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Dear Flora Group member

The Flora Group committee hope that you and your family are keeping safe and well during the COVID-19 pandemic. We will ensure that future field meetings and other events are held in accordance with relevant guidance aimed at minimising the risk of transmitting the virus. Thank you for your patience while we continue to adapt to the challenges of the situation.

Following the success of Martin Rand's online workshops, Martin has arranged an online training session during February 2022 to help with the recognition of evergreen broadleaf trees and shrubs; this will be complemented by a field meeting in March. On 13 August 2022, Martin will host the last of his series of four online workshops titled 'Learning Plant Families'. This final workshop (postponed from September 2021) will look at the Daisy family (Asteraceae), the Knotweed family (Polygonaceae) and the Goosefoot family (Amaranthaceae).

Wessex Rivers Trust would welcome help from Flora Group members during June 2022 to record invasive non-native species in the Test and Itchen catchments, during the weed-cutting weeks when anglers are absent, so this is an opportunity to visit some areas which are rarely seen. For further information please see pages 6, 7 and 8.

The Flora Group Committee has planned a varied programme of field meetings for 2022 including some early season botanising on Portsdown Hill, a visit to the Beaulieu Estate in the New Forest, a chance to record plants in the varied habitats of Itchen Valley Country Park and opportunities for people to enhance their identification skills during visits to St Mark's Meadow at Hatch Warren near Basingstoke and Southwood Country Park near Farnborough. Phil Collier has kindly arranged an event in the New Forest during February 2022 when he will be focusing on identification of conifers. We are grateful to Anna Stewart for organising botanical surveys of Magdalen Hill Down nature reserve; these will be opportunities to learn about relationships between plants and butterflies, with an emphasis on the identification of butterfly larval food plants. Anna has also kindly arranged a summer visit to the grounds of Winchester College where we will survey a variety of different habitats, at the invitation of the College. Thanks to Tristan Norton for arranging a visit to the Chilbolton Down Farm Estate during early July. This will be a chance to explore a range of habitats on the chalk, including some arable field margins which should produce some interesting plants. Martin Rand hopes to lead two sessions at Hatchet Pond to survey aquatic and wetland plants; however, these events are dependent on receiving formal permissions from Forestry England so may have to be postponed or cancelled.

Please note that **all** the Flora Group field events in this edition of *Flora News* will be dependent on relevant Government guidance and advice from HIWWT regarding the pandemic and that booking is essential.

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 (subject, of course, to relevant guidance aimed at minimising the risk of transmitting COVID-19). 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 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 pleased to include notes/articles by Tristan Norton, Margaret Wonham and Isobel Girvan in this edition of *Flora News* as well as features by our regular contributors. As always, we would like to encourage more people to provide contributions to Flora News on relevant botanical topics. If you have enjoyed any 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, January 2022

Cover photo: Crab Apple *Malus sylvestris* on the open heath of the New Forest. Clive Chatters (see p. 16)

Forthcoming Online Events

Saturday 12 February 2022, 2 pm–4 pm

Leathery Leaves part 1b: an online workshop on recognising evergreen broadleaved trees and shrubs

Leader: Martin Rand

This is a continuation of the online workshop run during the 2021/2022 winter, which has now been split into two sessions. It is open only to those who have already participated in the first session, but if you are interested in the background workshop document which includes keys for many garden escapes and out-of-garden plantings, you can find it on Hants Plants at <https://hantsplants.uk/assets/documents/guides/Leathery%20Leaves%20workshop%20notes.pdf>.

Saturday 13 August 2022, 10 am–12.30 pm, 2 pm–4 pm

Online Workshop: Learning Plant Families, Part 4

Leader: Martin Rand

This workshop is the one postponed from September 2021; it is the fourth of a series of four. It examines plant families looking at where they fit into the pattern of plant evolution and what this means when trying to place them into broader groupings as a first stage in identification. It then covers broad family traits and exceptions.

The session will look at the large type family of the Asterids, the Daisy family (Asteraceae). It will also cover two of the other 'core Eudicot' families that diverged from the Asterid lineage either before or within the Asterid time-span – the Knotweed family (Polygonaceae) and the Goosefoot family (Amaranthaceae).

