. It has the added benefit that relatively few people go there: even in the heat of sunny 'lockdown' weekends I hardly met a soul.

Some general thoughts that may interest other 'Budding Botanists'. I found it valuable to look up previous site records on the BSBI database and read the species descriptions in ID books before visiting. Knowing what's been found before somehow helps the eye search for them, allowing you to focus on particular species without getting distracted by more common plants. You also learn a lot about the plants and plant associations to expect in different habitats. Another aid to the habitats point is knowing something of the site's geology and soils before you start. For that, I find the British Geological Survey Apps iGeology and mySoil, which are free to download³, invaluable. With a couple of touches on my phone screen I can get information about the geology and soils for any point in the UK, whether I'm sitting at home or out in the field. And doing that tells you something about the habitat – and therefore the plants – you can expect to find.

Above all, months of solo botanising have reinforced for me the value of going out with experienced botanists.

³ British Geological Society Apps website

Botanising alone is important: you work at your own pace and have to identify everything from first principles. But nothing replaces being with those who know. If you're unsure about an identification, there's help on hand to point you in the right direction. You see many more species, as your experienced companions will spot plants your eye simply skated over. And if you're looking for a species you've never seen before, it can be hard to find without knowing its 'jizz': no picture or description can convey that, you only catch it once you've seen the real thing, so finding it for the first time often depends on help from someone who already recognises its jizz.

Besides, it's great fun being out with like-minded people, who understand the excitement of crawling through undergrowth, bottoms in the air. I've been luckier than most in what I've been able to do during 'lockdown'. But I can't wait to go out with others again once it's safe to do so.

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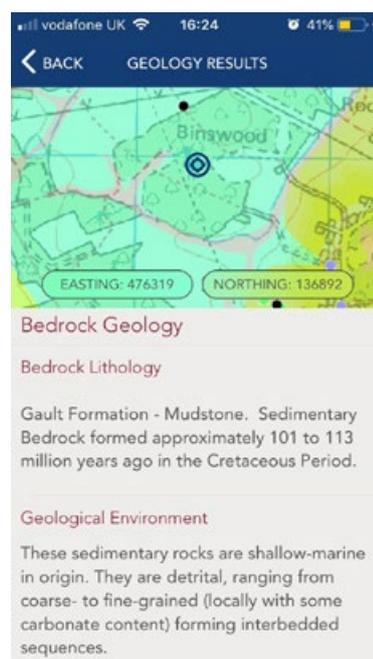
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Screenshot of iGeology app giving basic Binswood data

A Few Plants During Lockdown

A note by Tony Mundell

My wife Pat and I very rarely ventured out during the lockdown period. We have quite a large garden behind our house and that is where I spent a lot of time pottering about and taking photos of my cultivated plants. Lockdown must have been grim for most people without a garden. In fact the vast majority of my time was spent in sorting out, labelling and re-storing thousands of my photographs of British wildlife taken over many years.

On the few occasions that we did go out for a local walk I was delighted by some of the plants we found whilst recording every plant seen in a 1km square. We have a small area of boggy heathland only a few hundred metres from my home at Basingbourne which is managed by a local group of volunteers. Apart from Eelmoor Marsh SSSI, Basingbourne Heath is the only site where I still join in with winter scrub-bashing. In the drought conditions during the lockdown in late May 2020 I was able to find just seven surviving Round-leaved Sundews *Drosera rotundifolia* at Basingbourne Heath. In 1985 the population there was estimated at 2,500 *D. rotundifolia* and 2,000 *D. intermedia*. Unfortunately a few years ago, after one or two houses were flooded in an exceptional rainstorm, the local council dug a ditch across the bog accelerating the loss of the Sundews. I attended a meeting at the council to complain and to explain that the best way to avoid flooding was to preserve the bog. That fell on deaf ears and they would not fill in the ditch (though we volunteers have since blocked it in a couple of places). The surviving Sundews and Bog Asphodel *Narthecium ossifragum* are living on borrowed time, but during that lockdown walk at Basingbourne Heath I was pleased to find a patch of Creeping Willow *Salix repens*, which was thought to be lost there. With its white fluffy seed heads it was very conspicuous.



Creeping Willow *Salix repens*, Basingbourne Heath, June 2020 (All photos by Tony Mundell)

Adjacent to Basingbourne Heath there is an informal path through some very damp woodland, bordering a stream and surrounded by housing. Here we came across Fringe cups *Tellima grandiflora* but also nearby a closely related plant that was new for me, Pick-a-

back-plant *Tolmiea menziesii*. Apparently the latter rarely sets seed but propagates from plantlets that form at the petiole/stem junctions. Because the flower stems are glandular it was amusing how they were all covered in 'fluff' caught by Willow *Salix* seeds blowing on the wind. Both of these two plants are aliens and perhaps they had originally spread from the adjacent suburban gardens, but they are now very well established.



Pick-a-back-plant *Tolmiea menziesii*, Basingbourne Woods, May 2020

On another local walk through suburbia recording a different 1km square I decided to take a closer look at a pond close to some shops. I had often visited the Sainsbury mini-supermarket there but had never stopped to look at the roadside pond that had evidently been dug to catch flash-floods. Here while Pat visited the supermarket I added many species including Ragged-Robin *Silene flos-cuculi*, but best of all I was delighted to find a large floating colony of Orange Foxtail *Alopecurus aequalis* (quite a rarity in Hampshire). The pond margin also had the far commoner Marsh Foxtail *Alopecurus*



Orange Foxtail *Alopecurus aequalis*, Church Crookham, May 2020

geniculatus so the different length of the awns that help to distinguish them could be compared. I was surprised to find a fox half asleep beside the pond. He (or she?) watched me but did not even bother to stand up as I crept away trying not to disturb it. I guess it was pretty used to people as the pond is so close to shops, a school and many houses. I returned the next day to get photos of the Orange Foxtail but the fox was not there again.

My map showed another pond in the same 1km square so we visited that on another day. The water in this pond had nearly dried-up but I added many more plants to my list and was pleased to find an extensive colony of Pond Water-crowfoot *Ranunculus peltatus* in full flower.



Pond Water-crowfoot *Ranunculus peltatus*, Church Crookham, May 2020

Later on, back at home in my garden, I had a great surprise when I found a single flower of Veined Yellow-eyed-grass *Sisyrinchium laxum* in my lawn/meadow. I first saw this very rare alien in 1984, when a huge patch



Veined Yellow-eyed-grass *Sisyrinchium laxum*, Church Crookham, May 2020

of it was shown to me on Farnborough Airfield. That part of the airfield was sold off for private development and in 1989 the area was bulldozed and then covered in new offices. I was able to collect a little seed in 1989 and sow it elsewhere in two places on the airfield, but I could not re-find when I searched in 1992. However, I did cultivate one plant in a pot at home and that plant was used to make the herbarium specimen, dated 1990, now held at Winchester. I am still mystified how it has appeared in my meadow 30 years later. I supposed I must have chucked some seed there but can't remember doing that. Plants, and especially seeds, are amazing!

Fletchwood Common – Ghosts in the Landscape

An article by Clive Chatters



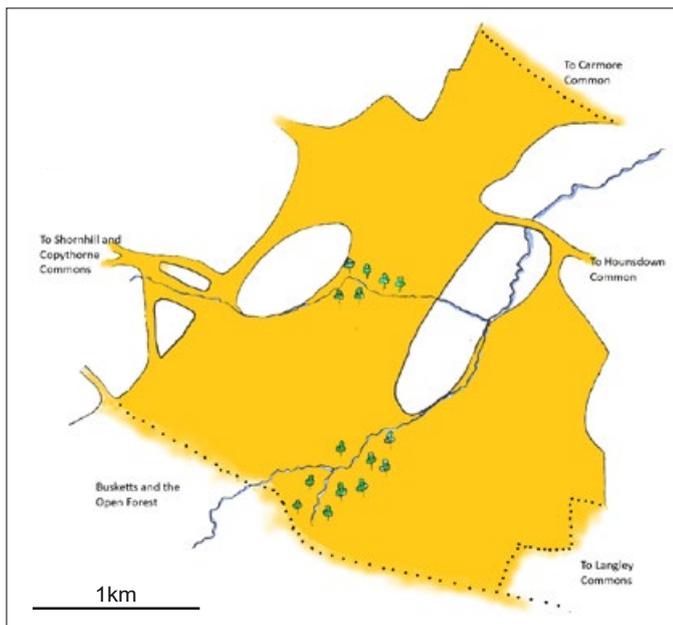
Former Fletchwood Common: A Yorkshire Fog hay-meadow with Ox-eye Daisies, field Oaks and straight hedges (Clive Chatters)

The lock-down period of the COVID-19 pandemic meant that I've had time to explore the immediate surrounds of where we live. At first the opportunities for taking exercise were restricted to a short walk from our front door; this rule allowed repeated visits to the public rights of way that criss-cross our neighbourhood parishes of Totton, Netley Marsh and Ashurst. With time on my hands I had a chance to look and to think, and to marshal those thoughts into this brief article on the historical ecology of my local patch.

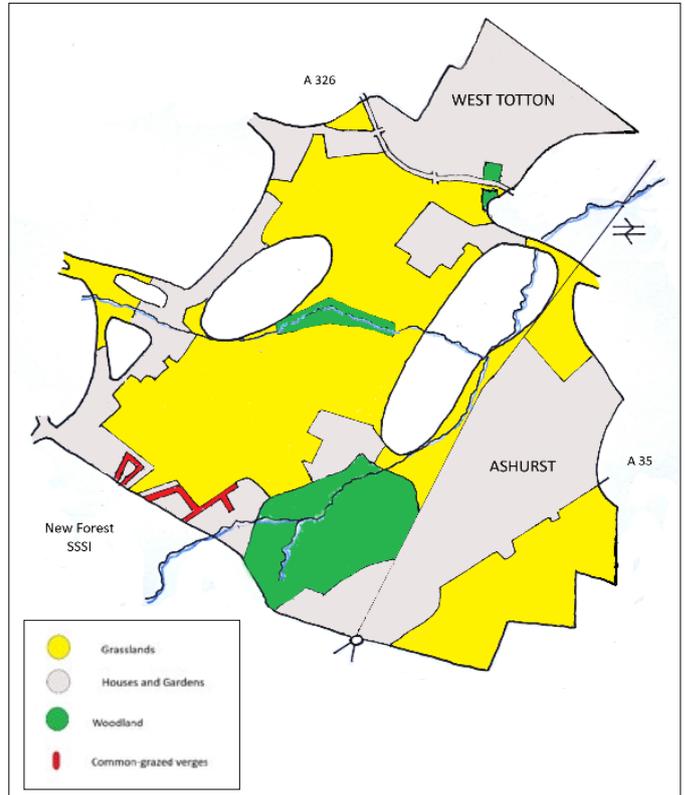
The landscape on my doorstep derives from Fletchwood Common which was once an eastern extension of the unenclosed commons of the New Forest. Historically, Fletchwood was just a small part of a large suite of commons which linked the open habitats of today's New Forest to the outskirts of Romsey in the north-east and then southwards, down through the Waterside parishes to Fawley. Fletchwood Common was mapped by the Ordnance Survey shortly before enclosure at which time it extended to some 500ha. The enclosure was enabled by an Act of Parliament of 1810 which resulted in the conversion of an open heathland landscape into regularly squared-off fields.

The distribution of habitats in the pre-enclosure common is suggested by the First Series Ordnance Survey maps of 1811 and accompanying surveyor's drawings of c. 1807. Fletchwood Common is shown on these maps as an extension of the heaths, lawns and gladed pasture woods of Busketts on the Crown Lands. The historical maps suggest that Fletchwood was a gently undulating plain of open heath that supported woodland alongside the Bartley Water and its tributaries. The northern part of the common was called Netley Marsh, but there are no suggestions of bogs or other permanent wetlands. A traveller heading eastward from Lyndhurst in the late eighteenth century would cross from the Open Forest of the Crown Lands and into Fletchwood Common at the historic Poternsford, from where they could continue on unbroken heaths as the paths divided south into the Langley Commons, eastward into Carmoor Common or north onto the commons of Shornhill and Copythorne.

The underlying geology of the former common is made up of formations of Barton Clays and Selsey Sands. The shallow valley of the Bartley Water has a narrow floodplain with alluvial deposits and there are terraces of sands and gravels on the plateaux derived from the prehistoric Solent river. The soils therefore tend to claggy-wetness in the winter months which then become brick-hard with summer parching. Both the Barton and Selsey formations are complexes of fine sedimentary deposits with occasional lenses of sub-fossil shells that consequentially are richer in carbonates and other nutrients. We don't need to speculate on the natural vegetation of the Barton Beds as there remain extensive heaths and pasture woodlands over this formation to the east of Lyndhurst. The Barton Clays are not as intrinsically rich as the Headon Beds but they do have the potential to develop into reasonably productive soils that are capable of supporting a diverse woodland and herbaceous flora.



Map 1. Fletchwood Common c. 1800, just before enclosure.



Map 2. Current land-use of the former Fletchwood Common

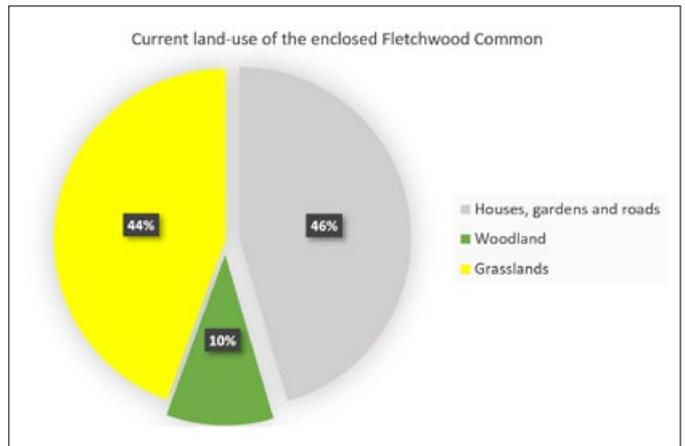


Figure 1. Current land-use of the enclosed Fletchwood Common

In his *Inquiries* of 1811, Percival Lewis stated that Winchester College owned the manor containing Fletchwood Common where they enjoyed freedom from being administered by Forest officers. As such, the Common was a physical part of the New Forest without being administered under Forest law. The college's manor was described as containing three woods, Great Fletchwood, Little Fletchwood and Palrosham (a place-name that is unused today) but the precise extent and location of these woods is ambiguous.

The historical landscape of Fletchwood Common has changed beyond recognition as, following enclosure, the settlements of West Totton and Ashurst have grown up over much of the former heath. These major settlements, along with the ribbon developments of Woodlands and Fletchwood, now account for some 46% of the former

common (Figure 1). With the exception of c. 50ha of woodland, the remainder of the land is under grassland with a little over 60ha of that grass being used for recreational equestrianism and some 159ha under a variety of agricultural uses. There are two areas of grassland that are substantially agriculturally unimproved which together extend to some 14ha (being 2.5% of the historical common); this unimproved area includes the Wildlife Trust's Fletchwood Meadows nature reserve which is part of the larger Fletchwood Meadows SSSI. A tiny part of the functioning Fletchwood Common has survived in the verges of lanes that connect to Woodlands Road at Busketts, as there are no cattle grids to exclude commoners' livestock. The grazed lanes, 'unimproved' grasslands and modified ancient woodlands are direct descendants of the vegetation of the historical common and today represent some 12% of those aboriginal habitats.

FLORAL RELICS OF FLETCHWOOD COMMON

Hedges

When Fletchwood was enclosed it was set about with hedges that are typical of early nineteenth century designed landscapes, being thorn hedges that are regularly interspersed with hedgerow Oaks. Within this basic model there are variations, such as occasional stretches where Gorse, Bracken and Broom persist from the previous heathlands. Similarly, there are pasture woodland elements, particularly on the better soils with occasional Wild Service, Guelder-rose and Butcher's Broom. One particularly fine hedge-bank by the 'Cricketers' footpath at SU 328 114 supports a classic combination of heathland herbs with Saw-wort, Betony, Devil's-bit Scabious and Goldenrod.

Woodland

There are two areas of woodland present today that are the successors to the woodlands shown on the 1811 map. The small, un-named woodland straddling a tributary of the Bartley Water is accessible by a public footpath. This woodland still occasionally functions as a pasture woodland in conjunction with a small semi-improved pasture at its southern end. The stream here is a classic partially incised pool-and-riffle New Forest gutter. The floodplain is reasonably well drained and so the conspicuous trees are Ash, Hawthorn and Field Maple along with elements reflecting its history of open habitats including stands of Bracken and Bluebell along with patches of Gorse, Holly and Butcher's Broom. The field layer is colourful with a distribution of herbaceous species that is typical of pasture woods in being limited to the streamside corridor where patches of Primrose, Pignut and Bugle grow alongside the grazing resistant Wood Spurge.

The largest wood of the former common is Fletchwood Copse. Fletchwood Copse is remarkably similar in character to the adjoining statutory Inclosures of the New Forest SSSI. As with the Inclosures, the Copse has been subjected to plantation forestry which includes a range of native and non-native timber species. Narrow bands

of riverine woodland survive and it is here where most of the ancient woodland flora can be found. The current use of part of the wood for growing a short-rotation of Christmas trees has kept a continuity of open habitats and so there is also a distinct 'heathland' element in the sunny areas with Gorse, Broom and heathers.

Grasslands

With the notable exception of the rye-grass leys of a beef enterprise, the vast majority of grasslands are composed of selections of native grasses dominated by Yorkshire Fog in the drier areas and Foxtails *Alopecurus* spp. in moister areas. Over the last 20 years a number of these grasslands have spent time under arable crops, notably forage maize. However, at present (2020) there is nowhere under cultivation. Fields that I knew as arable within the last 20 years have reverted to a mixture of native grasses along with a smattering of more demanding species including Ox-eye Daisy, Bird's-foot-trefoil, Red Clover, Ragged Robin, Corky-fruited Water-Dropwort and Oval Sedge.

Fletchwood Meadows SSSI is a relic of the former common. The grasslands were cut for hay within living memory but in recent decades they have been used as pastures for commonable livestock. The Wildlife Trust's nature reserve is a fragmented microcosm of a pasture woodland glade including small populations of charismatic species such as Autumn Ladies-tresses and Lesser Butterfly Orchid.

There is another grassland on the former common which has not been surveyed as it is distinctly private. From the footpath this field appears to be a classic New Forest wet grassland with Purple Moor-grass meadows grading into sedge-rich lawns. The field is usually cut for hay and the aftermath grazed.

The acid grasslands in the grazed lanes off Woodlands Road, as shown in red on Map 2, are what one may expect of a narrow suburban lane with lots of verge parking. However, there are places where the verge is broad enough to support Chamomile along with a few patches of Heather and Pill Sedge.

There are almost certainly more places of interest to discover within the urban parts of the former common. In the last few decades I have seen some lawns with Green-winged Orchids and just one with Autumn Ladies-tresses. These flowery lawns have been in steep decline as the area grows in prosperity and front gardens are tidied up or converted to hard-standings.

The Bartley Water

The Bartley Water rises deep in the Forest and reaches its tidal limit just downstream of the former common. The stream is a deeply incised spatey river with pools and riffles. Whilst being attractive as a geomorphological feature and for its migratory fish, the river does not support any aquatic plants of note as it is shaded throughout.

Veteran Trees

No veteran trees appear to have survived from the pre-enclosure pasture woodlands. There are a number of

notable field boundary trees along the Bartley Water including the 5m+ girth open grown Ash at SU 3418 1185 that grows out from the river-bank along with the 4.8m girth pollarded Oak at SU 3442 1238 whose bole was partially buried when the causeway to Ashurst Bridge was raised. The Oaks planted in the hedges mostly have girths in the order of 2.5–3m but there are scrawnier subjects on the gravel plateau and a few conspicuously larger specimens, such as that growing on the road-side enclosure bank at 'Broad Oak' on Fletchwood Lane.

Ponds

Interestingly, there are no 'natural' or 'farm' ponds of note within the whole of the former common.

WHAT NEXT?

The fields of the former common are still being developed for housing with the National Park Authority allocating land at Ashurst for one of their larger developments. The future of the remaining fields is uncertain as the prospects of the agricultural sector are changing, not only in the nature of state-support but also under competition from much higher-value equestrian uses of land. I know of at least three parts of the former common that are used by New Forest Commoners to hold their livestock when they are not turned out onto the Open Forest. This is pleasing as whilst the common has been enclosed from the Forest it still contributes to the life of the Forest.

In the meantime, there are lots of opportunities to search out remnants of the historical common.

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On the Verge of Change

A note by Kayleigh Brookes



Oxeye Daisies, Basingstoke, May 2020
(All photos by Kayleigh Brookes)

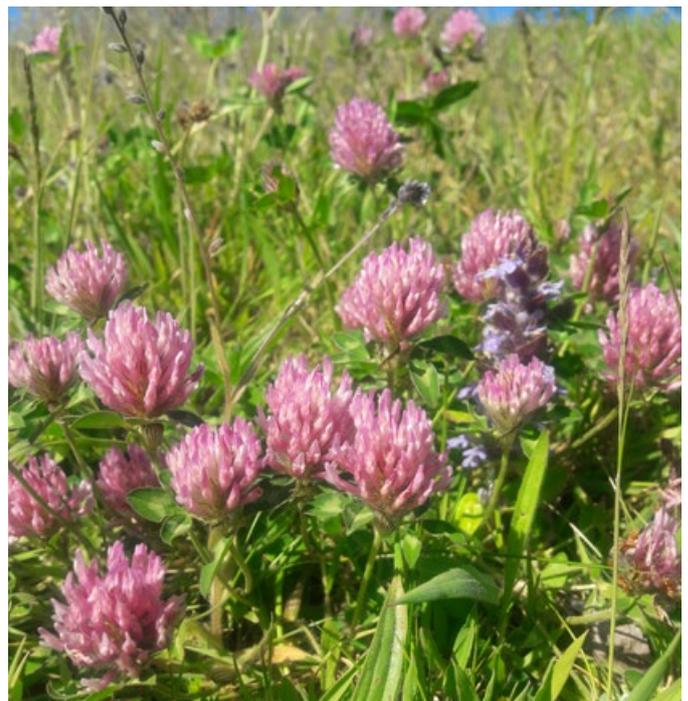
Whatever's going on in my life, I always feel comforted by nature. Surrounding myself with the sights, sounds and smells of the natural world has a calming and therapeutic

effect. It's not just me, a lot of other people say the same thing regarding nature's power to make us feel better. It has been proven that spending time in nature can benefit our mental health. In the recent, uncertain situation we found ourselves in, we have needed nature more than ever to get us through.

I've always been a wild flower fanatic. I wouldn't call myself an expert, but I'm certainly enthusiastic! During lockdown, I've noticed a decrease in the mowing of verges and open areas, and consequently an increase in the wonderful wild flowers that grow in them! This is great news for bees, butterflies and other insects and wildlife. In my Hampshire town, some areas are still being mown, but there are definitely more areas left to nature



Bee Orchid, Basingstoke, June 2020



Red Clover (with Bugle and Forget-me-not), Basingstoke, April 2020

than before. One day as I was walking to work, I rounded a corner and came across a beautiful unmown verge full of oxeye daisies gleaming in the sun and swaying gently in the breeze. They were mesmerising!

I've never supported the constant mowing of verges, I think they look much nicer full of wild flowers, and these are so important to many different species. According to the charity Plantlife, 45% of our native flora is found in road verges! I understand the need to mow a bit in certain areas, for example where taller vegetation can impede vision for road users. However, I don't agree that it makes areas look tidy, and there won't be many insects making use of incredibly short grass. There is so much beauty to be found in verges – a wonderfully colourful composition of the vibrant yellows, whites, pinks and purples of bird's-foot trefoil, buttercup, daisy, white clover, red clover, selfheal and many more beautiful species.

My hope is that this recent crisis has made people more aware of the value of nature – for its own sake and for

the sake of our health and wellbeing. Biodiversity is still under threat, perhaps even more so now, and we need to protect what we have. Leaving verges and lawns to nature is a wonderful first step in increasing local biodiversity and reducing the distance between people and nature. Public support for leaving verges uncut for longer to allow wild flowers to flourish is strong, and several councils and landowners are now getting on board with this and leaving the cutting until later in the year when the flowers have set seed. Don't forget you can write to your council to show your support for wild flower verges!

I hope that you have been and are still able to get outside and enjoy the wonders that the great outdoors has to offer, whether in a road verge or elsewhere! Nature is beautiful, calming and uplifting, and we all need a little bit of that in our lives.

Notes & Features

Polypodium ferns in Hampshire

A note by Martin Rand & Tony Mundell

INTRODUCTION

In the 4th edition of Clive Stace's 'New Flora of the British Isles' (Stace (2019)), three species of *Polypodium* are described, plus three hybrids between them. The species are Common Polypody *P. vulgare*, Intermediate Polypody *P. interjectum* and Southern Polypody *P. cambricum*. Stace does warn that '*Microscopic examination is necessary for certain identification except with extreme or very typical examples*', and this at least partly explains why many people prefer only to record them at an aggregate level. James Merryweather, in his 2020 field guide 'British Ferns', observes tartly: '*Naming polypodies is likely to be either straightforward, if you are satisfied with field identifications, or distressingly inconclusive or contradictory if you aim for accuracy.*'

In the 1883 1st edition of Townsend's 'Flora of Hampshire' *P. vulgare* is given as common on 'Rocks, walls, trunks of trees, hedgebanks, etc. Recorded for all the districts, and all the sub-districts except IV (2) [around Newtown, Isle of Wight] in which it in all probability occurs.' Although no other *Polypodium* species were fully recognized at that time, it is interesting that Townsend added the following observation mentioning three varieties: 'Occurs not unfrequently with lower lobes of the frond forked (var. *furcatum*), and also with the lobes deeply serrate or irregularly pinnatifid (vars. *serratum* and *cambricum* ...).' Townsend's 1904 2nd edition simply repeats the same text, and Rayner's 1929 Supplement to Townsend's Flora only adds a single record for *P. vulgare* var. *serratum* in the New Forest.



Southern Polypody *Polypodium cambricum*, Winchelsea, East Sussex, 2004. Happy the botanist who finds a population so easily identified from macroscopic observation. (All photos by Martin Rand)

By the time of the 1996 'Flora of Hampshire' (Bowman, Brewis & Rose (1996)) the three species were recognized but the distribution map shown is for the aggregate *P. vulgare sensu lato* (so including *P. interjectum*). However, the following comment was included: 'It appears that, whereas *P. interjectum* is the commonest in SW Hampshire and in the basic Weald escarpment, *P. vulgare* is the commonest on the Lower Greensand.' That is at least roughly borne out by their currently known distributions. The reason given for only including the aggregate map was that there were many intermediates, but it may also have been a case of not having sufficient records of plants that had been carefully examined microscopically.

The problem is that although the overall macroscopic characters of the frond and sorus shapes help a bit in



Intermediate Polypody *Polypodium interjectum*, Nursling, 2006. Are these sori round or elliptical? And what criteria would you use to ensure consistency with other recorders?

separating *P. vulgare* and *P. interjectum*, they are rarely diagnostic. A more important character is a count of the thick-walled annulus cells surrounding the spherical sporangia that contain the spores. This (plus other characters) also helps to distinguish *P. cambricum*. The function of these annulus cells is to slowly swell up and then suddenly rupture along their back edges, causing the two hemispherical halves of the sporangia to spring apart, ejecting the spores explosively. Nowadays we have excellent illustrations of dehisced sporangia in the later editions of 'Stace' (at the end of the Fern section) so it is clear which cells need counting under a microscope. However, in the 1991 1st edition of Stace and its predecessor Clapham, Tutin & Moore (1987), although the cell numbers for each species were given there was no helpful illustration.

The 1996 Flora also gives an account of the hybrid *P. x mantoniae* (*P. interjectum* x *P. vulgare*) as well as an account for *P. cambricum*. For the latter, the first record was for Denny Wood in 1966 as an epiphyte on an oak tree, although a plausible inference from Townsend's Flora is that it was known to him. Details were given of five other sites, all in VC11, either as an epiphyte or on walls, all of them supported by specimens in Hb. RPB (Paul Bowman's herbarium held at Winchester). Epiphytic *P. x shivasiae* (*P. cambricum* x *interjectum*) from one of the New Forest *P. cambricum* sites, Whitley Wood, was confirmed by Rob Cooke (the BSBI *Polypodium* Referee) from material collected in 2004 by Alison Bolton, Martin Rand and Robin Walls. It was found elsewhere in the wood in 2005 on a Hampshire Flora Group meeting

attended by the pteridologists Chris Page and Martin Rickard.

POLYPODIUM PLANTS IN WINCHESTER

Following on from the 1996 Flora, further sites for *P. cambricum* were found in VC11, widening its known distribution. In 2009 Matt Stribley found it in several places growing on walls within Winchester, extending its distribution northwards and close to the VC11/12 border. This made Anna Stewart, who lives in Winchester, wonder if it also occurred in VC12; and in February 2019 she duly found an epiphytic colony of it growing on a tree in Stratton Road, St Giles Hill, just within VC12. A specimen was confirmed by Rob Cooke, who took a microscope photograph showing some long, branched multicellular paraphyses which proved the determination. Paraphyses are hair-like structures found between the sporangia. Unfortunately, even with a microscope they are hard to find as they are often only produced very sparsely, but they are diagnostic for *P. cambricum* or its hybrid *P. x shivasiae*.

February and March are good times for trying to identify *Polypodiums* as that is the period when there is a chance that the sporangia containing the spores are most likely to be ripe in any of the three species. (In truth, March is a little late for *P. interjectum*, which matures sporangia from September onwards, while *P. vulgare* can spore from August to March.) However, a positive identification is often not easy as several characters need to be considered and their relative importance is uncertain. So,

in February 2020 a small group of people joined forces to collect a range of *Polypodium* specimens and make a set of standardized measurements on them, including microscopic characters, mainly in order to educate ourselves on the identification process. Anna Stewart provided a base for the microscope work at her home and was joined by Peter Billingham, Phil Collier, Robin Garnett, Tony Mundell, Martin Rand and Jonathan Sleath for one or more meetings. Unfortunately, the coronavirus lock-down eventually brought our meetings to a close. Many frond specimens were collected, initially in the Winchester area, including an example of each of the hybrids *P. x mantoniae* (*P. interjectum* x *vulgare*) and *P. x shivasiae* (*P. cambricum* x *interjectum*) that were confirmed by the BSBI referee Rob Cooke.

The measurements we made included the frond length and breadth, whether paraphyses were present, an annulus cell count, the annulus cell height and breadth, and a count of the basal cells at the annulus base. All hybrids have a high proportion of aborted or infertile spores, and the presence of these was also noted. Jonathan found a way of mounting dehisced sporangia using double sided sticky tape and that combined with his excellent microscope connected to a monitor screen helped in counting or measuring the annulus and basal cells.

DATA AND METHODS

As Tony has mentioned above, the data collected in Winchester included macroscopic characters (frond length and breadth) as well as the microscopic characters generally considered as diagnostic. This allowed us to test whether any correlation at all between macro and micro characters could be considered useful for a preliminary assessment, even if not diagnostic.

Fronde were gathered at 18 sites in Winchester from masonry, from the ground and epiphytic on Lime trees (*Tilia x europaea*). Some fronds, especially those collected at the beginning of the survey, were either too immature or too senescent to be of use, and in the end 18 specimens from 13 sites were retained for analysis. Two of those remaining did not have measurements for annulus cell height and breadth; these are characters given by Hutchinson & Thomas (1996), Jermy & Camus (1991) and Page (1997), but not used as diagnostic in Stace (2019) or Merryweather (2020).

As well as the Winchester sites, two collections from elsewhere in the county were available: 15 specimens from 6 sites in NE Hampshire (where *P. cambricum* has never been recorded) by Tony Mundell in 2020; and 69 specimens encompassing *P. cambricum*, *P. interjectum* and *P. x shivasiae* collected by Alison Bolton, Martin Rand and Robin Walls in 2003-5 from 7 broad sites in the New Forest. The latter serves well as a reference set for epiphytic *P. interjectum* and *P. cambricum*. Ten of them were confirmed or determined by Rob Cooke; all were passed through a Principal Components Analysis (PCA) and linear classifier, where several other macro characters were included in the analysis but found to be

minor contributors to variance. A few specimens were left as undetermined from this process; unfortunately, although spore fertility was recorded from some of the specimens, it was not done systematically and not for any specimens queried on other grounds. A few specimens from West Sussex in 2020 during the current exercise were also obtained.

A further artificial reference set for the three species was constructed from information in Page (1997). Macroscopic measurements were taken by measuring the many outline frond drawings and scaling them using the scale bars provided on each plate. Quantitative microscopic characters for this set were generated using the range limits (r_1, r_2) given in the species accounts and generating random normal values around the range midpoint $(r_1+r_2)/2$ with a standard deviation $0.25(r_2 - r_1)$. This provided an extrapolation with a plausible spread from the author's view of reasonable species boundaries.

Microscopic measurements and counts for most Winchester and NE Hampshire plants were taken using a Meiji or a Swift compound microscope, each connected via a high-resolution digital camera to a PC display pre-calibrated for measurement. A few were taken directly from a calibrated compound microscope with eyepiece graticule. Measurements and counts were averaged across at least three sporangia from a frond.

It was originally the intention to count paraphyses (multicellular hairs with stubby branches, found amongst the spores in the sporangia) on specimens of *P. cambricum* (and perhaps *P. x shivasiae*), but in the end a simple 'presence/absence' was kept on the record, as numbers were not considered reliable. This feature was not recorded on a few Winchester specimens, either because immaturity of sporangia made it difficult to be sure whether they were present or because there was some confusion about their appearance in the first recording meeting.

ANALYSIS AND FINDINGS

The features made use of in the analysis are: length/breadth ratio of fronds; presence or absence of paraphyses; annulus cell count; annulus cell breadth; annulus cell height; basal cell count (that is, number of cells between the bottom of the annulus and the 'stalk' of the sporangium). Other macro features were also considered, but they were either discarded at an early stage of the current investigation or proved not to have been recorded in sufficient samples.

Only *P. cambricum* and one of its hybrids (*P. x shivasiae*) have paraphyses, and they are not always present in the hybrid. This makes it a clinching diagnostic for a plant having at least some *P. cambricum* parentage, useful for testing variance in other features.

For example, to find how useful the length/breadth ratio is in making an initial assessment of a plant, we can show the spread of this ratio for plants in the Winchester, NE Hampshire, Sussex and New Forest data (Figure 1). The 'whiskers' on this box plot are set at 95% confidence

limits. (For those not familiar with box plots, the boxes represent upper and lower quartiles of the data, with a line showing the mean across them. A quartile is the range into which 25% of the sample population falls.) This dataset is rather heavily loaded with data for *P. interjectum* over *P. vulgare* in the 'non-paraphyses' set, but as this means it is somewhat biased towards relatively broader fronds it gives us a reasonable basis for assessment. As you can see, from this sample we might conclude with reasonable certainty that, given no other information, a frond less than 1.7x as long as broad is *P. cambricum* or *P. x shivasiae* and a frond more than 2.2x as long as broad is not. This at least does not contradict the key character 'mostly $\leq 2x$ as long as wide' / 'mostly $> 2x$ as long as wide' found in Stace (2019) and other books, but it emphasises that there can be a considerable number of specimens in a zone of doubt. Merryweather (2020) avoids mention of this character altogether.

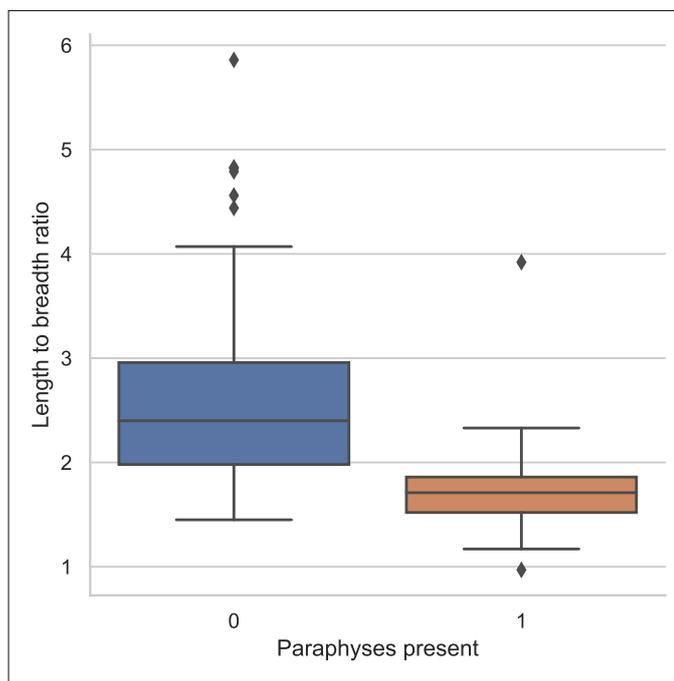


Figure 1. Range of length/breadth ratio in fronds from plants with and without paraphyses in the sori.

The outlier at 3.9 is interesting: this specimen was determined as *P. cambricum* by Rob Cooke. More casual observation suggests that in a larger data set this may not be so unusual in epiphytic populations, and so one should be yet more cautious in using this ratio.

How well does this sort of comparison work for the microscopic characters, taken in isolation? Merryweather (2020) states that the basal cell count for *P. vulgare* is 1, for *P. interjectum* is 2 and for *P. cambricum* is 3 (but with a caveat that counts don't always conform to expectations). Page (1997) gives 'almost constantly 1', 2-3 and 3-4 for these species, and for the latter two this is borne out by our data set's boundary between *P. cambricum* and 'the rest' (Figure 2). (None of the *P. x shivasiae* recorded either in Winchester or in the New Forest were found to have paraphyses.) So again, there is considerable overlap between the high end of the *P. interjectum* count and the low end of *P. cambricum*, and

this holds for other individual microscopic characters. We need to see whether a better separation can be found on a set of characters, rather than considering one character at a time.

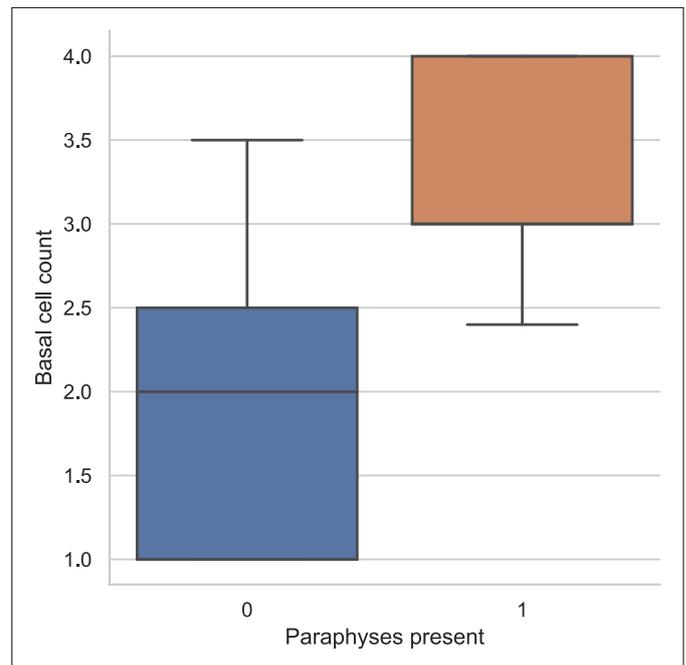


Figure 2. Range of basal cell counts in sporangia from plants with and without paraphyses.

To gain an initial impression whether clustering and separation occurs between species based on a whole range of features, it helps to visualise data in a graph form; but we now have five variables (length/breadth ratio, annulus cell count, annulus cell breadth, annulus cell height, basal cell count) rather than two to deal with. Most of us are not very good at visualising five dimensions. Consequently, statistical tools have been developed to reduce the number of dimensions in the problem to a smaller number (hopefully two or three in the first instance), while minimising loss of information in the process. One classic tool is Principal Components Analysis (PCA). Without getting into too many technicalities, what this boils down to is taking the multidimensional object (the data set) in your hands and turning it around (just as you might a 3D object) until you can see the clearest separation between data points – that is, the greatest variance in the data is revealed.

To make this work properly and efficiently, we normalise the data so that every dimension has a mean of zero and a variance of 1. This means that the numbers we get out of a PCA don't represent anything in the real world except a measure of variance. After running the process to reduce dimensions (two is favourite for quick inspections!) we need to check that we have captured a high enough proportion of 'explained variance' (that which is revealed by the number of components we asked for) to give us confidence in the model.

As it turns out, two dimensions for our *Polypodium* data only give us 78.1%, which is hardly impressive: 22% of variation is lost in the reduction. (Three would give us about 90%, which is closer to the comfort zone.)

Nevertheless, if we take a look at the resulting scatter diagram, which shows previously determined specimens in various colours alongside those which remained to be assigned a taxon in grey, we can see that there is quite a good partitioning between the three main (primary coloured) species and that many of those yet to be named can be assigned with reasonable confidence (Figure 3). Although we had some determinations of *P. x shivasiae*, they did not have all the features recorded for them and in the end they had to be excluded from this analysis.

IN CONCLUSION

This analysis has been built on a limited data set which was far from ideal for analysis, COVID-19 having interrupted an ongoing project; but it has been possible to determine several things. Firstly, macroscopic characters are not reliable in many cases for determining *Polypodiums*. A much larger set of these was checked previously on the New Forest data set, and none stood up better than the length/breadth ratio. Secondly, while microscopic characters are much better for diagnosis, individual attributes do not stand up well on their own: in the case of basal cell count, which should be one of the most clear-cut, the overlap zone between *P. cambricum* and *P. interjectum* envelops 50% of the sample for one species and 75% for the other. These characters must be taken together, and they must not be taken from single measurements. On the latter point I can't do better than to quote from James Merryweather: 'Only occasionally will you be confident of the exactness of a count from a single sporangium, so do as many as you can and calculate averages. Repeat for several sori on different fronds from the same plant until you are confident of fair averages. That might come quickly or require additional attention to detail, both in slide preparation and in observation. Compare your results with the illustrations and figures presented here, and please do not despair if your results do not always conform to expectations. That happens to the best of us.'

There is more work to be done on collecting raw data and building a more complete and reliable data set from Hampshire. But the rather crude PCA suggests that the determination process can be explored further with techniques to partition the data for optimal reliability in diagnosis, providing tools for identification that can include a level of certainty for an ID. Since machine learning algorithms aren't hampered by a need to visualise multidimensional spaces, they can be set to include more of the plant's features in order to achieve a PCA with enough components to achieve improved explained variation – 95% (the statistician's friend) would make a good target.

A (PARTIAL) TOPOGRAPHY OF POLYPODIUM IN WINCHESTER

The work done so far has enabled us to put IDs to most of the plants collected in Winchester that have had sufficient features recorded, and to turn those grey dots into something more colourful. The Winchester Polypody Phenomenon is surprising in many ways.

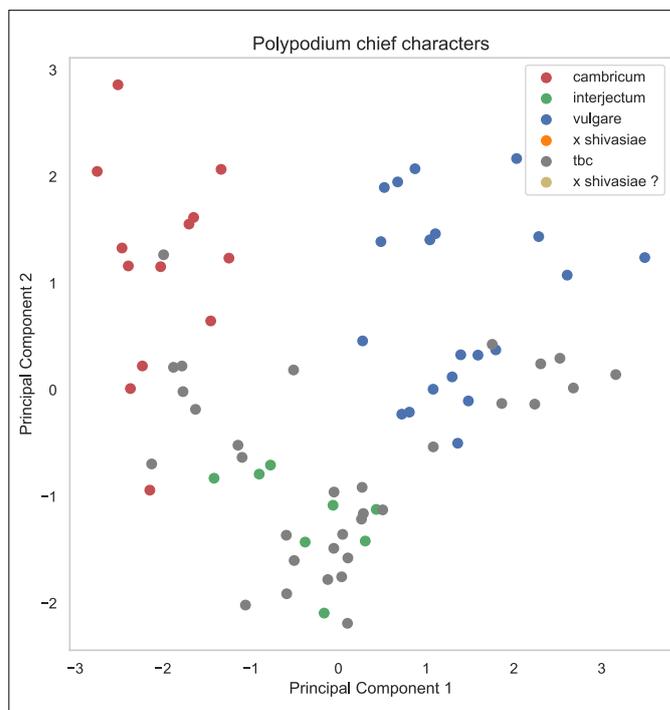


Figure 3. PCA analysis based on five characters of *Polypodium*, showing intuitively that a good degree of partitioning in predetermined specimens can be achieved on a combination of characters, and that most specimens can be assigned within those species.

First, there is a remarkable abundance of Polypodies in Winchester, apparently more than in any other Hampshire town (unless you know different!) (Figure 4). Perhaps its situation in an enclosed valley with a relatively mild humid atmosphere helps.

Second, once *Polypodium cambricum* was found on other mediaeval buildings in southern Hampshire (and it occurs, or has occurred, on most), it was not such a surprise to find it here. What was unexpected was its discovery as an epiphyte, otherwise only seen in the county in humid woodland in the New Forest. Its presence on planted Lime trees and ornamental Maple, some of no great age, suggests that it may have colonised this environment recently. No other populations on Lime are known in the county.

Third, it was a mild surprise to find that despite the view we have previously accepted about county distributions, the other widespread species in the city is *Polypodium interjectum*. *P. vulgare* seems to be exceptionally rare, even though its hybrid with *interjectum* *P. x mantoniae* has been found.

So here, to finish this article and inspire yet more recorded effort, is a map of named Polypodies in Winchester (Figure 4, see next page). We wonder what a map of your town would look like!