There is a fee of £7 per session for participants; numbers will be limited, and advance registration (via Martin Rand) is essential (see back page for Martin's contact details). You will be sent a link to the workshop once you have successfully registered, near the time.

You will be invited to collect some material to examine at home, and tips on what to collect will be provided. It will obviously be an advantage if you attended the earlier sessions, but you are welcome in any case.

There are notes for the earlier session modules on the Hants Plants website (<https://hantsplants.uk/workshopnotes.php>), then look under 'General techniques and tools'.

Forthcoming Field 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. You must pre-register with the leader and provide contact details in case of late cancellation.

Bring a packed lunch, plenty to drink and suitable footwear to all field meetings. Bring waterproofs if it is likely to be wet.

Flora Group events in North and East Hampshire

The committee members have considered the findings of the Flora Group survey, the results of which were summarised in the previous edition of *Flora News* (No 61, October 2021). As reported in that newsletter, Flora Group members have requested more field meetings in North and East Hampshire and although Tony Mundell is very keen for this to happen, he would need someone else to help organise and lead additional meetings. If you would like to volunteer, or you wish to find out about what is involved in organising a field meeting, please contact Tony directly (his contact details are on the last page of this newsletter).

Catherine Chatters

Saturday 26 February 2022. Start 10 am and finish lunchtime, or stay after lunch and finish by 3 pm
Conifers of the New Forest: Blackwater Arboretum
Leader: Phil Collier

This meeting is contingent on any restrictions and advice concerning the COVID-19 situation at the time. If you want to attend, you must pre-register with Phil and provide contact details in case of late cancellation.

Come and join a discussion about how to identify some of the conifers that are planted and naturalised in the New Forest. Blackwater Arboretum will provide us with a good variety of labelled species to examine in the morning. After lunch, those people who are interested can join a walk through the nearby Tall Trees, which is a collection of spectacular mature trees plus some examples of naturalised conifers. We will be on formed or earthen tracks, occasionally venturing into open woodland. Mostly level throughout. Martin Rand has provided excellent notes on British conifers at <https://hantsplants.uk/assets/documents/guides/Conifer%20Workshop%20notes.pdf>, and these are highly recommended. Discussion on the day will centre around field characters; we will not attempt any keying or paper-based study.

Contact: Phil Collier by email phil.a.collier@outlook.com or, if unable to email, then phone 07484 702706. Please provide an email address (ideally) and phone number, to be used only to keep in touch about the arrangements for this trip. As a guide: the trip will be cancelled if there is a weather warning or curtailed if the weather is uncomfortable. Numbers may be limited to around 12 people to keep the discussion manageable. Full directions about where to park/meet will be provided once you have booked. You should plan to bring all food, etc. with you as there is no shop nearby.

Saturday 19 March 2022, 10 am–12 pm / 2 pm–4 pm
Leathery Leaves part 2: a field meeting on recognising evergreen broadleaved trees and shrubs, Suburban Chandler's Ford, Eastleigh
Leader: Martin Rand

This field meeting is open only to those who have participated in the online workshop sessions run during the 2021/2022 winter, but if you are interested in the background workshop document which includes keys for many garden escapes and out-of-garden plantings, you can find it on Hants Plants at <https://hantsplants.uk/assets/documents/guides/Leathery%20Leaves%20workshop%20notes.pdf>. The afternoon session is a repeat of the morning one, so that we don't overcrowd the pavements of Chandler's Ford.

Sunday 10 April 2022, 10.30 am–4 pm
Early season botanising, Portsdown Hill, north of Portsmouth
Leaders: John Norton & Martin Rand

This meeting is contingent on any restrictions and advice concerning the COVID-19 situation at the time. If you want to attend, you must pre-register with John and provide contact details in case of late cancellation.

We will only have time to visit a small portion of this Portsmouth City Council site, which is notified as a Site of Special Scientific Interest (SSSI) mainly for its chalk grassland, but there is also a good deal of scrub, some rough grassland and disturbed areas resulting from recent scrub clearance. It will be interesting to find out what species are actually in flower on the chalk grassland at this time of year, which is usually at its best in late July and August. We should certainly see Early Dog-violet *Viola reichenbachiana* and Hairy Violet *V. hirta* in flower and possibly also Sweet Violet *V. odorata*. A rare soil-dwelling fungus visible at this time of year is *Scutellinia barlae*. The disturbed areas should have a reasonable mixture of ruderals and arable weeds coming into flower and hopefully we can add a few species to the list for the site.

Arrangements: We will take lunch back at the cars around 1 pm, so people can leave then if they wish or can join for the afternoon only (please arrive by 1.30 pm). Booking is essential and numbers will be limited. Please email John Norton (details below) to book, or phone if you are not on email. We will be walking down and up a steep slope so this will be suitable only for the fit and able, though the before-lunch route will be relatively short (<1.5 km). Therefore please wear stout shoes or walking boots.

Level: Suitable for all levels of experience. We shouldn't be looking at too many grasses and sedges at this time of year but may resort to vegetative ID of the herbs and shrubs if there is not too much in flower.

Meet at: 10.30 at the car park on the east side of Fort Widley, next to the Churchillian public house, on Widley Walk SU 6600 0648, postcode PO6 3LS. There is also parking in the bays by the road. Beware, the turn into the lane opposite the Churchillian is quite tight. If anyone wishes to take public transport there may be the possibility of arranging a pick-up from Cosham railway station or the north entrance of QA Hospital.

Contact: John Norton, john@jnecology.uk; tel. 07982 257746.

Saturday 30 April 2022, 10 am–4 pm
Visit to Beaulieu Estate, New Forest
Leader: Martin Rand

This meeting is contingent on any restrictions and advice concerning the COVID-19 situation at the time. If you want to attend, you must pre-register with Martin and provide contact details in case of late cancellation.

This is a meeting to look at the spring flora of mixed woodland, wetland and rough grassland on parts of the Beaulieu Estate near the Solent which are not accessible to the public. Woodlands on the southern fringes of the Forest can be very diverse, and although it's not possible to say exactly what we shall find, we can expect several Water-crowfoots, Narrow-leaved Lungwort, Wild Service-tree and Southern Woodrush to make an appearance. The meeting is suitable for anyone from beginners to experts, and we shall make a record of what we find and make that available to the estate and the local Natural England officer. I hope that we shall be able to follow up with a second visit to the area later in the season in 2023, when the wetland and rough grassland will be of greater interest. The going may be rough and wet in places.

Arrangements: Numbers will be limited to 16, and pre-booking is essential. Full directions will be provided once you have booked.

Contact: Martin Rand (details on back page).

Saturday 14 May 2022, 10 am–4 pm
Visit to Itchen Valley Local Nature Reserve, Eastleigh
Leader: Martin Rand

This meeting is contingent on any restrictions and advice concerning the COVID-19 situation at the time. If you want to attend, you must pre-register with Martin and provide contact details in case of late cancellation.

This is the first of two meetings at the Itchen Valley Nature Reserve to enjoy and record the plant life in a rich area of water-meadows, marshes, ditches and thickets between the River Itchen and the Itchen Navigation. All levels of botanical knowledge and expertise are welcome, and you don't need to commit to both visits.

Arrangements: Full directions and notes will be provided once you have booked, but if arriving by car expect to pay £5 parking fee.

Contact: Martin Rand (details on back page).

Saturday 21 May 2022, 10 am–4.30 pm
Hatchet Pond Survey, New Forest
Leader: Martin Rand

This meeting is contingent on any restrictions and advice concerning the COVID-19 situation at the time. If you want to attend, you must pre-register with Martin and provide contact details in case of late cancellation.

This is the first of two sessions aiming to repeat the survey of aquatic and wetland plants carried out in 2015 at this botanical New Forest hotspot. The survey is quite intensive, and we need at least 12 participants to make

this a success. Teams will comprise two or more people, so at least six of those people need to be botanists with a good knowledge of the New Forest flora, but you are still welcome if you are a beginner or from 'out of town' with a good eye for plants, and you will be paired up with a local expert. If you are one of those experts, it will be helpful (but not essential) if you can commit to both this session and the session on 3 September 2022.

Arrangements: Full directions and notes will be provided once you have booked.

Contact: Martin Rand (details on back page).

Please note: this meeting relies on receiving formal permissions from Forestry England which at present are taking a long time to be processed, and it may have to be postponed.