ACKNOWLEDGEMENTS

Thanks are due to everyone who took part, but especially to Anna and Dave Stewart who have hosted our bench sessions with great tolerance for the spore-laden mess

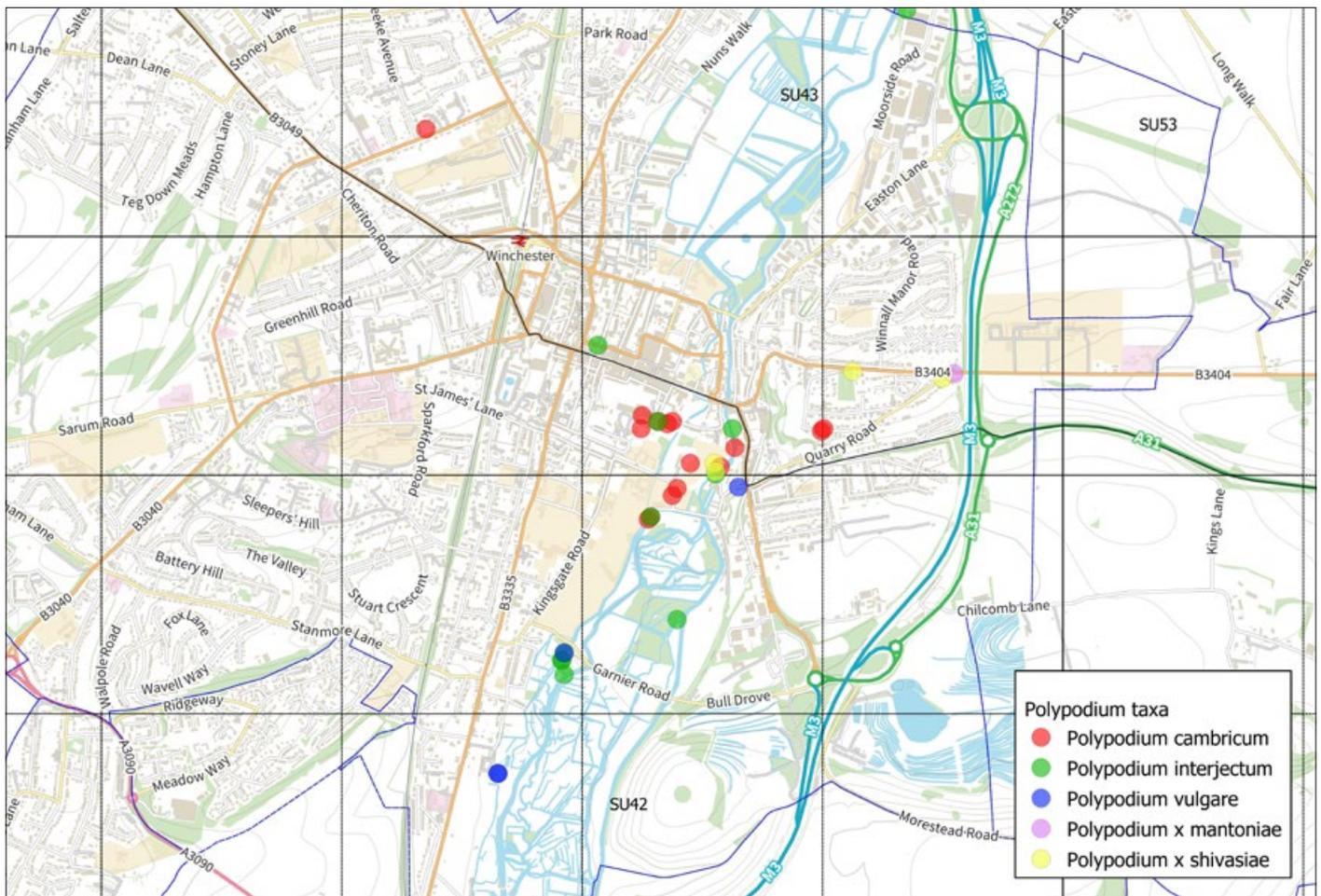


Figure 4. The Winchester Polypody Map: there are still records not finalised, so look out for a revised edition. Contains OS data © Crown copyright and database right 2020.

that resulted, and carried out a huge amount of recording work in Winchester; and Jonathan Sleath who has collected material far and wide, and selflessly prodded, counted and puzzled over his own and others' specimens under the microscope.

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Horizon Scanning for Potentially Invasive Non-native Plants

An article by Martin Rand

PREVENTION IS BETTER THAN CURE

There is a well-known set of 'bad boys' among the many plants imported knowingly or accidentally into the United Kingdom. Excluding those which have been with us so long that they are usually considered honorary natives and those which are extinct or fail to persist, non-natives number slightly over 1800 species according to Stace & Crawley (2015). Of these, they list 57 taxa (less than 3.2%) as 'invasive', but their criteria are quite narrowly ecological and exclude those species which are considered invasive on purely economic or health grounds, criteria embraced by the International Union for the Conservation of Nature (IUCN). Schedule 9 of the 1981 Wildlife and Countryside Act, amended in 2010, lists 48 species (2.7% of established non-natives) covered by legislation to ban their further introduction into the wider

countryside. At the end of 2019, the UK implemented legislation to align our position on 'species of special concern' with EU regulations for 'species of union concern'. This places much more stringent prohibitions on the import, exchange, sale and even storage and cultivation of eleven of our Schedule 9 species, and brings three of the additional species mentioned later in this article under legislative control.

Apart from the obvious difficulty of enforcing the terms of the Act because hard evidence is often impossible to come by, there is the problem that species only find their way onto the schedules once they are so well and widely established in the countryside that there is little hope of eradication or even of containment. We need to spot where an incursion of a species new to a region may cause problems, because it is only at that stage that effective management is likely to succeed. This is quite a challenge. With changes to climate, travel and transport patterns and land use, we have not just the existing non-native flora to consider, but several thousand more that have had casual occurrences up to now, or are not yet in Britain but may arrive and survive here. Recent decades have thrown up plants formerly considered only as impersistent weeds that are now firmly established. An example is Water Bent *Polypogon viridis*, noted as 'casual' in Clapham, Tutin & Moore (1987) and now an abundant, often persistent, mostly urban weed in much of the south and extending its range to Edinburgh and beyond.

So, we need a strategy to identify and prioritise species according to the likelihood that they will present a problem. While it is important to know their biology and particularly their means of extension and dispersal, extrapolating a plant's behaviour from its native range is often unhelpful because a range of controlling factors operate there to maintain its equilibrium within that environment. Japanese Knotweed is not a problem in Japan; Himalayan Balsam is not a problem in the Himalayas. We could try to monitor some populations of recently arrived species, but how would we select those species from the pool of thousands? Just as important, how long would we have to continue the monitoring? There is a well-known pattern for extension into a new territory and population growth: an S-shaped ('sigmoid' or 'logistic') curve. For some time, the increase proceeds at a slow pace and may not attract attention. This is followed by a period of very rapid increase, which might outstrip our capacity or at least our willingness to devote resources to containing its spread. The next phase is less predictable, but without intervention it usually entails a slowing-down and a degree of stabilisation around a carrying capacity. A good example on a very local scale is the population of Purple Pitcherplant *Sarracenia purpurea* at Holmsley in the New Forest, where more than two decades with little extension beyond a few square metres was followed by a rapid expansion to several hundred plants spread over more than 100 metres. This is still tiny compared with some populations now established in Britain, but another decade of eradication work has failed to eliminate it completely.

HORIZON SCANNING: HERE AND ABROAD

One way we can start to sift the most likely threats from the majority of introduced plants that give us little or no concern is by looking at their behaviour in the few bridgeheads they currently have, especially where these are in valued habitat. This is commonly called 'horizon scanning'. We can monitor instances where they have already reached the UK, but it is also worth looking farther afield into northern and western Europe (especially our nearest neighbours) to improve our advance understanding. Fortunately, there are active organisations in all our neighbour nations monitoring non-native arrivals and publishing their findings.



Tree Groundsel *Baccharis halimifolia*, Mudeford, 2020: a plant that has had only three recorded sites in Britain so far, but is a high-priority invasive species in Belgium and France and appears on the EU Invasive Alien Species Regulation (2014) since 2016. (All photos by Martin Rand)

Some of these findings are surprising for a UK botanist. For instance, Grey-budded Maple *Acer rufinerve* is one of a group of Snakebark Maples from the Far East and North America, sometimes difficult to tell apart. Most of the mere 23 records in Britain so far are of planted trees, all but four from the last 20 years; but there are records of seedlings and saplings in several places, including Hampshire. It is already on the Belgian 'watch list' for non-natives, where its recorded occurrence is similarly limited: but the accounts there note a high reproduction rate, a high dispersal rate, and a high potential for establishment in natural habitats. The Belgian Forum on Invasive Species (website) states: 'Field observations in Belgium suggest that the red-veined maple impairs the regeneration of other tree species and reduces the diversity of herbaceous plants where it develops dense thickets'. In a 300-hectare forest near Mons where it was introduced by foresters, it has since occupied 60 hectares (Belgian Forum on Invasive Species). The ecological analysis suggests that in this country it would occupy a similar niche to Rum Cherry *Prunus serotina* (already on some UK blacklists) and Juneberry *Amelanchier lamarckii* (also of concern), potentially threatening open woodlands, woodland-edge habitat, some wood-pasture

communities and rotationally managed woodlands on more acid soils. All three have been introduced in some of their sites by forestry organisations, but they are also horticultural species.



Grey-budded Maple *Acer rufrinerve*, Valley Park, 2014

SOME BRIEF CASE NOTES

I am currently defining a list of species that I think deserve to have horizon scanning applied to them in Hampshire; this will be available later in the year on the new Hants Plants website, together with some recognition notes, a recording form and help on how to record a population of the target species. Meanwhile, the rest of this article deals with some species that are not on Schedule 9 of the Wildlife and Countryside Act and are not always recognised as of concern. Some of them have already come a long way in from the distant horizon, but I think they all help to make the case from different vantage points.

While trying to delineate and prioritise looming problems, it is always worth remembering two things. First, the presence of an invasive plant is often a symptom of a problem in the pre-existing habitat, rather than the problem itself. Even early eradication may be pointless if all the conditions for re-establishment still exist. Second, the presence of a non-native species in a natural or semi-natural habitat is not of itself a problem. Given the dynamism of much of our flora under human pressure and the effects of climate change, some incursions will have to be lived with for practical reasons even if we consider them undesirable, some will no doubt be tolerated, and some even welcomed in the long run.

Bay *Laurus nobilis*

This familiar Mediterranean tree did not even warrant a mention in Clapham, Tutin & Moore (1987). Stace (2019) notes: 'sometimes persisting in wild places, naturalised (probably bird-sown) in scrub and on cliffs mostly near the sea'. In much of southern England and South Wales it is now widespread, but often not yet conspicuous because it occurs chiefly as immature individuals. In Hampshire it is now very frequent in the south of the county but still rare in the north; it can turn up in woodland surprisingly remote from centres of population. I suspect that once bushes

start to mature and bear fruit in the wild, it will go through a major population increase. With the trend towards milder wetter winters and warmer summers, it may on a smaller scale join other evergreen Mediterranean-Atlantic species like Holm Oak *Quercus ilex*, Portugal Laurel *Prunus lusitanica* and Cherry Laurel *Prunus laurocerasus* in the progressive darkening of our woods, along with our native Holly *Ilex aquifolium* which also benefits from an Atlantic climate.

Variable Water-milfoil *Myriophyllum heterophyllum*

In Clapham, Tutin and Moore (1987) this species from eastern North America did not get a mention, and even its now notorious cousin Parrot's-feather *Myriophyllum aquaticum* was said simply to be 'occasionally found wild in streams or ponds in S. England'. Before 2014 it had been recorded in Britain at a single Yorkshire site in the 1940s, and subsequently there are just two records in the last decade in southern England.

It is just as invasive as Parrot's-feather, having the same deleterious effects on site ecology, fisheries and waterways. It is given the highest threat category on the Belgian blacklist of invasive plants and is on the German blacklist. It is present and spreading in other European countries and is banned for horticultural sale in several EU member states. It ought to be placed on an equal legislative footing with *M. aquaticum* in UK law.

Rum Cherry/Black Cherry *Prunus serotina*

This tree from eastern North America was noted by Clapham, Tutin & Moore (1987) as 'sometimes planted among native vegetation'. Stace (2019) notes 'woods and commons; scattered in B[ritish I]sles N to C Sc[otland]; mainly S & C En[gland]'. As far as I can tell from first-hand experience and an examination of the records (many of which have no detail on origin), the 700 or so sites recorded in the UK and Ireland are made up very roughly equally of plantings by foresters, usually as a screening tree in softwood plantations on ancient woodland sites; horticultural introductions; and establishment from these sources via natural agents.

It has a history of introduction in Europe dating back to 1623, but it is chiefly in the last 50 years that it has become an object of concern. It is considered invasive in France, Belgium (blacklisted), the Netherlands, Denmark, Germany, Poland, Lithuania, Czechia, Switzerland and Italy. Comments on its ecology and impact (from the Belgian Forum on Invasive Species website) include:

- '*Prunus serotina* prefers dry to moist sandy soils. It is an opportunistic gap-phase tree species efficiently dispersed by fruit-eating birds and mammals (fox) over long distances. It thrives in forest openings and woodlands dominated by light-demanding species such as oak, pine or birch. It can also invade various types of semi-natural open habitats with a wide range of moisture like wetlands, bogs, heathlands, dry grasslands and dunes.'
- 'Black cherry forms dense, highly competitive thickets, e.g. through root sprouting. In forest ecosystems, it locally affects the development of

ground and shrub layers. It may temporarily inhibit vegetation succession, especially in large forest openings. It is able to reduce plant species richness or modify the composition of plant communities (e.g. in heavily invaded stands on moist soils). Invasion of forest ecosystems by *P. serotina* can change humus conditions and reduce soil water availability due to increased interception and transpiration. It can also prevent forest rejuvenation and increase plantation costs. Impact on biodiversity is especially marked when black cherry colonises open habitats containing rare species like heathlands, dry grasslands or dune ecosystems. The whole plant contains cyanic acid and is toxic for livestock. It is poorly consumed by deer, which may favour invasion rate in habitats where deer are overabundant.'

- 'In open vegetation such as dry grasslands and bogs biodiversity effects are more pronounced since these often contain rare species of high nature conservation value. An example is *Calluna* heath vegetation which is threatened by *P. serotina* in central and west Jutland of Denmark...'

Rum Cherry trees continue to grow along forestry rides in Hampshire where they were deliberately planted, and elsewhere in the county.

'Himalayan Giant' *Rubus armeniacus*

This Bramble has been known as a horticultural introduction for more than a century, formerly equated (incorrectly, according to modern authorities) with *Rubus procerus*. Edees & Newton (1988) say that it was extensively planted on allotments in World War 2. It is an example of a non-native species that is hidden in full sight, as few people try to distinguish most *Rubus* microspecies; and it is widespread in Europe and in Britain. In Britain it is particularly densely recorded in areas where *Rubus* experts live, suggesting that it is probably even commoner than the records suggest. In fact, it is not a difficult species to identify because of its huge size, large flowers, long panicles and large fruit.

Once one has one's eye in for this species, it is hard not to notice its prevalence: often, it is true, on urban waste ground, but also in more natural scrubland, hedgerows and even some wood margins. It can overwhelm other Bramble species of ecological interest and other herbaceous and woody species, even including *Rosa* species at times. Control or containment would now be difficult on any but the most local scale. It has been recognised as highly invasive in central Europe and Scandinavia and studied and documented in many parts of the world, but there seems to have been little literature on it here.

Cut-leaved Bramble *Rubus laciniatus*

The wild origins of this species are not known, but it is popularly grown for its fruit, especially as there is a thornless cultivar (a chimera, so unlikely to be found in the wild except as an outcast). This is a distinctive Bramble that any plant-lover can easily learn to recognise, as no other Bramble in Britain has deeply dissected leaves.

It is widely naturalised in NW Europe, and in the UK where it is found frequently in Lancashire, the Midlands and SE England.

As an invasive species it seems to have received little attention except in the United States. In Britain it can colonise several habitats including scrubland and hedge banks on neutral to somewhat acid soils. However, in Hampshire, as well as occurring in urban surroundings and on roadsides and in scrub, it is found on dry heathland around the New Forest where it can form large invasive patches. Where the grazing pressure is high it survives as a low-growing understorey to the heather. From other parts of the English lowlands this does not seem to be a common phenomenon, but I believe it deserves some close monitoring.



Cut-leaved Bramble *Rubus laciniatus*, North Baddesley, 2017

Red-osier Dogwood *Cornus sericea*

This shrub, a widespread native North American species, was introduced to Britain in the 17th century and extensively cultivated in country estates, especially by water. Clapham, Tutin and Moore (1987) commented: 'Frequently planted and perhaps naturalised in a few places'. Stace (2019) says: '...frequently nat[uralise]d by suckers; scattered in most of lowland B[ritish] I[sles]'. Stace also raises the question of whether it is a distinct species from White Dogwood *Cornus alba*, and with the range of cultivars available there is certainly plenty of room for confusion, especially as there is also a 'Yellow-osier Dogwood' *Cornus sericea* 'Flaviramea'.

While many ornamental plantings are of little concern to us, those by water certainly are. It is recognised formally as invasive in several European countries, including Ireland, and occurs widely in mainland UK up to the Highland boundary. It is on the Great Britain Non-Native Species Secretariat (GBNNS) lists but is not under any statutory regulation.

Although it certainly reproduces from seed in its native range there is doubt about whether this happens in Britain (despite what is said in the GBNNS factsheet), at least in areas that do not have cold winters to trigger germination. The main method of dispersal is downstream by broken stem fragments, which take root once lodged in a suitable position. Once established, a new colony will extend by

layering of its lower branches, which develop new roots and can form large dense thickets to the exclusion of native vegetation.

The Itchen has been particularly unfortunate in that Red-osier Dogwood was introduced in the past to one of its headwaters by the lake in Northington Park. It can now be found in many places all along the river down to Woodmill in Southampton. It is less frequent by the Test but occurs around Romsey, and 'Flaviramea' is on the Fishlake Meadows reserve. I consider it a species that merits management, but in its main centres of population it has almost certainly gone beyond the point where this is practical.

Seaside Daisy *Erigeron glaucus*

This is an introduction to Britain from western North America, first found in the wild in 1942. Its flowers are quite showy despite their rather muted colours, and it has proved popular as a garden plant especially in coastal areas, where it can withstand salt and desiccation quite well. It is now appearing as an urban garden escape, with numerous records well away from the coast especially around London and the Thames Valley. It does not seem to be established on the Continent.

Observations in Hampshire and the account from the recent Flora of Sussex (Sussex Botanical Recording Society (2018)) suggest that there are two settings in which it may prove to be invasive: the edges of chalk cliffs, and shingle beaches. The situation on cliffs in SW England is less clear. In Hampshire, as well as urban settings and soft cliffs it appears as a shingle beach denizen, abundant in places. Given the openness of the habitat, it is difficult to say that it is invasive to the extent of disrupting existing vegetation patterns, but it merits observation.



Seaside Daisy *Erigeron glaucus*, Barton-on-Sea, 2017

Pampas-grass *Cortaderia selloana*

Introduced during the late 18th century, this spectacular South American grass was first recorded in the wild in Britain in 1925. Even as late as 1987 Clapham, Tutin & Moore said simply 'sometimes persists as a throw-out from gardens.' Stace (2019) has more to say: '... becoming nat[uralise]d where thrown out or planted,

sometimes by seeding; rough ground, waysides, old gardens, maritime cliffs and dunes.' This is now a plant of considerable conservation concern in many parts of the world to which it has been introduced, including Europe. While much of the worst colonisation in Europe has been in southern regions, attention is now increasing farther north in the face of climate change. Eradication programmes have been put in place on dune sites in Brittany, for example.

The London area, Thames Valley and SW England are regions of high concentration at present, but in Hampshire it is becoming a familiar if bizarre sight along main road and motorway verges. The main area of concern for us, however, is along the coast, where it is colonising soft cliffs and rough coastal grassland and has penetrated areas such as Stanpit Marsh reserve on Christchurch Harbour and the south Hayling coast. This is not a plant easily dealt with, even when occurring only as isolated tussocks. See photo on back page.

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***Cotula sessilis* (Jo-jo-weed) and other Buttonweeds in Hampshire**

A note by Martin Rand

The genus *Cotula* is a genus of small Composites (Asteraceae), all from the southern hemisphere and mostly from the Antipodes. The name 'Buttonweed' applied to some of them gives you an idea of what the flower heads usually look like. The genus now includes *Leptinella* and *Soliva*, and all except some rare and extinct casuals are covered (as *Cotula*) in Stace (2019). Some species were brought into Britain as wool aliens (seeds in wool for the now defunct woollen industry, or in wool shoddy as mulch and fertiliser for horticulture). *Cotula coronopifolia* has been here since the 19th century: this is the one people have been most likely to meet in Hampshire. It grows in brackish shallow ditches and damp pasture in the south-east of the county and in the Lower Test reserve at Totton, and it has just been reported by a balancing pond on a new housing development near Fair Oak. It tends to be quite invasive.

Cotula squalida (tentatively identified by Eric Clement) has been recorded on one site in the New Forest where it seems to have come in with gravel imported for a house drive. *Cotula australis* has also been recorded in two spots in the last few years; more on this later.

The most intriguing (and worrying) arrival is *Cotula sessilis* (formerly *Soliva pterosperma*), which originates from South America and has now gone global, with incursions into Australia, New Zealand, the United States, southern Africa, Japan and western Europe. Along with its invasiveness, it has a feature that makes it particularly unwelcome: the very sharp spine produced on each ripe achene. As it grows in short amenity grasslands and other



***Cotula sessilis* (Ruiz & Pav.) Stace: fruit.
Photo: Harry Rose License CC-BY 2.0**

places where people like to walk, it is a painful menace to pets and barefoot walkers and will even puncture the soles of flimsy footwear.

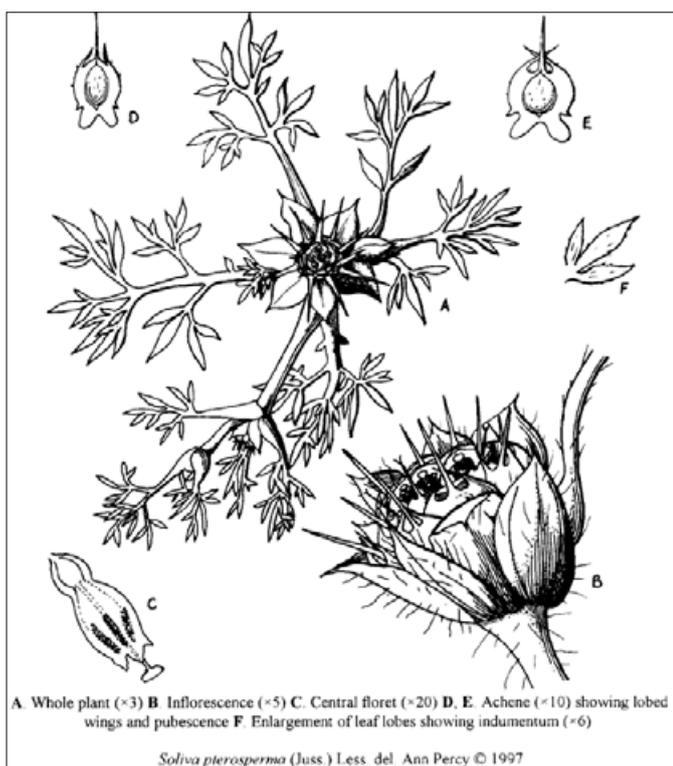
Cotula sessilis (Jo-jo-weed or Carpet Burweed) was first recorded in Britain in 1960 as a wool alien in Yorkshire, and was found in similar settings in the 1960s and 1970s in North Hampshire (vice-county 12) and West Kent (vice-county 16), but only as a casual. The first record for South Hampshire was made in 1997 in Bournemouth by Felicity Woodhead. Significantly, as we shall see, it was found in a caravan park. It was written up in *BSBI News* (1997), with the excellent line drawing reproduced here.

The next record seems to have been in Guernsey in 2016, and in 2017 it was followed by records on 9 sites in the Isle of Wight during an investigation by Paul Stanley. Every one of these was a holiday camping or caravanning site, and in several it was present in quantity. In the same year Paul extended his search to two campsites in the New Forest (Ashurst and Hollands Wood) which take caravans, finding it in both. It persists there until the present.

Given the clear pointers to the means of its spread, Hampshire's popularity as a touring destination and our proximity to cross-Channel ports, it seems unlikely that it will not be found in more touring sites and perhaps elsewhere. It was my intention to follow up on some of the larger sites this year, but that has of course been problematic. If you have touring sites near you, especially the larger busier ones, it would be worth paying them a visit. If you explain what you are looking for and why they might like to know about it and deal with it, the proprietors will probably welcome you.

Since 2017, *Cotula sessilis* has also been recorded on a touring site in Cambridgeshire (vice-county 29) and on a golf club in Surrey (vice-county 17), and it has now been found on camp sites on Cornwall.

In 2017 Keith Turner made the first Hampshire record of another species, *Cotula australis* (Annual Buttonweed) on a camp site in Eastney, Portsea Island. It is native to Australia and New Zealand. Fortunately, this species does not have the spines of *C. sessilis*. In 2018 John Norton and Debbie Allan found it on another New Forest



***Cotula sessilis* (*Soliva pterosperma*). Courtesy BSBI**

touring camp site (Denny Wood). This obviously suggests that it is arriving by the same means. Its first record in Britain was in 1908, and in at least one site it has persisted since 1946. As it also invades short, trampled turf, its presence in the New Forest is of some concern too. Both *C. australis* and *C. sessilis* are well-established in southern France and Spain and extending their range.



Cotula australis specimen from Denny Wood campsite, 1 April 2018 (millimetre scale) (John Norton)

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A Remarkable Colony of Arums in North East Hampshire

A note by Steve Povey

The first record of *Arum italicum* subsp. *neglectum* at South Hay, between Binstead and Kingsley in N.E. Hants, was by Lady Anne Brewis in 1960. She noted, '*Arum neglectum*... South Hay, abundant at Kiln Hanger & Reynolds Hanger'.

At part of Reynold's Hanger from SU 7772 3936 east to SU 7821 3943, a total distance of approximately 600m, '*neglectum*' grows alongside a cultivated field.

It is obvious to anyone that knows this colony that it is remarkable by the number of plants it contains. So much so that last year on 19 January, along with my friend Bill Lowe, we estimated the number of plants growing along the base of Reynold's Hanger.

We started by making a series of 1m wide transects running from the edge of the field up into the hanger for 10m, (which is about the maximum distance '*neglectum*' plants normally can be found growing uphill from the base of any of the East Hampshire Hangers).

A transect was made approximately every 30m along 600 metres of hanger edge; 20 transects in all. The total number of plants in each of the 20 transects were added together and divided by 20 which gave us an average

number of plants per transect of 65.8. (The number of plants recorded in each transect was, apart from a few, very close to this average). This number was then multiplied by 600 giving the estimated number of plants in this remarkable colony to be around 40,000, making it surely the largest single colony of any *Arum* species or subspecies in Britain.

The plants at South Hay do differ slightly from other colonies along the base of the East Hampshire Hangers, in having a slightly more triangular leaf with a more acute apex. Leaves of plants growing in the open, along the field-edge, are more 'leathery' than normal, which may be a response to the much greater amount of sunlight that these plants receive.



Arum neglectum at South Hay (Steve Povey)

However, it must be pointed out that this field-side colony is not entirely natural. I believe that the reason for the vast number of plants at South Hay is that unlike all other East Hampshire Hangers, at this South Hay site there is no fence, bridleway or path between the base of the hanger and in this case, an adjacent field – a field which I know has been under cultivation for very many years.

The '*neglectum*' plants that run along the base of Reynold's Hanger have over many years been regularly disturbed by ploughing and cultivating much closer to the woodland edge than would be possible were there a boundary fence or footpath. This has allowed the tubers to be continually spread to-and-fro along almost the entire length of the field. Where this disturbance has taken place the *Arum* plants grow very thickly. In places when in full leaf, no soil can be seen between them, producing a great carpet of plants running for over a third of a mile!

For reasons unknown to me, this '*close to the woodland*' cultivation has ceased in recent years and the colony of *Arum* plants has been allowed to settle as part of a wide headland. Where the plants are growing away from the field edge and up into the shade of the wooded hanger they grow in the same manner as other hanger-

colonies of ‘*neglectum*’ to the West, in that they are lightly scattered along the lower woodland slopes, and never in ‘large-clumps’.

During the spring, to early summer, before the plants die-down, almost the entire colony of 40,000 plants gradually disappears beneath a carpet of stinging nettles.

The Petty Whin *Genista anglica* population at Bartley Heath

An article by Peter Vaughan

This article reviews how a small population of a vulnerable plant has fared over the past decade, in the context of its heathland location and how that is managed.

Petty Whin *Genista anglica* is a small native spiny shrub associated with acidic, humid/wet heathland and acid grassland. It is a member of the Pea family (Fabaceae), with flowers and overall form resembling a diminutive Gorse or Broom. There has been a substantial decline in this species within Britain, due to habitat loss and it is now classed as Vulnerable within the Vascular Plant Red List for England. It persists within Hampshire mainly in the New Forest and on the heathlands of the north-east of the county.

One place where it is hanging-on is Bartley Heath near Hook, an SSSI nature reserve owned and managed by the Hampshire and Isle of Wight Wildlife Trust, where it grows alongside other dwarf shrubs including Dwarf Gorse *Ulex minor*, Creeping Willow *Salix repens* and three types of Heather (in particular *Calluna vulgaris*). The Heath also has a rich range of other wet heathland fauna and flora, including the only remaining VC12 population of Marsh Gentian *Gentianella pneumonanthe*. It is a remnant of what was a large area of heathland, acid grassland and wood pasture, which was grazed by commoners up until the construction of the M3 motorway and associated developments which fragmented the landscape.

A survey of the Heath in May 2009 by the Hampshire Flora Group (Vaughan 2011) found thirty individual Petty Whin plants in different stages of development (Table 1). These were growing across six hectares within the SU7253 km square. Since then I have looked for the plant at the site in most years and have been able see how the population has changed over the last decade.

Petty Whin is somewhat inconspicuous for most of the year although in spring it has bright yellow flowers in short

Table 1. Number of plants of Petty Whin at Bartley Heath in 2009 and 2020

Morphological stage	2009	2020
Small single-stem plants <40cm wide	4	0
Small multi-stem plants <40cm wide	3	11
Medium-sized plants 40 to 70cm wide	6	9
Large plants >70cm wide with <50% bare branches	10	7
Large senescent plants >70cm wide with >50% bare branches	7	0
Total number of plants	30	27

terminal racemes. This makes larger plants stand-out from the background for a few weeks in late April/early May – most other yellow-flowered species at the site are not in bloom then and the grasses have yet to reach their full height (Photo 1). Once the flowers have been sighted, confirmation of the species is straightforward due to the plant’s distinctive oval-pointed leaves (Photo 2) but smaller plants with just a few flowers can remain easily overlooked. I’ve observed a number growth stages of the plant. It first appears as a single stem of up to 40cm long, and then develops up to eight further stems with lateral branches. These tend to develop a decumbent form as they grow longer, lying along the ground for much of their length before curving upwards towards the end. This produces a predominately horizontal rather than vertical spread of the plants, with a maximum height of up to around 80cm and maximum width of around twice that. In the 2009 survey several of the larger plants appeared to be senescent, with more than fifty percent bare branches and with the centre of the plant overgrown by other species, giving them the appearance of growing as an irregular ring. At the time of that survey it was assumed that the number of stems and overall size of the plants could be used as a proxy for age, particularly since there was no sign of Petty Whin being grazed by animals on the site, but subsequent observations suggest the situation may be more complex.



Photo 1 (above): Petty Whin *Genista anglica* at Bartley Heath; Photo 2 (below): detail of flowers and leaves (Peter Vaughan)

A key finding from the 2009 survey was that most of the plants (including the largest and presumably oldest) were growing under or next to power line corridors, suggesting that they had benefited from the periodic disturbance by power companies clearing trees from underneath the power lines, and, in the meantime, the use of the resultant tracks by walkers. Indeed, when most of Bartley Heath scrubbed-over in the decades prior to the 1990s the power-line corridor may have provided a refuge for Petty Whin, and other heathland plants which need full sun, in what had become an otherwise unfavourable, overgrown environment. Another observation from 2009 was a relatively low number of smaller, younger plants. This suggested that the species had had only limited ability to recolonise the site after it had been restored by Wildlife Trust volunteers in the 1990s, when most of the scrub had been removed and grazing was reintroduced. It may be that, even though the older plants do not appear to be grazed by the cattle, horses or deer on the site, young plants may be eaten when they first appear above ground.

Since 2009 there have been some subtle changes to Bartley Heath. There are more cattle used to graze the reserve, which appears to have reduced the size and number of the *Molinia* tussocks. The Heather (mainly *Calluna vulgaris*) appears less extensive for reasons which are not clear. And more of the secondary woodland around the edges of the site has been felled to increase the area of open land.

So how has the Petty Whin population fared over the period? The short answer is it is still hanging on. Overall numbers are similar to those of a decade ago, with a total of 27 plants found in the survey area in 2020. In general, the plants are within, or close to, the same spots where individuals or clusters were found in 2009. The largest, senescent plants seemed to have all gone by 2018, but in 2020, on the site of two of them, a number of smaller plants had appeared which grew vigorously between April and July, when this article was written. Whether these are new plants growing from seed or the surviving remnants of older ones is difficult to determine without digging them-up!

A number of the other large plants found in 2009 appear to have been cut-back, or in some cases completely removed. One previously large, bushy plant is now a rather odd-looking (almost bonsai'd) single long prostrate stem. These effects may be collateral damage from an essential regular winter programme of conservation work to cut-down birch, which would otherwise turn the site into a dense woodland. Volunteers can be forgiven for not recognising Petty Whin or being aware of its rarity, especially given its undistinguished appearance outside of the growing season. Around the time of the 2009 survey individual Petty Whin plants were marked with coloured tape to avoid such damage, this practice has not been maintained but it, or something similar, should probably be reinstated. In most cases the inadvertently trimmed-plants seem to recover in time. But this does suggest that, while it is probably safe to assume large plants are a number of years old, smaller plants may not be younger ones.

A few years ago, a number of soil scrapes were excavated on the heath with the hope that they might then be re-colonised by some of the rarer, less vigorous heathland plants. So far none of these have Petty Whin visible within them but a positive development has been finding a new plant some two-hundred metres away from the others, in a different part of the Heath (and indeed in a different kilometre square, SU7354). I first spotted that in 2018, since when it has grown from a small to a medium specimen.

I am optimistic for the survival of Petty Whin at the site, since although it is slow to reproduce it does appear to be relatively robust, and perhaps even thrives upon disturbance. Its needs appear to be similar to the other rare plants on the site which drive the management regime, in particular the suppression of coarser grasses and trees by grazing the former and cutting-back the latter, providing of course that, as is generally the case in conservation work, this is not done in too tidy a manner!

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Three Videos of Aquatic Plants in Spring

A note by Peter Vaughan

At the end of April and start of May 2020 I made three short videos to help identify aquatic plants, in support of a University College London (UCL) virtual field course. They were filmed in different habitats within walking distance of my home in Hook, NE Hampshire. These included the banks of a chalk stream, a calcareous fen and heathland ponds. Together they cover 33 named taxa in 11 minutes, showing some key identification features, and have a soundtrack of the birdsong while I was filming. The videos are freely available to Hampshire Flora Group members (and others) via the HFG website, and links to them are also given at the end of this note.

The videos were made in response to a request from Dr Carl Sayer at University College London. In May each year he would normally teach a field course in Dorset on aquatic macrophyte survey and identification, as part of the UCL MSc in Aquatic Ecology, Conservation and Restoration. The advent of COVID-19 restrictions ruled-out running the course as normal but Carl was keen to offer instead an intense one-week remote learning module, making use of filmed material to substitute for site visits (and Zoom sessions to replace face-to-face teaching). I had been a student on the field course and completed the MSc in 2019, as a retirement project. Walking to local wetland sites and some quick, low-tech filming while there could be done as a solo, socially distanced activity, as well as providing good exercise and the opportunity to revise what I had learnt when I did the field course. I also knew I could cover a range of different habitats, with their different floras, since Hook is close to the boundary between the Hampshire Chalk

and the London Clay of the Thames Basin, and has some acidic heathland on alluvial gravels.

I filmed at three sites. The first was the River Whitewater at Bassett's Mead in Hook. There were no real botanical rarities, but the site provided a good range of riparian trees and plants. Initially I tried filming using a HD camcorder I had obtained a few years ago, but quickly found that the video camera facility on my iPhone 7 gave superior results, as well as being quicker and easier to use.

The second site was Greywell Moors SSSI, a high-quality calcareous fen, incorporating a range of fenland habitats including pools, fen meadow, wet woodland and reedbed. There were a number of rare plants at Greywell, including Bogbean, Marsh Valerian and Marsh Helleborines (although the latter were only just emerging as leaf shoots at the time of filming).

The third site was the acidic ponds at Bartley Heath SSSI. These shallow waterbodies are the product of past small-scale gravel workings, most of them dry out by mid-summer but in spring have abundant aquatic flora and fauna. In them I found some plants that I hadn't noticed before, including a Water-milfoil (although it was not until after filming that I was able to find the flowers to identify it as *Miriophyllum spicatum* – Spiked Water-milfoil – rather than *M. alterniflorum*). I am grateful to Tony Mundell for

his help on some plant IDs, including advice that Pond Water-crowfoot petals have pear-shaped nectar-pits!

I edited the videos using the iMovie software that came with my laptop, adding species scientific and common names as subtitles, together with some brief comments on key features. This took very much longer than the filming itself! I did not add a sound commentary but instead just left on the ambient sounds – the river flowing, some rainfall and the rich spring birdsong (with the near absence of traffic and aircraft noise in the early lockdown period). People have told me that has made the videos relaxing to watch, as well as informative. I've uploaded them via Dropbox, although you don't need to have that installed to view them, they can be accessed just by clicking on the links.

Chalk Stream Riparian plants:

<https://www.dropbox.com/s/b5rqycr8ucknoe7/Chalk%20Stream%20Riparian%20Plants%20.mp4?dl=0>

Fenland Plants:

<https://www.dropbox.com/s/ocno61ps9knq07c/Fenland%20Plants%20at%20Greywell%20Moor.mp4?dl=0>

Heathland Pond Plants:

<https://www.dropbox.com/s/aklp3muapki791p/Heathland%20Pond%20Plants.mp4?dl=0>

Book Review

Britain's Ferns by James Merryweather

Princeton University Press, Oxford 2020; pp. 280, copious photographic illustrations and maps; stiff covers, £15-20. ISBN 978-0-691-18039-7

Reviewed by Martin Rand

We have done rather well in Britain for handbooks to ferns and clubmosses; the classic *Welsh Ferns* by Hutchinson and Thomas, which first appeared in 1940, ran to seven editions by 1996 and is still useful despite new discoveries and changes to taxonomy: later editions cover all parts of Britain, not just Wales. In 1991 it was joined by *The Illustrated Fern Guide to Ferns and Allied Plants of the British Isles* by Jermy and Camus, with admirably clear layout and many useful line drawings of the finer detail so often necessary for identification in this group. But this too is showing its age in a field with several taxonomic puzzles still being unravelled. Soon after, in 1993, came James Merryweather's own *Fern Guide* published by the Field Studies Council, which has gone through three editions up to 2007 and will be fondly remembered by many people who have been on FSC's pteridological field courses.

This new book, then, can be thought of as a successor to the *Fern Guide*, but in presentation it offers a great deal more. Inevitably the first thing you will notice on opening it is the lavish photographic illustration of all but the rarest species. These species accounts are nicely laid out with a description cross-referenced into the photo

set, a distribution map, notes on distribution and habitats, and useful hints on distinguishing it from other taxa. Before this comes an equally well-illustrated set of keys organised to make comparisons easy and supported by a 2-page glossary, leading the reader from bafflement to species or at least family.

For me one of the most appealing features of the book is the 50-page 'Guide to Families', where the author shows his common sense and humour in talking us through the problems of genera like *Dryopteris* and *Polypodium*. He explains not only how they are difficult, but why. Armed with his words of wisdom, you too will gain the confidence to name an intractable Scaly Male-fern as a 'WOB' ('Walk On By')!

One omission in this book, and a deliberate one, is that most hybrids are not given a full treatment, although there are useful incidental notes on some. If you are still learning your ferns, you may find this more of a relief than a frustration. If you are taking ferns very seriously, you probably already own Page's *Ferns of Britain and Ireland*, which supplies that deficiency. The three subspecies of Maidenhair Spleenwort *Asplenium trichomanes* are given rather short shrift, and it is unfortunate that the caption for the species distribution map is labelled 'Lime-rich rocks and mortared walls', which certainly doesn't apply to one of the three, as the main text mentions.

There are some brief notes on alien ferns at the back of the book, along with short sections on winter ferns, juvenile specimens, urban habitats, and variation

(including horticultural cultivars). You may also need to get used to some familiar ferns undergoing generic name changes that you won't find in the general Floras such as Stace (2019).

There are a few minor editorial errors; for instance, a picture of Mountain Male-fern *Dryopteris oreades* is labelled '*Dryopteris dilatata*' on page 94. They should not discourage anyone from obtaining the book.

If you are expanding your fern knowledge and need a field guide, then you should have no hesitation in buying this. If you already have some experience and own one or more of the other books mentioned here, this will still give you the most up to date information and a generous treatment of the difficult genera in a robust portable guide. Even if you are an expert, I would be surprised if you didn't learn something new.

Recording

Hampshire Lichen Report 2019–20

Compiled by Neil Sanderson

INTRODUCTION

This report has another large offering from the New Forest. With Andy Cross I had started a move out into the wider Hampshire, aimed mainly on woods visited by Francis Rose in the 1970s to 1990s but lacking modern records, but this was brought to a stop by COVID-19. During the lockdown, as I live seven minutes walk from some of the richest old growth lowland Beech woods for lichens in Europe in the Busketts Wood area, I had plenty of opportunity to look at this area in great detail. I was at the end getting near to knowing the veteran trees here by name, or at least by their combinations of Red List species. This intense searching produced some very good records for beech specialists, such as the rare and undescribed Mediterranean–southern Atlantic taxon *Bacidia 'assulata'*. Also, time to delve into my herbarium produced one new species to Hampshire, *Rinodina exigua*. Let out into a wider area of the New Forest as the lockdown eased, I also got a new lichen for Britain and second record for Europe – the pan-tropical *Graphis handelii*. Finally, there is some good news on the on-going *Teloschistes chrysophthalmus* colonisation.

NEW SPECIES TO BRITAIN

***Graphis handelii* (NR):** the best finds of the lockdown. *Graphis scripta*, the very common and very variable script lichen, is probably several critical species, but there are also numerous other similar species found in the tropics. Recently seven distinctive tropical–warm temperate *Graphis* species were recently found in Portugal one of which may account for an odd *Graphis* I collected in western Ireland some years ago, but the identity of this has not yet been settled. All of these have K + yellow to red thallus reactions with microscopic needle shaped crystals produced (norstictic acid) which are absent from *Graphis scripta* but lack the grooved lirellae of the

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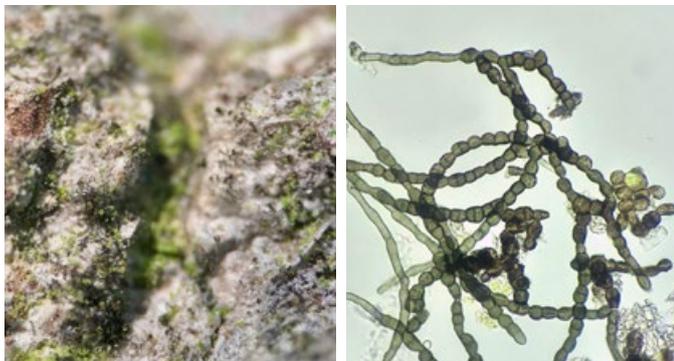
common *Graphis elegans*, which also has norstictic acid. Alerted by my possible Irish find, I had been on the lookout for odd *Graphis*. Finally I found one, it had a K + yellow to red thallus reaction, much smaller spores than *Graphis elegans*, (well-formed spores of 25–45 x 7–9µm, 6–9 septate, also some smaller poorly formed spores, which were as small as 17 x 6µm and 5 septate) and the insides of the lirellae obscured by numerous small oil bodies (inspersed). The latter a feature not seen in any current British *Graphis* species. This was determined by André Aptroot as *Graphis handelii*, a pantropical lichen, previously only recorded from southern Portugal in Europe. Found on acid bark of a Holly in Beech–Holly pasture woodland, with the Holly also supporting a rich assemblage of old woodland lichens including *Anisomeridium ranunculosporum*, *Mycoporum lacteum*, *Schizotrema quercicola* (*Schismatomma quercicola*), *Snippocia nivea* (*Schismatomma niveum*) and *Thelotrema lepadinum*, Bignell Wood, New Forest, SU 281 133, April 2020, N. A Sanderson. It is difficult if say if this is an overlooked relic old woodland species, or a recently arrived species reflecting rising temperatures, but the habitat suggests the former.



***Graphis handelii*, with lirellae erumpent, not striate, disk exposed on mature lirellae and not pruinose, the right hand picture shows the hymenium inspersed with oil droplets. (All photos by Neil Sanderson)**

***Taeniolella arthoniae* (NR):** an interesting record of species in a difficult group of lichenicolous fungi (fungi

parasitic on lichens). *Taeniolella* are a group of fungi that only reproduce asexually using conidia produced from black naked hyphae, without specialised structures. Many of the lichenicolous species are quite species or habitat specific so can be of conservation interest. This fungus had been recorded from *Dendrographa decolorans*, *Lecanactis abietina*, *Lecanographa lyncea*, *Pachnolepia pruinata* in Denmark, France, Luxembourg, the Netherlands, Spain and Sweden, on Oak and rarely Ash. From this it seems to be a species of dry bark on older trees in western Europe and so one to be expected in southern England where this habitat is as well developed as anywhere in western Europe. Parasitic on *Lecanactis abietina* on dry bark on an old *Quercus*, on the bank of a flooded old gravel pit, in Oak–Beech–Holly pasture woodland, Ferny Crofts, New Forest, SU 365 056, February 2020, N. A Sanderson, Det. Uwe Braun. It has not been found since so appears to be rare even in the New Forest.



Taeniolella arthoniae infecting *Lecanactis abietina* left and conidiophores with their distinctive branching to the right

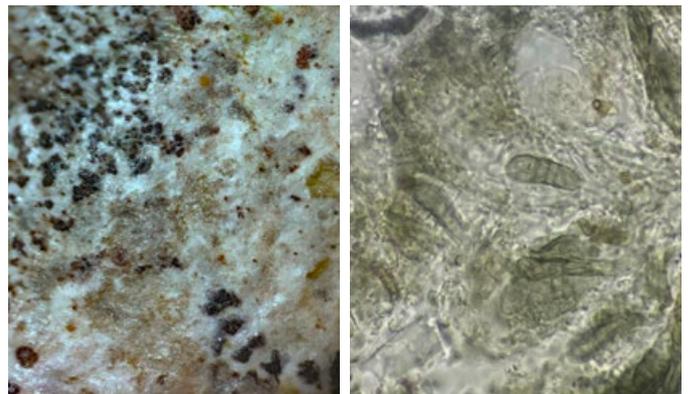
NEW TO HAMPSHIRE

***Abrothallus cladoniae* (NR):** a very rarely recorded parasite of *Cladonia* species, previously with only two English records, one of which was only found a short distance across the county boundary in Pound Bottom, Wiltshire. Parasitic on *Cladonia polydactyla* on a Hawthorn bush in pasture woodland spreading into heathland, Crow's Nest Bottom, New Forest, SU 242 162, January 2020, N. A Sanderson. New to Hampshire.