Monday 6 June-Friday 10 June 2022

Test/Itchen non-native invasive plant surveys: Itchen catchment

Contact: Martin Rand

This is a project being run by the Wessex Rivers Trust to record in detail the presence and extent of about a dozen non-native species along the waterways in these catchments. Martin also hopes to record the occurrence of a similar number of native species that appear to be in decline in the county. It is taking place during the weed cutting-out weeks when anglers are absent from the rivers and it will provide opportunities to visit some areas rarely seen.

Arrangements: Please contact Martin (details on back page) if you are interested in taking part: your commitment can be anything from a single day upwards. Fuller plans and details will be available in the spring from the project leader at Wessex Rivers Trust.

Saturday 11 June 2022, 10.30 am–12.30 pm

Visit to St Mark's Meadow, Hatch Warren, Basingstoke

Leader: Tony Mundell

This meeting is contingent on any restrictions and advice concerning the COVID-19 situation at the time. If you want to attend, you must pre-register with Tony and provide contact details in case of late cancellation.

Thanks to the work of the Hatch Warren Nature Group, led by Paul Beevers, an area owned by Basingstoke and Deane Borough Council has been turned over many years into an impressive meadow bursting with colourful native perennial plants, many of them uncommon species. This contrasts with the frequently seen patches of sown annual 'wildflowers' loved by councils, that do encourage pollinating insects but contain many non-native plants. Apart from a commercial mix of grass seed, all the seeds sown have been carefully collected from native sites and a few of them nurtured in cultivation prior to planting out as plugs.

This is an opportunity to see how colourful and botanically rich a meadow can be. Those wishing to enhance their identification skills will be shown many different species. With a couple of others, I surveyed the meadow in 2021 and we found about 130 species. Like any sown area, the flora will change with time as each species competes for space, but also depending on factors such as the management. The council has been persuaded to mow the area once a year around early September, with all arisings removed to keep the fertility down. After studying plants in the meadow, we should have time to visit some road verges nearby that have also been similarly sown, including a few additional uncommon species.

Meet at: 10.30 at the Hatch Warren Community Centre car park at SU 6061 4860, Lat./Long. 51.2334 –1.1333. We will walk from there to the meadow at SU 607 488. Note that this meeting is morning only.

P.S. Paul Beevers emailed me on 20 December 2021 to say that the council had failed to cut these sites as promised and he had 'no confidence as to whether, when, or even if, they will do so', so the floral display is unlikely to last in the long-term – see it while you can.

Contact: Tony Mundell (details on back page).

Monday 13 June–Friday 17 June 2022

Test/Itchen non-native invasive plant surveys: Test catchment

Contact: Martin Rand

This is a project being run by the Wessex Rivers Trust to record in detail the presence and extent of about a dozen non-native species along the waterways in these catchments. Martin also hopes to record the occurrence of a similar number of native species that appear to be in decline in the county. It is taking place during the weed cutting-out weeks when anglers are absent from the rivers and it will provide opportunities to visit some areas rarely seen.

Arrangements: Please contact Martin (details on back page) if you are interested in taking part: your commitment can be anything from a single day upwards. Fuller plans and details will be available in the spring from the project leader at Wessex Rivers Trust.

Saturday 18 June 2021, 10.30 am–3.30 pm

Visit to Magdalen Hill Down Reserve

Leaders: Anna Stewart and Tony Mundell

This meeting is contingent on any restrictions and advice concerning the COVID-19 situation at the time. If you want to attend, you must pre-register with Anna and provide contact details in case of late cancellation.



A display of orchids on Magdalen Hill Down. Andy Barker

Magdalen Hill Down, on a steep south-facing slope near Winchester is now one of Butterfly Conservation's premier reserves. Previously arable with steeper floristically rich slopes deteriorating to scrub, Butterfly Conservation has systematically restored the site to species rich chalk grassland. The original reserve was extended twice (mid-1995 and 2004) by taking on large neighbouring areas of arable land and these have been converted to grassland by sowing with grass and flower seed from other Hampshire sites. The timing of this visit should coincide with the first brood of emergent butterflies and earlier chalk grassland flowers including orchids on the scrape of the extension.