***Arthonia arthonioides* Nb (NS):** an upland species found on dry bark on old trees and under overhanging rocks with very few lowland records. During a Wessex Lichen Group meeting material resembling *Arthonia arthonioides* was found on a coastal veteran Oak, with pycnidia were conidia, confirming the identity of two earlier records of sterile material from coastal veteran Oaks by the Solent. On the dry bark of a veteran *Quercus* near the coast, in a woodland absorbed into a large garden, Salterns Copse, Exbury Gardens, New Forest, VC11, S Hampshire, SZ 419 995, January 2020. The earlier confirmed records were: on dry bark on a veteran *Quercus* on the boundary of an old lane on the edge of grazing marshes, site name withheld (planning survey), SU40, May 2019, N. A Sanderson. On the dry bark of two veteran Oaks on the coastal edge of a wood, over-looking

saltmarsh, Walter's Copse, Newtown, Isle of Wight, SZ 429 908, June 2011, Wessex Lichen Group.

***Arthonia ilicinella* NT (NS/IR):** this was a very surprising record from the New Forest of a lichen with a highly oceanic distribution, otherwise only frequent in western Scotland and with only two previous records from England in Cornwall and the Lake District. Also it was even more surprisingly apparently parasitising *Arthonia ilicina*, a new observation but one that would explain its distribution that mirrors that of the oceanic *Arthonia ilicina*, but is much less frequently recorded than this species. On an old Holly in Beech–Holly pasture woodland, Great Stubby Hat, Busketts Wood area, New Forest, SU 305 109, December 2019, N. A Sanderson. New to south central England and a remarkable range extension.



Left picture shows *Arthonia ilicinella* (top left, frequent black irregular apothecia), parasitising *Arthonia ilicina* (bottom right, a few more regular black apothecia), old brown *Arthonia ilicinella* spores.

***Arthopyrenia salicis*:** a western and upland Hazel specialist, where it is common, which had been recorded just over the border in Langley Wood NNR, Wiltshire. On a Hazel on the boundary bank of a former lodge grounds hay meadow, incorporated into the 18th century Inclosure and now within an impressive habitat restoration scheme, Pitts Wood Inclosure, New Forest, SU 197 145, May 2020, N. A Sanderson. New to Hampshire.

***Fellhanera ochracea* (NR):** a newly described species, probably an ephemeral species, but apparent one that can be found in less disturbed or polluted habitats than is typical of other *Fellhanera* species. This lichen was found fertile, with small orange-brown disks, making it easier to spot, but it is often sterile with only the orange or bluish pycnidia present, when it would be much more difficult to find. On Holly bark previously chewed by ponies but not fully stripped, old Hollies in Beech–Oak–Holly pasture woodland, Denny Wood, New Forest, SU 329 058, SU 330 057, June 2020, N. A Sanderson. New to Hampshire.

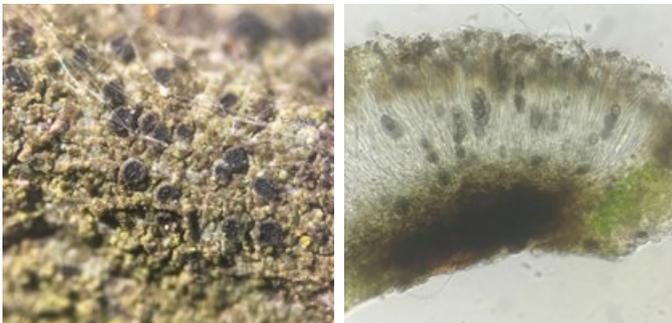
***Lecanora strobilina* VU (NR):** a lignum specialist with a south western distribution that appears to have drastically declined during the 20th century, presumably due to acidifying pollution. It now appears to be making a comeback and was found on well-lit weathered Oak deadwood in the New Forest and nearby. On lignum on a dead Oak branch fallen and propped against a tree, in open pasture woodland on a floodplain, Mallard Wood,



A *Lecanora strobilina* specimen from Mallard Wood, the species is defined by the negative spot tests and the fluffy, decorticate disk margins.

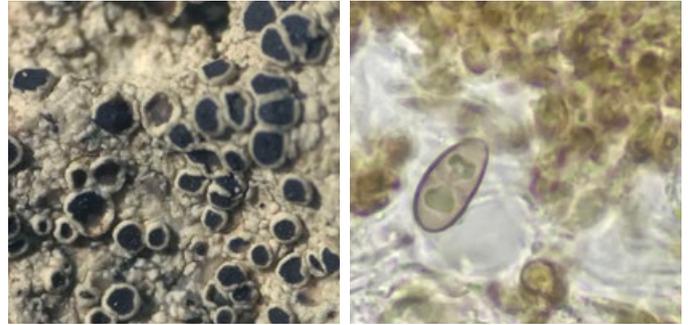
New Forest, VC11, S. Hampshire, SU 319 090, July 2019, N. A Sanderson. Also seen on lignum the trunk of a dead tree fallen from a hedge in farmland during a planning survey, (site name withheld), SU40, May 2019, N. A Sanderson. New to Hampshire and south central England.

***Rinodina biloculata* Nb (NR):** an uncommon south western twig species that is being found more widely and may be increasing with rising temperatures. Frequent on the twigs of ornamental Azaleas by a pond, in a woodland absorbed into a large garden, Salterns Copse, Exbury Gardens, New Forest, SZ 421 997, January 2020, Wessex Lichen Group meeting. Also on Blackthorn twigs in a hedge on farmland, during a planning survey (site name withheld), SU40, May 2019, N. A Sanderson. The first and second records for Hampshire.



***Rinodina biloculata* is an increasing twig species to look out for, it does not look much like a *Rinodina*, as the thalline margin is excluded early, but is here visible in cross section. The spores are very distinctive.**

***Rinodina exigua* (NR):** this resembles a small *Rinodina roboris* and shares a K + yellow spot test on the thallus but has a different spore type. It is a rare species of veteran trees in Europe but had been overlooked as the common K-*Rinodina oleae* in Britain. It was recently found new to Britain in Moccas Park, Herefordshire and has since been found in parks in Oxfordshire and Surrey. This Hampshire record was the result of lockdown burrowing into my herbarium: a specimen of *Rinodina oleae* from a veteran tree in Brockenhurst Park definitely required looking at again. On base rich bark, on a veteran Oak in woodland within a parkland, Highwood Copse, Brockenhurst Park, Roydon Woods NR, New Forest, SU 3148 0141, May



The *Rinodina exigua* specimen left and right the *Physcia*-type spores, with the septum swollen where it contacts the cell wall, but abruptly narrowed in the centre.

1995, N. A Sanderson. Now I have to go back and see if it is still there.

OTHER RECORDS OF SPECIAL INTEREST

***Arthonia anglica* EN (NR/IR/S41):** this very rare species is currently only known in Britain from two Hollies in Matley Wood in the New Forest, not having been seen in south west England since the 1990s. During the more relaxed part of the lockdown a second colony was found on Beech in the New Forest, the first find from Beech since the 19th century and a welcome second location. On a quite exposed Beech in small group of old Beech in heathland, on the slope east of Bratley Water, New Forest, SU 233 089, June 2020, N. A Sanderson. Associated species included *Pertusaria pustulata* VU (NR), a Beech and Holly specialist in a new site, that has been found more widely in the New Forest, as the author has got his eye in for it.



A close-up of one of the *Arthonia anglica* thalli, looking like a beefed up *Arthonia radiata* and the tree with the new colony.

***Arthonia thelotrematis* Nb (NR/IR):** a rare southern oceanic lichenicolous fungus, which is an obligate parasite of the widespread woodland lichen *Thelotrema lepadinum*. Previously known from Shave Wood and the Busketts Wood area in the New Forest but found in a new site by A.M. Cross & N.A. Sanderson. Parasitising *Thelotrema lepadinum* on a small Holly in flushed woodland above flood plain, in riverine pasture woodland, Beaulieu River, New Forest, SU 386 050, December 2019. A new site and 10km grid square record.

***Arthothelium ruanum* Nb (NS):** a smooth bark specialist with a patchy national distribution, only recorded once before in Hampshire on a Hazel in floodplain woodland

at Drivers Nursery, Queens Bower, where the Hazel may have been since lost to flooding when a channel blocked. Found to be scattered on several Hazels in Ironshill Inclosure, New Forest, SU 314 100, SU 315 100, SU 316 099, April 2020, N.A. Sanderson. One of my full lockdown finds.

***Bacidia 'assulata'* Nb (DD/NR):** this is a rare and little-known taxon; the British material is thought to be an undescribed internationally rare Mediterranean–southern Atlantic species and not *Bacidia assulata* s. str. It has small if rather attractive red-brown apothecia and grows in small and less active wound tracks. There were only a few recent records from Britain, on Beech in the New Forest in Mark Ash Wood and Wood Crates. My local full lockdown surveys produced two records in a new area about Busketts Wood and a later walk added another from the Mark Ash Wood area. In a small wound track on small suppressed old Beech, in Beech–Holly–Oak pasture woodland, in an area of relic old growth within plantations, north of Ironshill Inclosure, SU 315 101; on the edge of a wound track on an old Beech, in Beech–Holly–Oak pasture, The Ridge, Busketts Wood, SU 314 109, both April 2020. In a small wound track on an old Beech, in Beech–Holly pasture woodland, Wooson's Hill, Mark Ash Wood, SU 263 078, May 2020, N.A. Sanderson.



A *Bacidia assulata* specimen from the Ironshill site: small red-brown apothecia on a green warted thallus, with a distinctive internal anatomy.

***Bacidia circumspecta* VU (NS/S41):** a lichen found in weak wound tracks on base rich bark on veteran trees. This species has declined in the uplands due to the loss of old Elm trees and threatened by Ash dieback but still has a strong population on veteran Beeches in the New Forest. During the full lockdown found new to SU31 on four trees. In small wound tracks on three old Beech, in Beech–Holly–Oak pasture woodland, Busketts Wood area, New Forest VC11, S. Hampshire, SU 321 111, SU 321 110 & SU 311 112. In a small wound track on an old Beech, in Beech–Holly–Oak pasture woodland, in an area of relic old growth within plantations, north of Ironshill Inclosure, New Forest VC11, S. Hampshire, SU 316 101, all April 2020, N.A. Sanderson.

***Calicium pinastri* (NR):** the finding of this Pine bark specialist was described in the Hampshire Lichen Report 2018–19, as new to Britain. It does rarely occur on other habitats and material matching the description was found on Oak lignum, growing with *Lecanora strobilina* (see above). On lignum of dead Oak branch fallen and propped against a tree, in open pasture woodland on a

floodplain, Mallard Wood, New Forest, SU 319 090, July 2019, N.A. Sanderson.

***Cryptolechia carneolutes* EN (NS/IR/S41):** a striking lichen of wound tracks on veteran trees in southern England. It was found on old Elms but its main population was on old Ash, so it is now highly threatened by Ash Dieback, after being impacted by Dutch Elm Disease. The New Forest has a small but significant population on Beech and two more new trees have been found, with the latter from a completely new area, extending its known distribution in the New Forest. An expanding colony in wound tracks on a twisted ancient Beech, in Beech–Holly–Oak pasture woodland, Mallard Wood, New Forest, November 2019. A large spread of sterile thallus, on a knobbly ancient Beech, in Beech pasture woodland, Bignell Wood, SU 277 134, May 2020, N.A. Sanderson.



The knobbly ancient Beech with a large population of the highly threatened *Cryptolechia carneolutes*.

***Enterographa elaborata* CR (NR/IR/S41):** an internationally rare lichen with a significant population in the New Forest. During the full lockdown I found a new colony filling in a gap between colonies in Rushpole Wood and the Busketts area. A single thallus in rain track on small suppressed old Beech, in Beech–Holly–Oak pasture woodland, in an area of relic old growth within plantations, north of Ironshill Inclosure, New Forest VC11, S. Hampshire, SU 315 101, April 2020, N.A. Sanderson.

***Lecanora quercicola* VU (NS/IR/S41):** a rare lichen of well-lit sheltered veteran trees with mesic bark, typically field trees and wood edge trees. There are few recent records from the New Forest, partly as most veteran trees are woodland trees and not suitable habitats. The single recently confirmed location in the north of the Forest by Shepherds Gutter was added to by a second find in the south made by N.A. Sanderson and A.M. Cross. On the well-lit side of a big ancient Oak by a glade, in Oak dominated pasture woodland, in the drift by Ladycross Lodge, New Forest, SU 343 026, June 2020.

***Opegrapha thelotrematis* Nb (NS/IR):** an obligate parasite of the widespread woodland lichen *Thelotrema lepadinum*, only known from lowland England from the New Forest. Found at a new site, which was distant from the known locations in the east of the Forest. Parasitic on *Thelotrema lepadinum* on two *Corylus* bushes in *Quercus–Ilex* pasture woodland, south west of High Corner Wood, New Forest, VC11, S. Hampshire, SU 196 101 & SU 195 101, March 2020, N.A. Sanderson. A new 10km grid square.

***Sphinctrina tubiformis* Nb (DD/NR):** a rarely recorded but distinctive lichenicolous fungus, normally thought to be parasitic on the common *Pertusaria leioplaca*, but lockdown investigations of herbarium specimens have shown that in, the New Forest at least, it only grows on the rare *Pertusaria pustulata* VU (NR), a Beech and Holly specialist with its British headquarters in the New Forest. This would explain the rarity of the fungus. Previously only known in the Busketts Wood area of the New Forest, but now found in Mark Ash Wood. Parasitic on *Pertusaria pustulata* on a trunk of well-lit old *Fagus* by small glade in pasture woodland, Mark Ash Wood, New Forest, VC11, S Hampshire, SU 250 078, October 2019, N.A. Sanderson. A new 10km grid square.



***Sphinctrina tubiformis* parasitising *Pertusaria pustulata* on an old Beech in Mark Ash Wood.**

***Teloschistes chrysophthalmus* CR (NR):** the colonisation of this striking species has been discussed before. It has occurred in Britain previously along the south coast, especially when summers were warm (but winters were colder) in the early 19th century, but was nearly lost, to pollution and cooler summers. Much of the recent



Part of the large *Teloschistes chrysophthalmus* colony found by Andy at Keyhaven.

warming in Britain involved significantly warmer winters but without summer temperatures increasing much. Now summer temperatures are increasing to match or exceed those of the early 19th century, this gorgeous lichen has made a comeback, probably by spores blowing over the channel from Brittany. Initially most finds were single thalli on individual bushes so it was not clear if the species was establishing itself or it was constantly recolonising from France. However, there are increasing reports of bushes with more than one thalli, which suggests the lichen is definitely establishing itself. One spectacular find by Andy Cross was a colony with 15 thalli on two adjacent Blackthorn bushes on the southern edge of Keyhaven Marshes; it seems Goldeneyes is here to stay.

Dog-rose Taxonomy

A note by Gareth Knass

The variable, common, and widespread rose Dog-rose *Rosa canina sensu lato* has until 2017 been generally recorded in Groups or left as an aggregate for recording purposes. Following Maskew (2017) and Bakker et al. (2019), and in order to achieve a common taxonomical consensus in North West Europe, the Groups for Dog-rose have been separated back into three individual species.

These are Dog-rose *Rosa canina (sensu stricto)*, Hairy Dog-rose *Rosa corymbifera*, and Glandular Dog-rose *Rosa squarrosa*. The differing taxonomy is summarised in Table 1, which compares the current accepted taxonomy (e.g. Stace 2019) with previous taxonomy, as used in the BSBI handbook on Roses (Graham & Primavesi 1993).

For those who were used to recording the groups of Dog-rose prior to the split into three species, the new species will not be hard to get a handle on, as they mostly follow the previous groups. For those that have simply aggregated Dog-rose as *Rosa canina* agg. in the past, there is now a need to consider which of the three species you are recording. Figures 1-3 below show the key identification features and differences, and these are also summarised below.

Editor's note: it was only possible to reproduce Gareth's figures as low resolution screengrabs here. His complete guide to rose identification prepared for his August 2019 Hampshire Flora Group workshop can be downloaded from the Hants Plants website: <https://www.hantsplants.org.uk/articles.php>.

All of the three species have a narrow stylar orifice, sepals that reflex then drop early in fruit, and should have non-glandular pedicels. The prickles on all three species are strongly hooked with a stout base. The general habit of all species are of strongly arching bushes (where allowed to).

The key differences are:

- Dog-rose *Rosa canina* is generally uni-serrate and non-glandular on the leaflet margins, and with few or no glands on the leaf stalk. The leaflets and stalks are also hairless (glabrous).

- Hairy Dog-rose *Rosa corymbifera* is also generally uni-serrate and non-glandular on the leaflet margins, and with few or no glands on the leaf stalk. The key difference with Dog-rose is that the leaflets are hairy/pubescent on at least the mid-and side ribs (underside of leaflet). Generally however, most examples are hairy on the underside of the leaflet and often elsewhere on the plant.
- Glandular Dog-rose *Rosa squarrosa* is bi or multi-serrate and glandular (small red glands) on the leaflet margins, and with similar glands on the leaf stalk. It is usually non-glandular on the underside of the leaflets. It is generally hairless.

With separation of Dog-rose into three species the intermediates which exist are now potentially referable as hybrids between the species. The fact that all three species are widespread and sometimes the most numerous rose species in Hampshire means that there is likely to be a lot of integration between the three taxa. Some tips are very tentatively given in order to consider hybrids of the three species below, but this is not borne out by very much field experience. It is best to consider looking for hybrids where good populations of both parent species are present in a locality.

- *Rosa canina* x *R. squarrosa* – where there are reduced glands on the leaflet margins for true *R. squarrosa*, which should have fully bi-serrate margins over much of the plant (but beware that glands on leaflets can wear off during the season); this may indicate hybridisation with *R. canina*.

- *Rosa canina* x *R. corymbifera* – A reduced pubescence on the leaflets – the delimitation for *Rosa corymbifera* appears to be that as a minimum it should show pubescence on the midrib and 'side ribs', therefore less than this but still with hairs and it may indicate hybridisation.
- *Rosa squarrosa* x *R. corymbifera* - shows bi-serrate glandular and hairy leaflets a bit like Round-leaved Dog-rose *Rosa tomentella*, but the leaf shape is not correct and the other *R. tomentella* features are not present. Generally it is a robust Dog-rose and *R. tomentella* is more delicate in many features.

Table 1: Taxonomic changes in species from the BSBI Handbook to current taxonomy

Current taxonomy	BSBI handbook
Dog-rose <i>Rosa canina</i>	Dog-rose <i>Rosa canina</i> (Group Lutetianae & Group Transitoriae)
Hairy Dog-rose <i>Rosa corymbifera</i>	Dog-rose <i>Rosa canina</i> (Group Pubescentes)
Glandular Dog-rose <i>Rosa squarrosa</i>	Dog-rose <i>Rosa canina</i> (Group Dumales)

ACKNOWLEDGEMENTS

Thanks to Roger Maskew for his assistance and discussions on Rose taxonomy.

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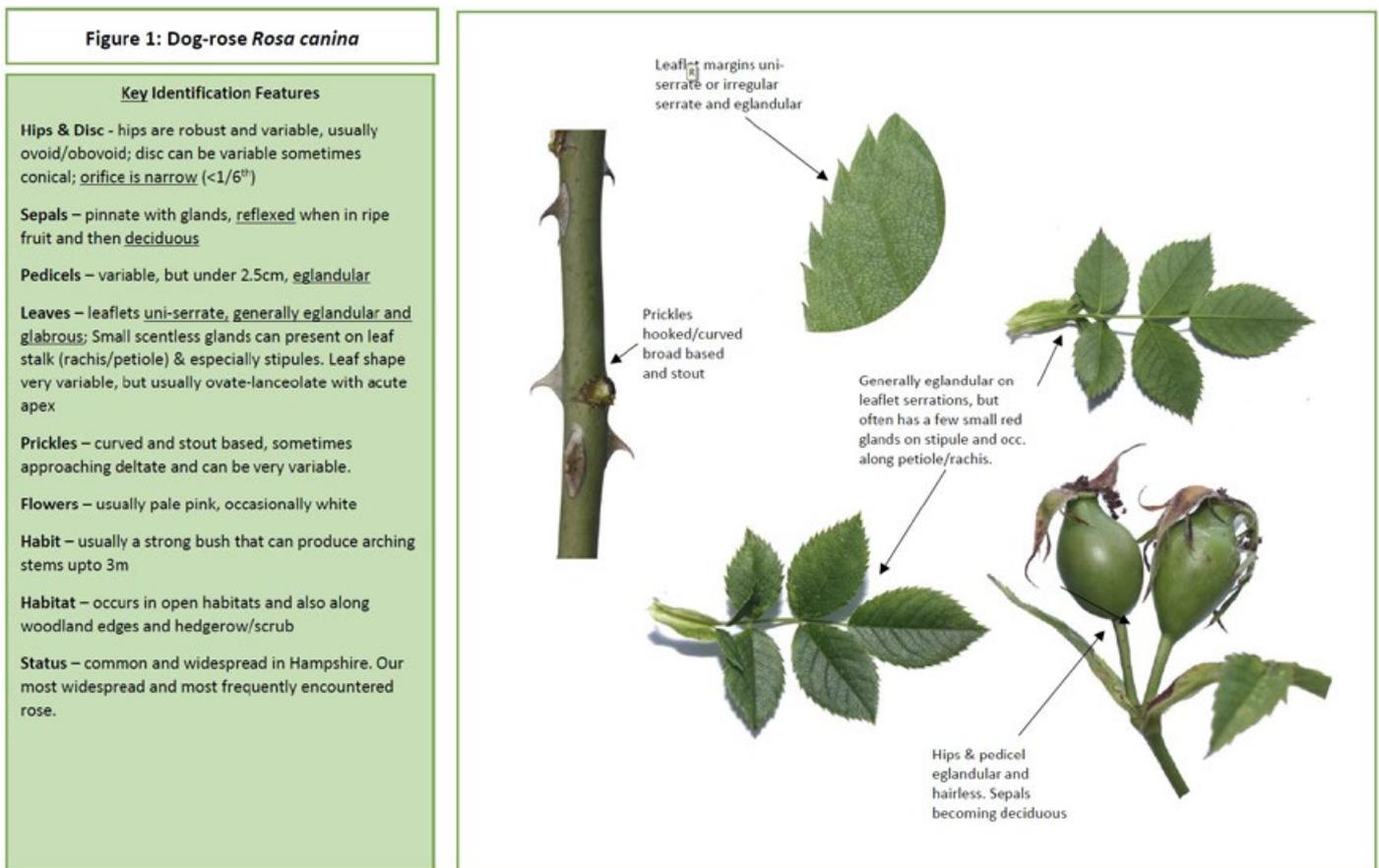


Figure 2: Hairy Dog-rose *Rosa corymbifera*

Key Identification Features

Hips & Disc - hips are robust and variable, usually ovoid/obovoid; disc can be variable sometimes conical; orifice is narrow (<1/6th)

Sepals – pinnate with glands, reflexed when in ripe fruit and then deciduous

Pedicels – variable, but under 2.5cm, eglandular

Leaves – leaflets uni-serrate, generally eglandular and hairy – with hairs on leaf under surface as a minimum being present on the side and mid ribbing; Small scentless glands can present on leaf stalk (rachis/petiole) & especially stipules. Leaf shape very variable, but usually ovate-lanceolate with acute apex

Prickles – curved and stout based, sometimes approaching deltate and can be very variable.