We will be surveying the reserve with the aim of producing an up-to-date record of plant species, especially in the newer areas. Attention will be paid to relationships between butterflies and plants, with emphasis on identification of butterfly larval food plants – Horseshoe Vetch, Kidney Vetch and Bird's-foot-trefoil.

Meet at: 10.30 am at the top of the entrance track at SU 5108 2919, where Andy Barker, Chair of Hampshire and Isle of Wight Butterfly Conservation and Fiona Scully, Reserves Manager, will welcome us. Andy has a long association with Magdalen Hill Down and will give us an overview of changes in the reserve's history. Fiona can let us know how current management of the reserve is progressing. Please bring a packed lunch. The original reserve is steep and can be slippery so care should be taken.

Arriving by car: The reserve lies between the A31 and B3404 just outside the eastern edge of Winchester. From the M3, travelling from the north, use exit 9; travelling from the south, use exit 10. A small gravel car park is beside Alresford Road, the B3404, at SU 5110 2943, SO21 1HE. After parking walk from here to the meeting place. Care should be taken when crossing the road. Additional parking can be found in the Cemetery which also has a toilet.

Public transport: The Number 64 Alton-Winchester bus stops by the Magdalen Hill cemetery gates.

Contact: Anna Stewart anna@stgileshill.com 07920 113131.

Monday 20 June-Thursday 23 June 2022

Test/Itchen non-native invasive plant surveys: Test catchment

Contact: Martin Rand

This is a project being run by the Wessex Rivers Trust to record in detail the presence and extent of about a dozen non-native species along the waterways in these catchments. Martin also hopes to record the occurrence of a similar number of native species that appear to be in decline in the county. It is taking place during the weed cutting-out weeks when anglers are absent from the rivers and it will provide opportunities to visit some areas rarely seen.

Arrangements: Please contact Martin (details on back page) if you are interested in taking part: your commitment can be anything from a single day upwards. Fuller plans and details will be available in the spring from the project leader at Wessex Rivers Trust.

Saturday 25 June 2022, 10.30 am–4 pm

Visit to Southwood Country Park, Farnborough

Leader: Tony Mundell

This meeting is contingent on any restrictions and advice concerning the COVID-19 situation at the time. If you want to attend, you must pre-register with Tony and provide contact details in case of late cancellation.

What is now Southwood Country Park was Southwood Golf Course a few years ago. The area, now a SANG (Suitable Alternative Natural Greenspace) is split into two halves by the A327 and has a range of different habitats. We will explore the part west of the A327 first which is mainly grassy meadows but also with some acidic heathland and woodland. We will return to the car park for lunch. At 1.30 pm we will set off to look at the eastern part that has marshy areas in the floodplain of a stream named Cove Brook. So, this event will be split into separate morning and afternoon sessions.

This meeting is aimed particularly at those wanting to improve their plant identification skills but those with more experience are also very welcome, particularly if they can help with demonstrating and naming plants for others.

Meet at: either 10.30 am or 1.30 pm in the free car park off the A327, at SU 8525 5491, Lat./Long. 51.2869 –0.7788. This is about 200m north of a roundabout with a replica of the first jet aircraft to fly in Britain.

Contact: Tony Mundell (details on back page).

Saturday 2 July 2022, 10.30 am–4.30 pm

Visit to Chilbolton Down Farm Estate near Crawley

Leaders: Tristan Norton & Tony Mundell

This meeting is contingent on any restrictions and advice concerning the COVID-19 situation at the time. If you want to attend, you must pre-register with Tristan or Tony and provide contact details in case of late cancellation.

The Chilbolton Down Farm Estate is a typical mid-Hampshire farm estate managed for cereals and other arable crops, alongside woodland blocks used for game-rearing and shoots. Situated on the chalk just north of Crawley, there are rolling arable fields, numerous hedgerows, field tracks with remnant calcareous grassland, dense scrub and many small woodland blocks containing the remains of WW2-era military infrastructure. Part

of the Estate comprises Brockley Warren Site of Special Scientific Interest (SSSI), a relic chalk grassland site with much encroaching scrub and Yew.