Flowers – usually pale pink, occasionally white

Habit – usually a strong bush that can produce arching stems upto 3m

Habitat – occurs in open habitats and also along woodland edges and hedgerow/scrub

Status – common and widespread in Hampshire. Likely to be our second most widespread and frequently encountered rose.

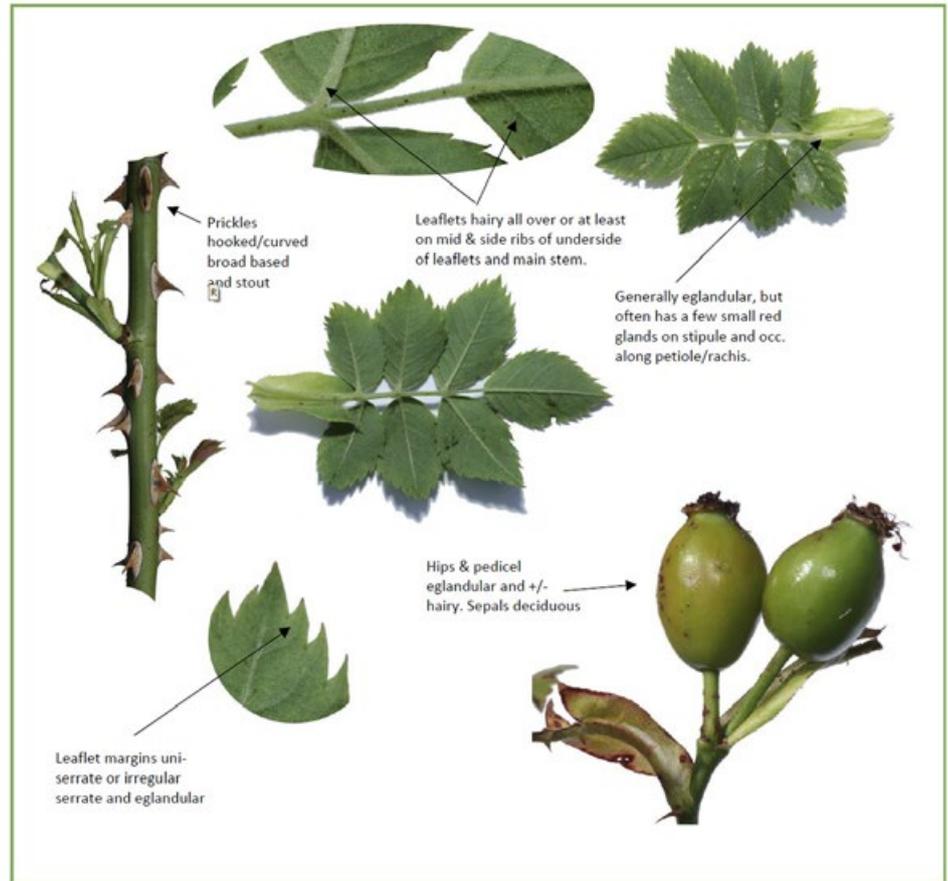


Figure 3: Glandular Dog-rose *Rosa squarrosa*

Key Identification Features

Hips & Disc - hips are robust and variable, usually ovoid/obovoid; disc can be variable sometimes conical; orifice is narrow (<1/6th)

Sepals – pinnate with glands, reflexed when in ripe fruit and then deciduous

Pedicels – variable, but under 2.5cm, eglandular

Leaves – leaflets bi or multi-serrate, with small scentless red glands along the margin, and glabrous; Small scentless glands are also numerous on leaf stalk (rachis/petiole) & especially stipules. Leaf shape very variable, but usually ovate-lanceolate with acute apex

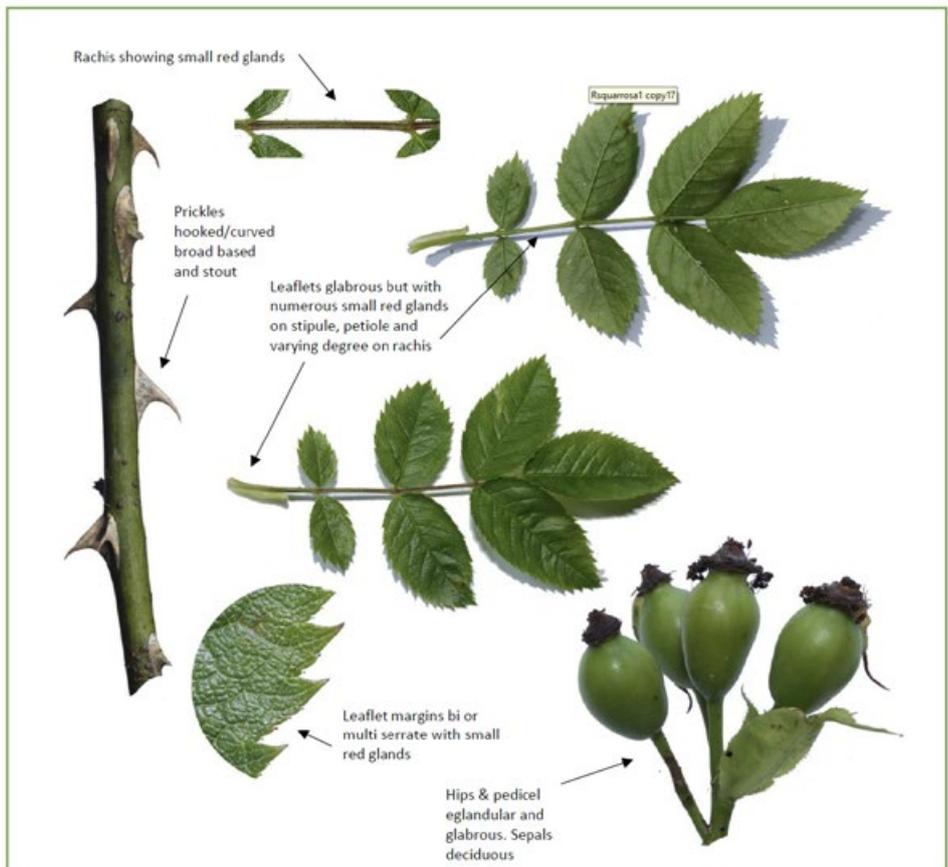
Prickles – curved and stout based, sometimes approaching deltate and can be very variable.

Flowers – usually pale pink, occasionally white

Habit – usually a strong bush that can produce arching stems upto 3m

Habitat – occurs in open habitats and also along woodland edges and hedgerow/scrub

Status – Common and widespread in Hampshire. The least common of the three common Dog-roses.



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Plant Alert – Reporting Potentially Invasive Ornamental Garden Plants

A note by Catherine Chatters



Flora Group members might be interested in a project called 'Plant Alert' which aims to identify potentially invasive plants before they become a problem in the wider environment. The project was launched in July 2019 (www.plantalert.org) and is a citizen science collaboration between Coventry University and the BSBI (Botanical Society of Britain & Ireland). The following information is taken from *BSBI News* April 2020 and the Plant Alert leaflet.

Why report invasive garden plants?

Invasive non-native plants are causing major problems for native biodiversity, ecosystems, infrastructure, the built environment and human health. Most of our invasive non-native plants were introduced as ornamental garden plants but then escaped into the wider environment. To prevent more species becoming invasive, gardeners can contribute by reporting ornamental garden plants which show early signs of invasiveness.

Are all non-native plants a problem?

More than half of the species in the British Flora are non-native and most of these are garden escapes. Only a minority of ornamental garden plants which 'escape' into the wild are causing problems. Well known examples in Britain include Himalayan balsam, Japanese Knotweed, Rhododendron and several aquatic plants such as Parrot's-feather and Creeping Water-primrose.

There are often long delays, sometimes more than 100 years, from the introduction of a species into gardens to the recognition of it as a problematic plant in the wild, making effective prevention strategies very difficult. Furthermore, the invasion risk of these species could potentially be accelerated by climate change, resulting in plants previously not considered fully hardy to establish and spread.

The challenge is to identify the potential future problematic plants out of the ever-increasing pool of about 70,000 ornamental plants available to gardeners in Britain.

How can gardeners help?

Gardeners can play an important role as they are among the first to notice traits that have been recognised to contribute to successful invasions such as vigorous growth, earlier germination, better survival of seedlings and longer flowering periods. Similarly, problems with removing plants no longer wanted could indicate potential control problems in cases where such plants become established outside gardens.

Plant Alert strives to engage gardeners to report plants in their own gardens, or those of others, that show signs of invasiveness. In doing so people are contributing to the essential data required to understand and manage future invasive ornamental plants before they can cause negative impacts. With the 2020 gardening season already underway, the researchers are hoping for an increase in the number of records they receive.

Which plants should be reported?

Many ornamental garden plants will spread and this is a sign that they are growing well but the Plant Alert researchers only want to know about those plants that are spreading so much that you need to control them. If you do not know the name of a plant that you wish to report, you can submit photographs.

How will the data be used?

All records of reported plants can be accessed on the Plant Alert webpage. At least once a year Plant Alert will publish a summary on the website of all records received. Data collected will be used in risk assessments of species as well as to provide gardeners and nurseries with advice on which plants could become difficult to manage in gardens.

How to use Plant Alert

Plant Alert is a permanent reporting tool to use whenever you notice a potentially invasive ornamental plant. The webpage is designed to work well on mobile 'phones so you can take photographs and report plants directly from your garden.

For more information, to contribute records and view results please go to www.plantalert.org.



Greater Quaking-grass *Briza maxima* – this ornamental annual grass can be hard to eradicate once established in a garden. (Debbie Allan)

VC12 Records

Compiled by Tony Mundell
(Records up to 5 June 2020)

With the end of intensive recording for the BSBI Atlas 2020 Project and the 'lock-down' resulting from the COVID-19 virus crisis, I have not accumulated as many records as usual in the previous 6 months. However, I have still managed to put together a personal selection of records for both uncommon native and interesting alien plants. I offer my sincere thanks to the people who have made this possible by still contributing records in these difficult times. I suspect that I will have even fewer records to select from for the Spring 2021 issue of Flora News so I will keep records for most of June and July 2020 onwards for that issue.

I am now changing over to the latest Latin names in Stace's 4th edition so you may notice a few unfamiliar names below. However, as my MapMate database is still using older names I may inadvertently miss out a few changes!

There have certainly been quite a few surprising finds recently. Amongst the native plants I was delighted that Fred Rumsey managed to re-find a single, albeit rather depauperate plant of Field Fleawort *Tephrosieris integrifolia* at two of its former sites, while John Moon added it at its third known site. Despite searching, I was unable to find any plants of it during the previous year and it does seem to be decreasing nationally towards extinction.

Possibly even more exciting is the record of Yarrow Broomrape, now called *Phelipanche purpurea* found near Alton by June Chatfield in July 2019. Although this occurs in good numbers on the Isle of Wight, it is a real rarity for mainland Hampshire. It was known in a horse paddock at Stoke near St Mary Bourne from 1976 to 2000 and the landowner managed to transplant a few into their adjacent lawn. It died out in the paddock where the turf became too coarse and overgrown due to the lack of horses, and the last three spikes were seen in the lawn in 2005. Soon after that the property changed hands and I assume it is now lost there. I have just heard that it is doing well at June Chatfield's new site. In fact it is spread over some distance, but I will include the 2020 records in the next issue of Flora News.

I am always especially pleased when new native taxa are found in VC12. One found recently is *Polypodium x shivasiae*, the hybrid between *P. cambricum* and *P. interjectum*. One of the parents, *P. cambricum*, was only found new to VC12 in 2019 when Anna Stewart started studying this quite difficult genus, and realised that there was a strong colony of it in Winchester within VC11 but very close to the VC border. She and Jonathan Sleath, after a lot of microscope work, also homed in on the hybrid and a specimen was confirmed by the BSBI *Polypodium* Referee, Rob Cooke.

In the last issue of Flora News I told the sad tale of a rare grass, Orange Foxtail *Alopecurus aequalis*, being found at a new site then getting destroyed when a German



**Yarrow Broomrape *Phelipanche purpurea*, Alton
(June Chatfield)**

bomb buried very close to it had to be exploded in situ. That was closely followed by another new site being found for it, and remarkably I have more recently found it in a pond on a relatively new housing estate, only half a mile from my home (see my main article, p. 12).

In the Autumn 2019 issue Rob Still recounted the HFG visit to Old Burghclere Lime Quarry, and that article was illustrated with a rather unhappy-looking plant of White Helleborine *Cephalanthera damasonium* that lacked any chlorophyll in its leaves or stems. This rarely occurs in some orchids when the symbiotic fungus in the orchid's tissues is just able to provide enough sustenance for the plant to grow without photosynthesis. I have often wondered if such depauperate plants die after managing to flower, but it seems not because Peter Billingham sent me a photo of an achlorophyllous plant this May that was presumably the same individual plant. Another example of an achlorophyllous *C. damasonium* was found this year by Tristan Norton near Crawley.

Sadly orchids still suffer from getting dug up, which of course is an illegal act. In fact it is illegal under the Wildlife and Countryside Act to dig up any plant, even very common ones, without the landowner's permission. This time the target was a special variety of Bee Orchid, *Ophrys apifera* var. *belgarum* which grows around Winchester and was named after the Roman name for that town, Belgarum. As shown in the records below the colony close to Tesco's at Winnall is now smaller. Almost as bad, the huge colony of *Cephalanthera damasonium* in the car park there was mown off in flower by contactors. Though we have many sites for this orchid in Hampshire, nationally it is declining seriously and so it is classed as Nationally Vulnerable in the current Red Data Book.

It seems that most species of *Orobanche*, the Broomrapes, can occur without the usual anthocyanin pigment, so that what is normally a dark purplish flower spike becomes bright yellow instead. In Hampshire a significant proportion of plants of Ivy Broomrape *O. hederæ* are the bright yellow form. I have only seen the yellow form of Common Broomrape *O. minor* in France but I see that there is one record for it in VC11 on some

reseeded grassland. In 2019 I was sent photos of this form called *O. minor* var. *flava* by the landowner of the Litchfield Estate. This year he reported huge numbers of this variety in a large area that was arable fields 15 years ago, but where he is trying to re-create chalk grassland habitat. This is a private estate but I managed to arrange for Fred Rumsey (the BSBI Orobanche Referee) to visit.

Other notable records of native plants include Toothed Medick *Medicago polymorpha* found in a new site by Helen Boyce and confirmed with some splendid, detailed photographs. This is mainly coastal in its distribution. Most of the VC12 records for it were for many years ago when it used to regularly appear at Blackmoor Fruit Farm as a result of imported shoddy (dirty wool waste) being spread on the fields as a fertilizer.



Coral Spurge *Euphorbia corallioides*, Littleton, May 2020 (Dave Pearson)



Toothed Medick *Medicago polymorpha*, Worldham, May 2020 (Helen Boyce)

I was also delighted when Cathy Wilson found a new site for Spear-leaved Willowherb *Epilobium lanceolatum*. This is relatively uncommon in Hampshire with its main concentrations in coastal areas like Lymington. In VC12 it is confined to the SE corner and it seems to prefer dry, sandy banks or road verges.

Jonty Denton reported some Common Calamint *Clinopodium ascendens* to me, growing as a pavement weed. As it was quite near to me in Odiham I went to check it out. I found it very difficult to separate from Lesser Calamint *C. nepeta*, in spite of using Ken Adams' splendid illustrations of the differences. (Ken Adams the BSBI Recorder for Essex has produced many excellent identification guides in their equivalent to our Flora News). In the end I decided on *C. ascendens* after much microscope work, though most characters were intermediate.

I have also selected several uncommon aliens. This list includes several different *Euphorbia* species. One that is new to me is Coral Spurge *Euphorbia corallioides* that has distinctive hairy fruits. Another, but more familiar, plant is Balkan Spurge *E. oblongata* that has been found in a couple of new places. It has 'knobbly' fruits.

At least one of the aliens listed below is unusual enough not to be on the taxa list of my MapMate database, so I cannot record it there. This is *Cardamine occulta* found by Dawn Nelson. I am not aware of a vernacular name for it but 'Asian Bitter-cress' would do. This is very similar to Wavy Bitter-cress *Cardamine flexuosa* but from DNA and chromosome testing it was realised in 2006 that

some of the European plants previously lumped in with *C. flexuosa* were this different species *C. occulta* that had originally been named in China in 1819. It has been spreading across Europe and is typically found as a weed growing in potted plants in nurseries. It is distinguished from *C. flexuosa* and *C. hirsuta* by the glabrous leaf surfaces and especially by the more prominently lobed terminal leaflets, sometimes divided into three lobes. It also has no basal leaf rosette and less hairy stems than *C. flexuosa*. I found it myself in 2019 in a pot at the nursery attached to the Sir Harold Hillier Gardens near Romsey and also in one pot at the Forest Lodge Nursery near Alice Holt, so I suspect it is pretty widespread in nurseries which must spread it to gardens.

Another unusual alien listed below is *Melampodium montanum*. I don't have a vernacular name for this but some websites suggest 'Blackfoot'. It is a bushy plant with rather attractive yellow 'daisy' flowers that I found growing as a pavement weed in Blackmoor town centre. I was completely puzzled by it guessing it might be a *Bidens* species but Eric Clement named a specimen for me.



Specimen of Blackfoot *Melampodium montanum*, from Blackwater (Tony Mundell)

Early in spring Anna Stewart sent me photos of five different *Scilla* species that she had found in the Winchester area. Her records are listed below. Previously I had very few records for any of these – perhaps not many botanists are out in March. In fact two of them Boissier's Glory-of-the-snow *Scilla luciliae* and Lesser Glory-of-the-snow *S. sardensis* are new for VC12 while Greek Squill *S. messeniaca* is new to Hampshire.



**Glory-of-the-snow *Scilla forbesii*, Winchester, April 2020
(Anna Stewart)**

***Adoxa moschatellina* (Moschatel)** Abundant as carpet across woodland floor, numerous flowering stems, Crawley Down SU441367, Tristan Norton 6 Mar 2020. SW of Binsted SU7640, Cathy Wilson 13 Mar 2020. Worthy Down SU456353, locally abundant beside footpath, several in flower, Tristan Norton 19 Mar 2020. Stoke, Doiley Bottom SU404532, track verge, Peter Billingham 22 Mar 2020. East of Wyck SU7639, Cathy Wilson 22 Mar 2020. Hurstbourne Tarrant SU386542, on track verge, 24 Mar 2020.

***Allium cepa* (Onion)** Nuns Walk SU484305, on grassy bank by entrance to car park, Dave Pearson 23 May 2020.

***Allium paradoxum* (Few-flowered Garlic)** Rowhills Copse SU84954992, a few at base of wall, Fred Rumsey 23 Apr 2020.

***Allium roseum* (Rosy Garlic)** St. Catherine's Church, Littleton SU453329, Dave Pearson 12 May 2020. Ashford, East SU742266, many flowering plants on laneside bank, Steve Povey 23 May 2020.

***Allium siculum* (Honey Garlic)** Three Maids Hill, Winchester SU463330, in bud, Dave Pearson 13 Apr 2020. St. Catherine's Church, Littleton SU453329, in bud, Dave Pearson 28 Apr 2020. Cheriton SU58162860, ten or more flowering in pathside hedgebank by Hill Houses Lane, Fred & Sue Rumsey 28 May 2020.

***Allium triquetrum* (Three-cornered Garlic)** Church Crookham SU80635207, Award Road track, Tony Mundell 16 May 2020. Church Crookham, Soanes Copse SU81435145 & SU81465142, Tony Mundell 20 May 2020.

***Alopecurus aequalis* (Orange Foxtail)** Church Crookham SU81235167, voucher specimen collected. In pond adjacent to Jubilee Drive. Floating out into the southern end of the (currently shallow) pond in a large patch 12m x 3m. The northern end of the pond has *Alopecurus geniculatus*, Tony Mundell 23 May 2020.

***Anacamptis morio* (Green-winged Orchid)** Headley Gravel Pit SU511627, at peak flowering, very early, probably between 1,000/2,000 plants in flower, Graham Dennis 24 Apr 2020. East of Wyck SU76383919, one spike only, Cathy Wilson 26 Apr 2020. Silchester, Bramley Road SU639611, 200+ in lawn at Old Meadows,

Bramley Road. They have been particularly spectacular this year, perhaps as a result of having been heavily grazed by deer last year, David Ruck 8 May 2020.



**Green-winged Orchid *Anacamptis morio*, east of Wyck,
April 2020 (Cathy Wilson)**

***Anacamptis pyramidalis* (Pyramidal Orchid)** Crawley Village playground SU42563503, one plant in flower within grass left uncut since early April 2020, Tristan Norton 1 Jun 2020. The Street, Barton Stacey SU43844230, 4 flowering, Tristan Norton 1 Jun 2020. Old Down SU596488, David Jewsbury 1 Jun 2020. Holybourne, South, at least 35 spikes on central reservation of A31, between SU7355 4033 and SU7357 4034, also 2 spikes beside footpath up Copt Hill SU73784015, Cathy Wilson 4 Jun 2020. Winnal Tesco SU49523036, south of main Tesco entrance sign, 1 flowering plant noted, Tristan Norton 4 Jun 2020. Percy Hobbs roundabout SU520293, at least several dozens present throughout all verges, Tristan Norton 4 Jun 2020.

***Anisantha diandra* (Great Brome)** Matterley Estate SU53152867, large quantities along tracks through the estate, Anna Stewart 21 Apr 2020.

***Anthemis cotula* (Stinking Chamomile)** Cholderton Estate, Romsey Road Field SU245431, all over field, John Moon 29 May 2020.

***Arctium lappa* (Greater Burdock)** Edenbrook Country Park SU78975416, SU78935421, SU79055445 & SU79085449, single plants beside path with last year's seed heads, Tony Mundell 30 Jan 2020.

***Armeria maritima* subsp. *elongata* (Tall Thrift)** Aldershot, Pavilion Road SU85165040, escaped from my garden via seed onto pavement of road. Now flowering though it gets flattened every time I take the bins up. *Geranium canariense* and *Geranium yeoi* have also leapt over the front wall, Fred Rumsey 28 May 2020.

***Arum italicum* subsp. *italicum* (Italian Lords-and-Ladies)** South of Binsted SU771408, large clump on roadside bank near house entrance. All plants with plain dark-green leaves, Steve Povey 13 Feb 2020. Selborne Common SU734321, several plants beside entrance to field, Steve Povey 6 Mar 2020. Church Crookham SU80525274, Basingbourne Park extension, Tony Mundell 16 May 2020.

***Arum italicum* subsp. *neglectum* (Italian Lords-and-Ladies)**

Noar Hill Hanger SU737312, small group of plants at the very top of Noar Hill Hanger. An unusual place! Steve Povey 30 Jan 2020. Steep Marsh Hanger SU753268, many plants scattered along base of Steep Marsh Hanger (private), Steve Povey 3 Feb 2020. First recorded here by Dr. F. Rose, no date but probably around 1988-1990.