The arable field margins support a diverse flora, so hopefully our visit will enable us to locate some real arable scarcities such as the rarer fumitories and poppies. Most of the woodlands contain orchid species, and we may be fortunate enough to still see masses of White Helleborine in one particular wood; the others have not been explored in detail. Track edges support a good chalk grassland flora, with notable species such as Sainfoin, Knapweed Broomrape and Pyramidal Orchid rather frequent. One particular ride supports an established population of Leafy Spurge. The Estate also supports a wide variety of other wildlife, with a typical assemblage of farmland bird species and a good range of butterflies.

Meet at: 10.30 am – details will be provided when you book your place. Ground conditions are generally flat and even. This is a working farm so we will need to be alert to farm vehicles and growing crops. Please note that at the time of producing this newsletter, the date for this meeting is **provisional**; we anticipate it will be confirmed by the Estate early in 2022.

Contact: Tristan Norton via email at bluechaffinich@yahoo.co.uk or Tony Mundell (details on back page).

Sunday 17th July 2022, 10.30 am–3.30 pm

Visit to Winchester College grounds

Leaders: Anna Stewart and Martin Rand

This meeting is contingent on any restrictions and advice concerning the COVID-19 situation at the time. If you want to attend, you must pre-register with Anna and provide contact details in case of late cancellation.

Winchester College, founded by William of Wykeham in 1382, is the oldest private school in Britain. The College is set on the edge of the South Downs National Park and the extensive grounds are criss-crossed by the chalk streams of the Itchen Valley (Winchester Meadows) Site of Special Scientific Interest (SSSI) and River Itchen SSSI. The Flora Group has been invited by the College to conduct a survey of the plants; extensive water meadows, sports grounds, champion trees, semi-natural gardens, walls and streams will be all be given our attention.

Meet at: 10.30 am at the Porters' Lodge, College Street, Winchester, SO23 9NA, SU 4826 2901. Ben Pennington, Don of Geography, will meet us and introduce us to the College grounds. Please bring a packed lunch and drink.

Transport: Winchester is well-served by public transport.

Parking: Public parking is available in Winchester, where a park and ride system operates. Some private parking may be available but must be pre-registered.

Contact: Anna Stewart anna@stgileshill.com, tel. 07920 113131.

Saturday 20 August 2022, 10 am–4 pm

Visit to Itchen Valley Local Nature Reserve, Eastleigh

Leader: Martin Rand

This meeting is contingent on any restrictions and advice concerning the COVID-19 situation at the time. If you want to attend, you must pre-register with Martin and provide contact details in case of late cancellation.

This is the second of two meetings at the Itchen Valley Nature Reserve to enjoy and record the plant life in a rich area of water-meadows, marshes, ditches and thickets between the River Itchen and the Itchen Navigation. All levels of botanical knowledge and expertise are welcome, and you don't need to have attended the first session.

Arrangements: Full directions and notes will be provided once you have booked, but if arriving by car expect to pay £5 parking fee.

Contact: Martin Rand (details on back page).

Saturday 27 August 2021, 10.30 am–3.30 pm
Visit to Magdalen Hill Down Reserve
Leaders: Anna Stewart and Tony Mundell

This meeting is contingent on any restrictions and advice concerning the COVID-19 situation at the time. If you want to attend, you must pre-register with Anna and provide contact details in case of late cancellation.



Chalk Hill Blue on Wild Marjoram. *Dave Stewart*

Magdalen Hill Down, on a steep south-facing slope near Winchester is now one of Butterfly Conservation's premier reserves. Previously arable with steeper, floristically rich slopes deteriorating to scrub, Butterfly Conservation has systematically restored the site to species rich chalk grassland. The original reserve was extended twice (mid-1995 and 2004) by taking on large neighbouring areas of arable land and these have been converted to grassland by sowing with grass and flower seed from other Hampshire sites. The timing of this visit should coincide with the second brood of emergent butterflies and later chalk grassland flowers including Devil's-bit Scabious, Clustered Bellflower, Bastard-toadflax, Autumn Gentian and possibly Autumn Lady's-tresses.

We will be surveying the reserve with the aim of producing an up-to-date record of plant species, especially in the newer areas. Attention will be paid to relationships between butterflies and plants, with emphasis on identification of butterfly larval food plants – Horseshoe Vetch, Kidney Vetch and Bird's-foot-trefoil.