***Asplenium ceterach* (Rustyback)** Winchester, Tower Street SU47862965, 2 plants on lowest step of No. 18, Tristan Norton 18 Feb 2020. Chilbolton SU39274000, at least 20 plants noted in c.3m stretch of wall, Tristan Norton 20 Feb 2020. Alton SU71553903, three mature plants plus at least 10 tiny ones on the mortar of a brick wall in Old Acre Road, where known by June Chatfield for about ten years, Tony Mundell & June Chatfield 7 Mar 2020.

***Asplenium trichomanes* (Maidenhair Spleenwort)** Chilbolton SU39354010, abundant on wall, minimum of 30 plants over short stretch, Tristan Norton 15 Feb 2020. Sheet SU7524, Duncan Wright 22 Apr 2020.

***Atropa belladonna* (Deadly Nightshade)** Ashford, East SU740268, around 20 plants scattered in large area of short scrub, Steve Povey 23 May 2020.

***Azolla filiculoides* (Water Fern)** Up Nately LNR SU700522, Dave Pearson 14 Mar 2020.

***Barbarea intermedia* (Medium-flowered Winter-cress)** Priors Dean Road, Harestock SU467317, Dave Pearson 1 May 2020, photos confirmed by Tony Mundell.

***Barbarea verna* (American Winter-cress)** Church Crookham SU81025209, dozens of plants growing from the pavement on NE side of Conifer Close, plus three on SW side, Tony Mundell 2 Apr 2020. Church Crookham, Conifer Close, photo taken of fruiting plant at SU8101852093 in the roadside pavement, Tony Mundell 2 Jun 2020.

***Berberis vulgaris* (Barberry)** Abbots Ann, single plant in hedge beside footpath at SU33494341, John Moon 13 May 2020.

***Blysmus compressus* (Flat-sedge)** Chilbolton Cow Common SSSI SU38934003, no meaningful count but frequent within shorter turf around *Ophioglossums* and wider area, Tristan Norton 15 May 2020.

***Briza maxima* (Greater Quaking-grass)** Church Crookham SU80285253, Coxheath Road verge, Tony Mundell 14 May 2020.

***Buxus sempervirens* (Box)** Noar Hill Hanger SU737312, very large shrub at the top of Noar Hill Hanger. According to the late Francis Rose, (pers. comm.), the half dozen or so Box plants on this hanger are almost certainly native here, Steve Povey 30 Jan 2020.

***Campanula glomerata* (Clustered Bellflower)** Winchester, St Giles Hill SU49062935, freely spreading in garden for four years, Anna Stewart 25 Nov 2019.

***Campanula poscharskyana* (Trailing Bellflower)** Sheet SU7524, Duncan Wright 23 Apr 2020.

***Campanula rotundifolia* (Harebell)** Old Down SU596488, David Jewsbury 1 Jun 2020.

***Cardamine occulta* (a Bitter-cress)** Hilliers Garden Centre, Liss SU767264, growing as a weed in a pot of a plant for sale, Dawn Nelson 8 Dec 2019.

***Carex elata* (Tufted Sedge)** Winnall Moors SU486300, Dave Pearson 26 Mar 2020, photos confirmed by Tony Mundell.

***Carex flacca* (Glaucous Sedge)** St Marys Church, Crawley SU424348, frequent throughout lawn, Tristan Norton 29 Apr 2020.

***Carex strigosa* (Thin-spiked Wood-sedge)** N of Candovers SU7536, Cathy Wilson 13 Apr 2020. SE of Wyck SU7638, Cathy Wilson 20 May 2020.

***Catabrosa aquatica* (Whorl-grass)** Winnall Moors SU48843115, Jonathan Sleath 19 May 2020.

***Centaurea montana* (Perennial Cornflower)** Abbots Ann SU3243, at foot of wall near Eagle pub, John Moon 19 May 2020.

***Cephalanthera damasonium* (White Helleborine)** Brockley Warren SU422366, estimate 1,000 plants throughout entire woodland.



Tufted-sedge *Carex elata*, Winnall Moors, Winchester, March 2020 (Dave Pearson)

Locally very abundant. c.50% of woodland inspected, high hundreds noted, many in flower, Tristan Norton 25 Apr 2020. Hacks Lane, Crawley SU419359, minimum 20 plants noted at edge of woodland. Private woodland so expect many more if access allowed, Tristan Norton 28 Apr 2020. Crawley Clump SU44373597, eight plants noted after more thorough search, 1 flowering, Tristan Norton 29 Apr 2020. N of Crawley SU42023590, woodland NE of Hacks Lane, locally frequent. One achlorophyllous specimen c.3m from fence in open glade, Tristan Norton 30 Apr 2020. Crawley Village Playground SU42533504, 15 plants noted within eastern half of playground plus 1 in adjacent cereal margin to N. Several in full flower, Tristan Norton 3 May 2020. Barton Meadows SU482320, 30 plants in flower around the seat under the Beech trees at the top of the hill, Angela Sealey 11 May 2020. Winnall, Tesco Supermarket SU495302, about 100 spikes, all along the central belt, Dave Pearson 11 May 2020. Old Burghclere Lime Quarry SU4723 5731, one achlorophyllous plant, Peter Billingham 12 May 2020. Abbots Ann, scattered under line of beech trees beside footpath at SU334432, John Moon 13 May 2020. Selborne, Gilbert White's house SU74063341, five plants under a Beech, Chris Piper 15 May 2020. N of Crawley SU424361,

frequent plants all along footpath, north and south, and within woodland interior to S of path. Probably 100+, Tristan Norton 15 May 2020. Wheatham SU743270, 20+ flowering plants scattered in deep shade, Steve Povey 23 May 2020. Damsel Lane, Moundsmere SU619430, dozens of flowering plants beneath trees beside the long driveway up to the Moundsmere Estate, Suzannah Egleston 31 May 2020. Monk Wood SU74173917, 3 spikes on bank in Monkwood, approx 3m in from the edge of the wood, Cathy Wilson 4 Jun 2020.

***Cephalanthera longifolia* (Narrow-leaved Helleborine)** Ashford, East SU74062681, around 200 flowering plants in clearing, Steve Povey 23 May 2020.

***Cerastium semidecandrum* (Little Mouse-ear)** Church Crookham SU809522, many small plants in pavement at junction of Conifer Close and Ferndale Road, Tony Mundell 2 Apr 2020.

***Chrysosplenium alternifolium* (Alternate-leaved Golden-saxifrage)** Passfield SU817333, growing among Opposite-leaved Golden Saxifrage on river bank, Dave Pearson 6 Mar 2020. Tankerdale Lane SU7625, 50+ plants on banks of Rother growing with *Lathraea clandestina*. A new place. (Private land), Steve Povey 9 Apr 2020.



Alternate-leaved Golden-saxifrage *Chrysosplenium alternifolium* growing with Purple Toothwort *Lathraea clandestina*, April 2020 (Steve Povey)

***Cicerbita macrophylla* (Common Blue-sow-thistle)** Beech SU68573826, beside track, close to a road, Tony Mundell 3 Nov 2019.

***Claytonia perfoliata* (Springbeauty)** Fleet, Kent Road SU81535441, pavement weed, Tony Mundell 8 Jan 2020.

***Clinopodium ascendens* (Common Calamint)** Odiham High Street SU7415 5110, Jonty Denton 7 Jun 2020, identified by Tony Mundell *in-situ* on 9 Jun 2020, several plants growing from the pavement edge at the base of a shop wall.

***Cotoneaster x watereri* (Waterer's Cotoneaster)** Beech SU69033853, beside footpath, Tony Mundell 3 Nov 2019.

***Cruciata laevipes* (Crosswort)** Middleton Farm SU41544448, 10m x 1m patch, John Moon 24 Apr 2020.

***Dactylorhiza incarnata* (Early Marsh-orchid)** Chilbolton Cow Common SSSI SU38944009, 3 plants in flower, Tristan Norton 1 Jun 2020.

***Dactylorhiza praetermissa* (Southern Marsh-orchid)** Chilbolton Cow Common SSSI SU38944009, 2 flowering plants, Tristan Norton 1 Jun 2020.

***Danthonia decumbens* (Heath-grass)** Church Crookham, Award Road SU81045241, completely dominant in a garden lawn, Tony Mundell 2 Jun 2020.

***Daphne laureola* (Spurge-laurel)** Beech SU69003858, beside footpath, Tony Mundell 3 Nov 2019. Noar Hill Hanger SU737312,

many fine plants scattered along the top of the hanger, Steve Povey 30 Jan 2020. Chapel Lane, Easton SU515300, on grass verge recently trimmed to remove large patch of Stags-horn Sumach, Dave Pearson 7 Mar 2020.

***Datura stramonium* (Thorn-apple)** Winchester, Easton Lane roundabout SU49453035, one large plant with mature seed capsules, Anna Stewart 30 Dec 2019.

***Drosera rotundifolia* (Round-leaved Sundew)** Pondtail Heath SU825534, a few plants in a rut, none found on the nearby scrapes, Sarah Smith 1 Jun 2020. Basingbourne Park SU80795257, at least seven plants still present at SU80799 52573, despite the drought conditions, growing with *Eleocharis multicaulis*, Tony Mundell 2 Jun 2020.

***Echium vulgare* (Viper's-bugloss)** N of Steep SU739268, several plants on the Shoulder of Mutton Hill, Steve Povey 23 May 2020. The Street, Barton Stacey SU439423, frequent along kerb-side, Tristan Norton 1 Jun 2020. Old Down SU596488, David Jewsbury 1 Jun 2020.

***Epilobium lanceolatum* (Spear-leaved Willowherb)** S of Binsted SU77034064, one plant flowering (probably more to come) on bank beside farm track, Cathy Wilson 19 May 2020.

***Equisetum telmateia* (Great Horsetail)** SW of Binsted SU7640, Cathy Wilson 19 May 2020. South Hay SU7739, 28 May 2020.

***Equisetum x litorale* (Shore Horsetail (*E. arvense* x *fluviatile*))** Aldershot, Legge Crescent SU85075033, it has jumped across Pavilion Road to appear at the base of the wall at the top on Legge Crescent, Fred Rumsey 28 May 2020.

***Erigeron karvinskianus* (Mexican Fleabane)** Sheet SU7524, Duncan Wright 22 Apr 2020. Church Crookham SU80995213, single plant on verge of Conifer Close, Tony Mundell 16 May 2020.

***Erophila verna* (Common Whitlowgrass)** Noar Hill SU739319, several flowering plants on an anthill. Steve Povey 22 Mar 2020.

***Euphorbia corallioides* (Coral Spurge)** Church Lane, Littleton SU454329, Dave Pearson 13 Apr 2020.

***Euphorbia lathyris* (Caper Spurge)** Beech SU68653846, beside footpath, Tony Mundell 3 Nov 2019.

***Euphorbia oblongata* (Balkan Spurge)** Sutton Wood SU622323, growing with an eclectic mix of common plants on the wood edge, Dave Pearson 17 May 2020. Abbots Ann SU3243, scattered at foot of walls in Duck Street, John Moon 19 May 2020.



Balkan Spurge *Euphorbia oblongata*, Abbots Ann, May 2020 (John Moon)

***Euphorbia x pseudovirgata* (Twiggy Spurge)** Chilbolton Down Farm SU40873584, 3 leafy stems noted within tall grassy verge on N side of footpath, Tristan Norton 6 Apr 2020, identified from photos by Tony Mundell.

***Filipendula vulgaris* (Dropwort)** Old Down SU596488, David Jewsbury 1 Jun 2020.

***Fraxinus excelsior* (Ash)** Noar Hill Hanger SU7331, many trees suffering from 'die-back', Steve Povey 30 Jan 2020.

Fritillaria meleagris (Fritillary) Itchen Abbas SU530327, possibly planted originally but seemingly naturalised, Dave Pearson 19 Mar 2020.

Fumaria densiflora (Dense-flowered Fumitory) Chilbolton Down Farm SU421366, single plant in flower: will return to check habitat, Tristan Norton 16 Apr 2020, ID 'confirmed' online by J. Norton, J. Styles, & M. Rand. Cholderton Estate, Romsey Road Field SU245431, distributed all over field, John Moon 29 May 2020.

Fumaria muralis (Common Ramping-fumitory) Winchester, Baring Road SU49022942, Anna Stewart 1 Nov 2019. Avington Park Farm SU537323, Dave Pearson 12 May 2020.

Fumaria parviflora (Fine-leaved Fumitory) Cholderton Estate, Romsey Road Field SU245431, sparse in east of field, John Moon 29 May 2020.

Fumaria reuteri (Martin's Ramping-fumitory) Cholderton Estate, Romsey Road Field SU245431, thinly spread in northern part of field, John Moon 29 May 2020.

Galium palustre subsp. elongatum (Great Marsh-bedstraw) Basingstoke Canal, Church Crookham SU80445276, boggy area by path on non-towpath side, Tony Mundell 16 May 2020.

Galium palustre subsp. palustre (Common Marsh-bedstraw) Binswood SU76673738, Cathy Wilson 25 May 2020.

Galium pumilum (Slender Bedstraw) Ladle Hill, one plant re-found at SU47671 56738, Fred & Sue Rumsey 3 Jun 2020.

Galium saxatile (Heath Bedstraw) Bourley SU824511, one patch on a mound, Sarah Smith 6 Jun 2020.

Geranium lucidum (Shining Crane's-bill) Abbotts Ann SU3343, large patch beside southern entrance to The Green, John Moon 17 Apr 2020. Holybourne, South SU7340, Cathy Wilson 25 Apr 2020. East Worldham SU7438, Cathy Wilson 13 May 2020. Church Crookham, Basingbourne Park SU80925260, by scout hut, Tony Mundell 14 May 2020.

Geranium rotundifolium (Round-leaved Crane's-bill) Church Crookham, pavement weed at junction of The Verne and Aldershot Road SU81275192, and in Sandy Lane SU81395173, Tony Mundell 20 May 2020.

Geum rivale (Water Avens) Winchester, River Itchen SU48732976, Anna Stewart 5 Nov 2020. The Martyr Worthy Fishery SU516325, Dave Pearson 20 Apr 2020. Chilland SU522324, Dave Pearson 30 Apr 2020. Jack's Meadow, Ashford SU742269, five plants, Steve Povey 16 May 2020. Basingstoke Canal, Church Crookham SU80055242, single plant beside towpath, Tony Mundell 16 May 2020. Dipley SU74195776, several large patches in a damp field. Mostly now in seed and visible from a distance as patches of a sort of mauve haze, Fred & Sue Rumsey 25 May 2020.

Geum x intermedium (G. rivale x urbanum) Chilland SU522324, Dave Pearson 30 Apr 2020.

Gymnadenia densiflora (Marsh Fragrant-orchid) Greywell waterworks SU7251, Steve Povey 9 May 2020.

Helianthemum nummularium (Common Rock-rose) Magdalen Hill Down SU499292, many plants on old grassland, Anna Stewart 1 Dec 2019.

Helleborus foetidus (Stinking Hellebore) Basingstoke SU625513, 8 plants counted, A340 verge, Graeme Davis 20 Jan 2020.

Helleborus viridis (Green Hellebore) Hale Copse SU73193198, many plants at the S.W. end of Hale Copse and in adjacent monad to the north. Increasing, Steve Povey 13 Feb 2020. Bradshott, 16 vigorous clumps on south verge from SU7619 3216 to SU7615 3217, Bill & Chris Wain 1 Mar 2020. Empshott Green SU741310, a single plant noted on the top of the roadside bank as we drove past slowly, plus two patches at SU742310 each of 20-30 plants, also Bradshott SU762321, about 50 splendid large plants on roadside, Simon & Sue Melville 16 Mar 2020. N of Hawkley SU74013094, single plant along the top of roadside bank. Until around 20 years ago, a large number of plants grew on this once coppiced bank, Steve Povey 15 Apr 2020. SW of Binsted SU76574087, one plant, at risk of strangulation by nettles and brambles. Approx 10m east of

Public Footpath running N/S, just north of junction with FP west to Binsted, Cathy Wilson 15 May 2020. Well Lane, Bentworth, in woods south of Well Lane and can be seen from the road. They extend from SU6787 4031 to SU6808 4039, Hugo Egleston Apr 2020.

Hippocrepis comosa (Horseshoe Vetch) Magdalen Hill Down SU499292, on ant hills, Anna Stewart 1 Dec 2019. Perham Ranges, Old Rectory Chalk, small patch at SU23704690, John Moon 20 May 2020. Gander Down SU56002740, a single 30cm diameter patch, Fred & Sue Rumsey 28 May 2020.

Hirschfeldia incana (Hoary Mustard) Church Crookham SU81475138, a few plants on edge of the raised plateau, Tony Mundell 20 May 2020.

Hottonia palustris (Water-violet) Fleet Pond, East Marsh SU82315514, flowering well in a ditch, John Sutton 21 May 2020.



**Water Violet *Hottonia palustris*, Fleet Pond, May 2020
(John Sutton)**

Hypericum calycinum (Rose-of-Sharon) Norris Hill SU83215376, a large patch beside a track, Tony Mundell 16 Mar 2020.

Iberis sempervirens (Perennial Candytuft) Northington Road, Itchen Stoke SU544341, spilling over garden wall but did not appear to have been planted, Dave Pearson 18 May 2020.

Inula conyzae (Ploughman's-spikenard) N of Steep SU739268, many plants on the Shoulder of Mutton Hill, Steve Povey 23 May 2020. Cholderton Estate, Reservoir Field, Thrupton Hill SU244437, frequent near reservoirs, John Moon 27 May 2020.

Juglans regia (Walnut) South Hay SU77013979, large tree in farmyard, Cathy Wilson 19 May 2020.

Lathraea clandestina (Purple Toothwort) Liss, beside River Rother, a small colony at SU77992851 on west side of the footpath, and three or four colonies, each of c. 50 flowers, between the footpath and the river at SU77972858,

Bill & Chris Wain 11 Mar 2020. Tankerdale Lane SU7625, in great quantity scattered along floodplain beside River Rother for 500+ metres (Private land), Steve Povey 9 Apr 2020.

***Lathraea squamaria* (Toothwort)** Wick Hill Hanger SU75143596, six spikes on roadside bank, Bill & Chris Wain 8 Mar 2020. Wick Hill Hanger SU75133598, in flower where seen in seed last year, Chris Piper 19 Mar 2020. E of Kingsclere, 30+ spikes in an area of about 1.5 square metres at c. SU5426 5844 on a one-way track, Bob Winfield 2 May 2020. Wick Hill Hanger SU752359, photo of numerous plants in seed beside the lane from West Worldham to Oakhanger, Matthew Woodcock 2 May 2020, determined by Tony Mundell.

***Lathyrus linifolius* (Bitter-vetch)** Tweseldown, Church Crookham SU828521, Sarah Smith 14 Apr 2020, photos determined by Tony Mundell.

***Lathyrus nissolia* (Grass Vetchling)** Binswood SU7637, Cathy Wilson 25 May 2020. South Hay SU7739, Cathy Wilson 28 May 2020.

***Laurus nobilis* (Bay)** Church Crookham, Northfield Road SU82195248, a huge roadside tree, many metres tall and in full flower, Sarah Smith 16 Apr 2020. Confirmed *in-situ* by Tony Mundell on 24 April 2020.

***Legousia speculum-veneris* (Large Venus's-looking-glass)** Malshanger Estate, the first plants are just starting to flower from SU5731 5389 along the field margin to the corner at SU5739 5393 (I did not check further on round), Fred & Sue Rumsey 6 Jun 2020.

***Lepidium heterophyllum* (Smith's Pepperwort)** Winchester, Easton Lane SU49543039, plant found in gutter near Winnall roundabout, Anna Stewart 16 Apr 2020.

***Leycesteria formosa* (Himalayan Honeysuckle)** Beech SU68583831, beside footpath, Tony Mundell 3 Nov 2019.

***Lithospermum officinale* (Common Gromwell)** Ashford, East SU740268, several plants in short scrub, Steve Povey 23 May 2020.

***Lysichiton americanus* (American Skunk-cabbage)** Tankerdale Lane SU7625, now spreading in some quantity alongside the Rother at and around SU7625 (Private land), Steve Povey 9 Apr 2020.

***Medicago polymorpha* (Toothed Medick)** Worldham Park Golf Course SU73133856, a few patches on a gentle grass slope beside the main track leading to the front of the Clubhouse from the golf course, Helen Boyce 2 May 2020.

***Melampodium montanum* (Blackfoot)** Blackwater SU85145980, single bushy plant in flower as a pavement weed in front of a parade of shops. No obvious window box or other seed source nearby, Tony Mundell 27 Nov 2019, specimen determined by Eric Clement.

***Misopates orontium* (Weasel's-snout)** Abbotts Barton, Park Road Allotments SU48033106, occasional weed amongst allotment vegetables (chalky soils), Jonathan Spencer 11 Mar 2020. Winchester, Edington Road allotments SU48293051, most weeded-off at leaf stage, Carolyn Doorbar 30 May 2020.

***Montia fontana* (Blinks)** Headley Gravel Pit SU511627, in the area of very sparse vegetation where Small Cudweed also occurs, Graham Dennis 24 Apr 2020.

***Montia fontana* subsp. *chondrosperma* (Blinks)** Binswood SU766374, several plants in the middle of a boggy track, Cathy Wilson 26 Apr 2020.

***Narcissus pseudonarcissus* (Daffodil)** West Worldham SU737367, 500 + plants in flower in Little Wood Copse, Steve Povey & Sheryl Pape 5 Mar 2020. Mill Lane, Hawkley SU74893074, on steep valley side, Hugo Egleston Apr 2020. Tweseldown Racecourse SU82995222, a flowering patch about a metre across, 65-70m south from the NE corner of the racetrack, on the inside edge of the track, somewhat hidden under a hedge, Sarah Smith 5 Apr 2020. Photos confirmed as the wild subspecies by Tony Mundell, but probably originally planted here.

***Neottia nidus-avis* (Bird's-nest Orchid)** N of Crawley SU42023590, woodland NE of Hacks Lane, locally frequent beneath larger beech trees c.3m from fence, three new plants noted plus c.15 old

stems, Tristan Norton 30 Apr 2020. Woodland NE of Hacks Lane SU42313601, one new plant plus numerous old stems noted, Tristan Norton 4 May 2020. N of Crawley SU42633620, 6 plants, two later destroyed by scrambler motorbikes, also a single tiny plant at SU42353614, c.5cm tall with well-developed inflorescence buds, also three spikes at SU42553618, Tristan Norton 15 May 2020.

***Nigella damascena* (Love-in-a-mist)** Stoney Lane, Weeke SU466307, spreading out from Methodist Church garden, Dave Pearson 18 May 2020.

***Nonea lutea* (Yellow Nonea)** Sheet SU75432467, on waste ground near the road outside what looks like a locked-up farm/cattery, Duncan Wright 15 Apr 2020, photos identified by Tony Mundell.



**Yellow Nonea *Nonea lutea*, Sheet, April 2020
(Duncan Wright)**

***Onobrychis viciifolia* (Sainfoin)** S of Brockley Warren SU42143661, at least 10 clumps within grassy verge to E of footpath, Tristan Norton 15 May 2020.

***Ophioglossum vulgatum* (Adder's-tongue)** Kingsclere SU53145929, hundreds in damp meadow, both sides of footpath by stile into Moor Copse, Sarah Ball 24 Apr 2020. Chilbolton Cow Common SSSI, 50+ plants noted within small area at SU38624013,



Adder's-tongue *Ophioglossum vulgatum*, Jacks Meadow (Andrew Leonard)

plus well over 100 plants noted in small area adjacent informal path alongside river at SU38934003, Tristan Norton 15 May 2020. Ashford, Jack's Meadow, lots of plants in an area 5m x 1m at SU74362688, also very few plants at SU74332692, I could not re-find them when I visited again only four days later, Andrew Leonard 21 May 2020. Roundhills Hanger SU73452808, locally plentiful on both sides of path, very small plants, Andrew Leonard 25 May 2020. Noar Hill SU74423188, SU74123188, SU74343190 & SU74383188, Andrew Leonard 25 May 2020. Chilbolton Cow Common SSSI SU38714012, dozens noted, locally frequent in shorter grassland adjacent to informal footpaths, both sides, Tristan Norton 2 Jun 2020.

***Ophrys apifera* (Bee Orchid)** Crawley SU43063466, 2 rosettes noted, look likely to flower this year, have arranged for no-mowing, Tristan Norton 7 Apr 2020. Basing Lime Pit SU65685228, David Jewsbury 31 May 2020. Tweseldown SU831521, two plants with frost-damaged leaves, Sarah Smith 6 Jun 2020.

***Ophrys apifera* var. *apifera* (Bee Orchid)** Winchester, 10 in flower outside Tesco car park at SU49517 30356, Nigel Johnson 29 May 2020.

***Ophrys apifera* var. *belgarum* (Bee Orchid)** Winchester, nine in flower outside Tesco car park at SU49517 30356 plus many buds to come, Nigel Johnson 29 May 2020. Winnal Tesco SU49523036, south of main Tesco entrance sign, 22 flowering spikes, all belgarum type, largest group from 2019 dug up (first noted April 2020) Tristan Norton 4 Jun 2020. Percy Hobbs roundabout SU51952934, west side of roundabout, 4 plants noted at base of small shrub. 3 are obvious belgarum, 1 normal apifera, Tristan Norton 4 Jun 2020.

***Ophrys insectifera* (Fly Orchid)** Noar Hill, one flowering at SU74265 31828, three in flower at SU74264 31832, Nigel Johnson 26 May 2020. Noar Hill, two in bud at SU74262 31830, Nigel Johnson 29 May 2020.

***Orchis mascula* (Early-purple Orchid)** Priory Farm SU750346, many hundreds of plants scattered near stream in old coppiced woodland, Steve Povey 16 Apr 2020. SE of Wyck SU7638, Cathy Wilson 20 Apr 2020. Hartley Mauditt SU7436, Cathy Wilson 7 May 2020. Percy Hobbs roundabout SU51922940, Tristan Norton 18 May 2020. Noar Hill SU73913193, approx 10 flowering plants, several in mint condition, Tristan Norton 18 May 2020.

***Ornithogalum umbellatum* sens. lat. (Star-of-Bethlehem)** Hacks Lane, Crawley SU422356, c.15 clumps along c.25m length, Tristan Norton 27 Apr 2020. Itchen Stoke Down SU547348, Bruce Graham 10 May 2020.

***Ornithopus perpusillus* (Bird's-foot)** Tweseldown Racecourse SU82391522, Sarah Smith 7 May 2020.

***Orobancha elatior* (Knapweed Broomrape)** Itchen Stoke Down SU555343, growing next to Greater Knapweed, Dave Pearson 23 May 2020. Quarley Parish SU252419, road verge fairly recently mown, Catherine McGuire 31 May 2020. Litchfield Estate SU46495360, nice examples shown to me by the landowner, Fred Rumsey 3 Jun 2020. Chapel Lane, Easton SU514302, 3 spikes noted, Tristan Norton 4 Jun 2020.

***Orobancha minor* var. *flava* (Common Broomrape)** Litchfield Estate SU477551, many spikes of the yellow form mixed with the normal purple form scattered over 6 acres of private land (no public access) being reverted to chalk downland. This was arable land taken out of cultivation about 15 years ago, Christopher Wills 28 May 2020. Litchfield Estate, shown to me by the landowner, certainly hundreds of plants of var. *flava* amongst a huge population of *O. minor* var. *minor* that was very variable in colour. Some main concentrations at SU4756 5509, SU4753 5508, SU4768 5519 and SU4779 5522 etc, Fred Rumsey 3 Jun 2020.

***Papaver atlanticum* (Atlas Poppy)** Abbots Ann SU3243, scattered at foot of walls in Duck Street, John Moon 19 May 2020.

***Papaver cambricum* (Welsh Poppy)** Carlton Crescent, Church Crookham SU817528, flowering plant in pavement crack, Sarah Smith 7 May 2020. South Hay SU77533987, several plants beside the road, Cathy Wilson 19 May 2020. East Worldham SU74893810,



Yellow form of Common Broomrape *Orobancha minor* var. *flava*, Litchfield Estate, May 2020 (Christopher Wills)

several plants at junction of footpath and lane, Cathy Wilson 23 May 2020.

***Papaver dubium* (Long-headed Poppy)** Cuckoo's Corner SU74474116, several plants on west side of Haw Bridge, Cathy Wilson 17 May 2020.

***Paris quadrifolia* (Herb-paris)** SW of Binsted SU7640, Cathy Wilson 6 Apr 2020. Priory Farm SU750346, several small groups of plants in old coppiced woodland, Steve Povey 16 Apr 2020. Selborne Common SU731333, many colonies beneath beech on north side of Selborne Common, some comprising several thousand plants. Wadgetts Copse SU67714120, west of footpath above first side path, dominating small areas, Hugo Egleston Apr 2020.

***Pedicularis sylvatica* (Lousewort)** Brock's Hill Heath SU828524, seven small plants in flower where the ground is trodden by cattle, Sarah Smith 14 Apr 2020. Tweseldown SU826524, Sarah Smith 27 Apr 2020. Velmead Common SU826533, Sarah Smith 8 May 2020.

***Pedicularis sylvatica* subsp. *sylvatica* (Lousewort)** N of Candovers, hundreds of plants in open area centred on SU75993684, includes at least 3 white flowered forms, Cathy Wilson 6 May 2020. Binswood SU76543739, many plants each side of footpath NE of overhead high voltage lines, Cathy Wilson 6 May 2020.

***Petasites pyrenaicus* (Winter Heliotrope)** Beech SU68623831, on road verge, Tony Mundell 3 Nov 2020.

***Phelipanche purpurea* (Yarrow Broomrape)** On roadside verge of A31 Alton By-pass, June Chatfield 14 Jul 2019, photos determined by Fred Rumsey and the grid reference deduced from the unique road markings in a habitat photo. The exact grid reference needs checking next year. Sadly June returned two days later to find the verge mown.

***Pilosella aurantiaca* (Fox-and-cubs)** Beech SU69003846, on roadside verge outside a house, Tony Mundell 3 Nov 2020. Winchester, Fairdown Close SU49302937, in grassy verge, Anna Stewart 25 Nov 2019.

***Pinus radiata* (Monterey Pine)** S of Binsted SU77334083, line of 12-14 trees along field boundary running NW from footpath, Cathy Wilson 5 Jun 2020.

***Platanthera chlorantha* (Greater Butterfly-orchid)** Ashford, East SU742269, 15 plants in Jack's Meadow below Ashford Hanger, also around 15 flowering plants in clearing at SU74062681, Steve Povey 23 May 2020. Happensnapper Field SU734280, many flowering, Hugo Egleston 23 May 2020.

***Poa humilis* (Spreading Meadow-grass)** Church Crookham SU81235195, grassy verge of The Verne, Tony Mundell 20 May 2020.

***Polygonum tetraphyllum* (Four-leaved Allseed)** Aldershot, Pavilion Road SU85165040, still coming up at various points in Pavilion Road between the kerb stones, Fred Rumsey 28 May 2020.

***Polygala calcarea* (Chalk Milkwort)** Gander Down SU56002742, three small flowering plants, Fred & Sue Rumsey 28 May 2020. Ladle Hill SU47675695, the first plant was found at this spot but other plants also seen in other places across much of the earthwork, Fred & Sue Rumsey 6 Jun 2020.

***Polygala serpyllifolia* (Heath Milkwort)** Tweseldown Hill SU825519, on bare ground north and east of the racecourse tower, on sand below the summit gravel, Sarah Smith 27 Apr 2020. Brocks Heath SU828524, Sarah Smith 8 May 2020.

***Polygonatum multiflorum* (Solomon's-seal)** Beech SU69003858, beside footpath, Tony Mundell 3 Nov 2020. Worthy Grove SU455350, locally abundant throughout entire woodland, Tristan Norton 14 Apr 2020.

***Polypodium x shivasiae* (P. cambricum x interjectum)** Winchester, Alresford Road SU49122943, Anna Stewart & Jonathan Sleath 25 Feb 2020, specimen to be deposited in Hb. ARGM at Winchester. Determined by Rob Cooke in April 2020.

***Polypogon viridis* (Water Bent)** Church Crookham SU80355233, Coxheath Road verge, Tony Mundell 14 May 2020.

***Polystichum aculeatum* (Hard Shield-fern)** Upton SU362558, track verge, Peter Billingham 21 Dec 2020. N of Steep SU7326, several plants on shady bank in Lutcombe Bottom, Steve Povey 20 May 2020.

***Polystichum setiferum* (Soft Shield-fern)** Sheet SU75422414, Duncan Wright 4 Apr 2020, photos confirmed Tony Mundell. E of Wyck SU7639, Cathy Wilson 18 May 2020. Church Crookham SU81395149, Soanes Copse, Tony Mundell 20 May 2020. Binswood SU7637, Cathy Wilson 31 May 2020.

***Potentilla indica* (Yellow-flowered Strawberry)** East Worldham SU74703819, several plants between lane and ditch, Cathy Wilson 27 May 2020.

***Poterium sanguisorba* subsp. *balearicum* (Fodder Burnet)** Church Crookham SU81245169, beside pond adjacent to Jubilee Drive, Tony Mundell 23 May 2020.

***Primula veris* (Cowslip)** St Giles Hill Graveyard SU49112942, orange variety, possibly 'Sunset Glow', Anna Stewart 12 Apr 2020.

***Prunus domestica* (Wild Plum)** Church Crookham SU81065173, in hedgerow between the playing field and the Memorial Village Hall, Tony Mundell 23 May 2020. East Worldham SU74803808, beside pavement, Cathy Wilson 27 May 2020.

***Prunus padus* (Bird Cherry)** Middleton Farm, a multi-stemmed tree 15m high on edge of disused railway embankment at SU41404422 plus a 15m high multi-stemmed tree in old hedgerow/tree line at SU41784423, John Moon 24 Apr 2020.

***Pulmonaria officinalis* (Lungwort)** Selborne Common SU734321, several plants beside entrance to field, Steve Povey 6 Mar 2020. Stoke, Doiley Bottom SU404532, track verge, Peter Billingham 22 Mar 2020.

***Ranunculus auricomus* (Goldilocks Buttercup)** Worthy Grove SU455350, occasional clumps close to main tracks, Tristan Norton 14 Apr 2020. Neatham SU7440, Cathy Wilson 25 Apr 2020. Hacks Lane, Crawley SU42493486, one plant noted, Tristan Norton 26 Apr 2020. SE of East Worldham SU7537, Cathy Wilson 8 May 2020.

***Ranunculus flammula* (Lesser Spearwort)** Binswood SU7637, Cathy Wilson 20 May 2020.

***Ranunculus hederaceus* (Ivy-leaved Crowfoot)** Bramshill Plantation SU74796195, quite a large flowering patch in a drainage ditch in shallow standing water, Fred & Sue Rumsey 3 May 2020.

***Ranunculus peltatus* (Pond Water-crowfoot)** Ponds at Bartley Heath SU730534, Peter Vaughan 6 May 2020. Church Crookham SU81405144, pond beside Soanes Copse, Tony Mundell 20 May 2020.

***Rorippa sylvestris* (Creeping Yellow-cress)** SE of Wyck SU76663897, many plants on and around farm track, Cathy Wilson 16 May 2020.



Pond Water-crowfoot *Ranunculus peltatus*, Bartley Heath, May 2020, showing pyriform nectar pits (Peter Vaughan)

***Rubus laciniatus* (Cut-leaved Blackberry)** Yateley Country Park SU813593, observed in scrub along edge of disused runway, Jean Cheadle 15 May 2020.

***Ruscus aculeatus* (Butcher's-broom)** Wheatham SU741273, several large plants beside track, Steve Povey 23 May 2020.

***Salix repens* (Creeping Willow)** Church Crookham, Basingbourne Park SU80755236, a single, unusually tall bush c.1m high at SU80758 52362. With hairy stems and leaves so possibly var. *argentea*, Tony Mundell 14 May 2020. Basingbourne Heath, very locally plentiful. The main patch covering c.3m x 2m is at SU80820 52611 but plants of it extend for 17m from SU80819 52606 to SU80819 52623, Tony Mundell 2 Jun 2020.

***Salvia pratensis* (Meadow Clary)** Cholderton Estate, Reservoir Field, Thrupton Hill, clumps of plants at SU24563 43743, SU24523 43841, SU24450 43843 - the last leaves only, John Moon 27 May 2020.

***Saxifraga granulata* (Meadow Saxifrage)** Longparish SU435449, two small patches on road verge NW of Longparish House, John Moon 24 Apr 2020. St Leonards Churchyard, David Jewsbury 25 Apr 2020. St Marys Church, Crawley SU42423483, discrete patch of c.50 flowering stems in lawn to RHS of path nr. Entrance, Tristan Norton 26 Apr 2020. Chilbolton, West Down SU38363898 in SW corner and SU386393 on north slope, Glynnne Evans 8 May 2020. Chilbolton Churchyard, large patch 7m x 5m amongst gravestones at SU39444022, patch 8m x 7m at SU39514020 and several small patches in SW corner of graveyard at SU39434019. Also one



Meadow Saxifrage *Saxifraga granulata* en masse, Chilbolton Churchyard, May 2020 (Glynnne Evans)

patch of a non-native Saxifrage possibly spreading from one grave, Glynne Evans 15 May 2020. Harewood Forest, Park Farm clearing SU397427, Glynne Evans 24 May 2020.

Schoenoplectus tabernaemontani (Grey Club-rush) Church Crookham SU81235167, in pond adjacent to Jubilee Drive. Probably originally planted as it is a variegated form with stems striped yellow and green, Tony Mundell 23 May 2020.

Scilla bifolia (Alpine Squill) Winchester, Northbrook Ave SU49042925, under Lime tree on grass verge, planted some time ago, Anna Stewart 7 Mar 2020.

Scilla forbesii (Glory-of-the-snow) Winchester, St Giles Hill SU49262927, Anna Stewart 7 Apr 2020.

Scilla luciliae (Boissier's Glory-of-the-snow) Winchester, Fairdown Close SU49302937, in grass verge, single plant, Anna Stewart 9 Mar 2020.

Scilla messeniaca (Greek Squill) Winchester, St Giles Hill graveyard SU49122942, 11 plants, 7 flowering, near Blakiston gravestone, Anna Stewart 22 Mar 2020.

Scilla sardensis (Lesser Glory-of-the-snow) Winchester, St Giles Hill SU49102926, in grass verge, Anna Stewart 31 Mar 2020.

Scutellaria galericulata (Skullcap) Tweseldown SU834515, bottom of a ditch, now dry, Sarah Smith 6 Jun 2020.

Senecio squalidus (Oxford Ragwort) Winchester, train station car park SU47773007, 5+ plants in car park surrounds, Anna Stewart 9 Mar 2020.

Silene flos-cuculi (Ragged-Robin) Southwood Woodland SU843549, Steve Bailey 21 May 2020. Church Crookham SU81235173, beside pond adjacent to Jubilee Drive, Tony Mundell 23 May 2020. Binswood SU76713748, 6 plants, Cathy Wilson 31 May 2020. Old Down SU596488, David Jewsbury 1 Jun 2020. S of Binsted SU7754 4039, several plants beside stream, Cathy Wilson 5 Jun 2020.

Smyrniolus olusatrum (Alexanders) Easton SU513321, unusual away from the coast, Dave Pearson 11 May 2020.

Sorbus intermedia (Swedish Whitebeam) Church Crookham SU81675127, track beside Wood Copse, Tony Mundell 20 May 2020. Tweseldown SU822523, only one, about 2m tall, Sarah Smith 6 Jun 2020.

Symphoricarpos x chenaultii (Pink Snowberry) Hurstbourne Tarrant SU387539, spread from garden of parsonage Farm onto verge of road to Netherton, Peter Billingham 23 Nov 2019.

Symphytum orientale (White Comfrey) Itchen Stoke Down SU535337, Dave Pearson 28 Mar 2020. Main Road, Littleton SU453328, Dave Pearson 28 Apr 2020.

Tellima grandiflora (Fringecups) East Worldham SU74603826, one plant between lane and ditch, Cathy Wilson 13 May 2020. Church Crookham SU80515275, damp area beside path, Tony Mundell 16 May 2020. Basingstoke Canal, Church Crookham SU80375269, path on non-towpath side, Tony Mundell 16 May 2020.

Tepfroseris integrifolia (Field Fleawort) Gander Down, only one small, rather battered plant at SU5600727427, Fred & Sue Rumsey 28 May 2020. Ladle Hill, one very sorry-looking small flowering plant suffering from the drought at SU4789756753, Fred & Sue Rumsey 6 Jun 2020.

Teucrium botrys (Cut-leaved Germander) Old Burghclere lime quarry SU471572, one large plant, two seedlings, Graham Dennis 24 May 2020.

Tilia cordata (Small-leaved Lime) Weston Patrick SU699466, around half a dozen trees on either side of footpath, Hugo Egleston 20 Apr 2020. Weston Common, one tree beside footpath at SU69434392 and two stools about 4ft across plus one small tree at SU69324392, Hugo Egleston 20 Apr 2020. Cannon Wood, Preston Candover SU63144391, about 20 trees of various ages. They do not look planted as some are close together or close to other bigger trees, Hugo Egleston 7 May 2020.

Tolmiea menziesii (Pick-a-back-plant) Church Crookham 16 May 2020, several flowering patches in damp area by path beside stream, Tony Mundell 16 May 2020.

Tragopogon porrifolius subsp. australis (Salsify) Abbots Ann SU3243, scattered at foot of walls in Duck Street. Ligules 3/4 length of phyllaries, achenes taper gradually into beak, John Moon 19 May 2020.

Ulex minor (Dwarf Gorse) Eelmoor Marsh SU83745309, single plant on restored heath north of Laffan Track, Tony Mundell 4 Dec 2019.

Ulmus x hollandica (Dutch Elm (U. glabra x minor x plotii)) Happersnapper Field SU734280, at the top by the footpath just outside the public area, with quite small leaves, Hugo Egleston 23 May 2020, identified by Owen Johnson from the Tree Register.

Umbilicus rupestris (Navelwort) Aldershot, Pavilion Road, still hanging on at SU85215044 and now a few plants at base of wall at SU85235043, Fred Rumsey 28 May 2020.

Vaccinium myrtillus (Bilberry) Church Crookham SU81505158, Soanes Copse, Tony Mundell 20 May 2020.

Valerianella carinata (Keeled-fruited Cornsalad) Harestock, Priors Dean Road SU467318, Dave Pearson 13 Apr 2020. Crawley Down SU443359, Tristan Norton 26 Apr 2020, fruits checked on 3 May 2020. Church Crookham SU81245191, grassy area of The Verne, only a few plants, Tony Mundell 20 May 2020.

Veronica scutellata var. scutellata (Marsh Speedwell) Binswood SU7637, many plants, widespread in wetter areas of Binswood, Cathy Wilson 20 May 2020.

Vinca difformis (Intermediate Periwinkle) Kingsley SU78773905, two large roadside patches, Tony Mundell 3 Jan 2020.

Vinca major var. oxyloba (Greater Periwinkle) Chilland SU523326, Dave Pearson 19 Mar 2020.

Viola hirta (Hairy Violet) Magdalen Hill Down SU499292, Anna Stewart 1 Dec 2019. Noar Hill SU739319, many plants in short turf, Steve Povey 22 Mar 2020. Heath House Estate SU397352, occasional clumps within grassland, Tristan Norton 6 Apr 2020. Hacks Lane, Crawley SU421357, locally frequent in places, Tristan Norton 14 Apr 2020. Footpath S of Brockley Warren SSSI, occasional within calcareous turf beside footpath at SU42143661 and within grassy banks to W of farm gate at SU42113663, Tristan Norton 14 Apr 2020.

Viola odorata var. imberbis (Sweet Violet) Ashford SU743267, many plants on either side of path to Jack's Meadow, Steve Povey 17 Mar 2020. Noar Hill SU738319, several plants by entrance to Noar Hill Nature Reserve, Steve Povey 22 Mar 2020. Crawley SU42593620, large patch, also large swathes at SU420360 along whole stretch N of footpath, Tristan Norton 14 Apr 2020.

Viola odorata var. praecox (Sweet Violet) Ibthorpe, verge of Windmill Lane at SU37515366, Peter Billingham 27 Feb 2020.

Viola reichenbachiana (Early Dog-violet) Crawley Down SU441367, occasional plants, Tristan Norton 6 Mar 2020. Moundsmere SU627428, frequent along both banks, Tristan Norton 9 Mar 2020. Hurstbourne Tarrant SU386542, on track verge, Peter Billingham 24 Mar 2020. Winchester, Palm Hall Close SU48992941, white flowered variety, photo, purple spur, purple branched / unbranched veins, pointed sepals, Anna Stewart 5 Apr 2020, determined by Mike Porter.

Viola riviniana (Common Dog-violet) Winchester, St Giles Hill SU49032918, white flowered variety, photo, notched spur, branching veins on lip, pointed sepals, Anna Stewart 12 Apr 2020.

Viscum album (Mistletoe) Shirlen's Copse (west side), Hook SU7154, Peter Vaughan 11 Dec 2019. SW of Binsted SU76154001, growing on Populus x canadensis, Cathy Wilson 19 May 2020.

X Schedolium holmbergii (Lolium perenne x Schedonorus arundinaceus) Matterley Estate SU52802791, an abundance of strong plants, one parent missing, possibly sown, Anna Stewart 29 Apr 2020.

The Hampshire and Isle of Wight Wildlife Trust Flora Group aims to monitor status and promote conservation of the flora of the two counties and develop skills of those members interested in flora.

This edition of *Flora News* was put together by Catherine Chatters and John Norton. Many thanks to everyone who contributed. If you have any comments or would like to submit articles or photographs for inclusion in a future issue please contact:

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When submitting digital photographs, please reduce the size of each image to no larger than 3MB and please include your own name in the filename, along with description of subject and date taken for inclusion in the caption. Please include English and scientific names of any plants.

If you would like to send in your plant records, please see the Hants Plants website:

<http://www.hantsplants.org.uk> for information, including downloadable forms, or contact your relevant Vice-county Recorder:

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Pampas-grass *Cortaderia selloana*, Inchmery, 2018 (Martin Rand) (see horizon scanning for aliens article, p. 22)

If you would like to join Hampshire & Isle of Wight Wildlife Trust and become a member of the Flora Group, please visit our website for further details: www.hiwwt.org.uk. Visit us on Facebook under *Hampshire Flora Group*.

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