Meet at: 10.30 am at the top of the entrance track at SU 5108 2919, where Andy Barker, Chair of Hampshire and Isle of Wight Butterfly Conservation and Fiona Scully, Reserves Manager, will welcome us. Andy has a long association with Magdalen Hill Down and will give us an overview of changes in the reserve's history. Fiona can let us know how current management of the reserve is progressing. Please bring a packed lunch. The original reserve is steep and can be slippery so care should be taken.

Arriving by car: The reserve lies between the A31 and B3404 just outside the eastern edge of Winchester. From the M3, travelling from the north, use exit 9; travelling from the south, use exit 10. A small gravel car park is beside Alresford Road, the B3404, at SU 5110 2943, SO21 1HE. After parking walk from here to the meeting place. Care should be taken when crossing the road. Additional parking can be found in the Cemetery which also has a toilet.

Public transport: The Number 64 Alton-Winchester bus stops by the Magdalen Hill cemetery gates.

Contact: Anna Stewart anna@stgileshill.com, tel. 07920 113131.

Saturday 3 September 2022, 10 am–4.30 pm

Hatchet Pond Survey, New Forest

Leader: Martin Rand

This meeting is contingent on any restrictions and advice concerning the COVID-19 situation at the time. If you want to attend, you must pre-register with Martin and provide contact details in case of late cancellation.

This is the second of two sessions aiming to repeat the survey of aquatic and wetland plants carried out in 2015 at this botanical New Forest hotspot. The survey is quite intensive, and we need at least 12 participants to make this a success. Teams will comprise two or more people, so at least six of those people need to be botanists with a good knowledge of the New Forest flora, but you are still welcome if you are a beginner or from 'out of town' with a good eye for plants, and you will be paired up with a local expert.

Arrangements: Full directions and notes will be provided once you have booked.

Contact: Martin Rand (details on back page).

Please note: this meeting relies on receiving formal permissions from Forestry England which at present are taking a long time to be processed, and it may have to be postponed.

Reports of Recent Events

Flora Group/BSBI Exhibition Meeting, December 2021

Unfortunately this event, which was due to be held at Testwood Lakes Education Centre on Saturday 11 December 2021, had to be cancelled due to COVID-19 mitigation measures. The two-metre social distancing requirements imposed during late October 2021 by Hampshire & Isle of Wight Wildlife Trust on Trust premises would have meant that only about a dozen people would have been allowed to attend and, as we usually expect thirty or more people to participate in our traditional winter indoor meetings, the committee considered it would not be realistic to host the event for so few people. The committee understand that this was disappointing for many Flora Group members who enjoy the opportunity to get together to review botanical discoveries made during the past year and to look ahead to the following season. Hopefully we will be able to resume our traditional winter gathering during December 2022.

Notes and Features

A surprising seed contamination

A note by Tony Mundell

Many of you will have heard of the 'Back from the Brink' partnership which involved Plantlife, the RSPB, Buglife and many other wildlife-based organisations. It was a four-year programme containing many separate projects and it closed at the end of 2021 when the funding from the National Heritage Lottery and the People's Postcode Lottery ran out. The common theme of these projects was to improve the fortunes of some of England's most threatened species including reptiles, bats and insects as well as plants.

Plantlife led on four of these projects and the one I want to focus on here was called 'Colour in the Margins'. This basically involved sowing seed of a few species of very rare arable wildflowers on field edges at selected farms and then monitoring over the following years how many plants appeared. In North Hampshire the seeds chosen for sowing were Pheasant's-eye *Adonis annua* that was sown in 2019 and Red Hemp-nettle *Galeopsis angustifolia* that was not sown until 2020. I heard that Corn Buttercup *Ranunculus arvensis* was sown in some other counties.

I was not involved at all, but in September 2021 Plantlife sent me the results of counts of the plants that appeared the year (or two) after sowing. Unfortunately, I do not know exactly where the seeds were sown, or even the names of the farms involved, because the locations were only given to me as grid references specifying a whole 1 km × 1 km square. Evidently the farmers concerned preferred the site locations to be made rather vague. In the VC12 Records section I have included the results showing the relevant plant counts in 2021. Although the funding has ceased, I am hopeful that Plantlife may continue to monitor how many plants turn up in future years.

Whilst making counts of the target species, Plantlife also noted other associated arable species at each site, and I received those records too. It was a great surprise in 2021 when at three of the sites where Red Hemp-nettle had earlier been sown a few plants of Small-flowered Catchfly *Silene gallica* were found amongst the *Galeopsis angustifolia*. Small-flowered Catchfly is a great rarity classed as Endangered in the England Red List. In fact, that publication points out that its historical decline puts it close to being Critically Endangered. That extreme rarity made it highly unlikely that the Small-flowered Catchfly was there naturally.

I found out that the *Galeopsis angustifolia* seed had been supplied by Kew's Millennium Seed Bank at Wakehurst Place. It seems pretty certain that the seed used must have been contaminated with seeds of another rarity, either before or after it was obtained from Kew. I find that almost unbelievable, but that is what has evidently happened. I do not know whether the Small-flowered Catchfly (or indeed the *Galeopsis angustifolia* and *Adonis annua*) are likely to persist, but only very small numbers of plants of the Catchfly were involved (as shown in the VC12 Records) so it is likely to die out. This ought to be followed up in future years but I do not know the precise sites myself.

The Flora of Basingstoke manuscript, 1946

A note by Tony Mundell

In late October 2021 I received an email from David Pearman wanting to know the date of the earliest record for Large Venus's-looking-glass *Legousia speculum-veneris*. David has long had an interest in the first dates that plants were recorded, and in 2017 he authored a comprehensive book on that subject: *The Discovery of the Native Flora of Britain & Ireland*. He said that a note in *BSBI News* (66:38) gives records for this plant back to the 1940s but the caption on the Atlas 2000 CD-ROM gave 1916. Knowing that North Hampshire is the only place where Large Venus's-looking-glass has persisted for many years, he asked if I knew the source for that 1916 record.

That was easy for me to find as it is given in the 1996 *Flora of Hampshire* (p.222). Although it gives the first record as c. 1940–1945 found by G.W. Willis (GWW) and shown in 'The Flora of Basingstoke' manuscript, it then qualifies that with the statement 'Originally found 1916, but misidentified (GWW ms note)'. Sadly, I do not have any more information about Willis's manuscript note, but I do have other precisely dated records by G.W. Willis for other uncommon species that range from 1916 to 1944, all in the Basingstoke area. So, I have now added the missing 1916 record to my database and attributed it to Willis.

Incidentally, his full name was George William Willis, and he was born in Basingstoke on 13 October 1877. He was a watch-maker and jeweller, who lived all his life in Basingstoke, dying at a ripe old age in 1970. As noted above, his 1940–1945 record for the Large Venus's-looking-glass was from the unpublished manuscript of 'The Flora of Basingstoke'. This was typed in 1946 by the Rev N.E.G. Cruttwell while on board a ship, as he was en-route to be a missionary in Papua New Guinea (Figure 1). He sent his manuscript to George Willis and a second copy of it to a Mr Fitzgerald (Henry Purefoy Fitzgerald 1867–1948) suggesting that it could be published, perhaps in the *Proceedings of the Hampshire Field Club & Archaeological Society*.

Remarkably, amongst the mass of paper records that I inherited in 1999 from my VC12 VCR predecessor (Lady Anne Brewis) I found both copies of Cruttwell's Flora of Basingstoke manuscript (Figure 2 & 3). He had evidently typed them separately and they have very slight differences in layout and spacing. Norman Edward Gary Cruttwell was born on 17 November 1916 at Wilton in Somerset and gained a 1st B.A. Degree in Botany at Oxford in 1938, followed by an MA in 1943. His father E.C. Cruttwell was vicar of Radlett in Hertfordshire and Norman took a similar career path, becoming a curate at St Michael's Church, Basingstoke, and then the priest for All Saints', Basingstoke in 1944. Not long after that he decided to join the Anglican Mission to Papua New Guinea, though eventually he returned to England, dying in December 1995 (by which time he was a Canon).

Aboard the M.V. Wainona
20.6.46.

As from New Guinea Mission
Dogura,
Via Samarai,
Papua, British
New Guinea.

Dear Mr Willis,

Here is the promised list
of Basingstoke plants. I could
never have done it so thoroughly
without the spare time available
on this ship. I have spaced it
out with the idea that new
plants & localities can be visited.
I dare say there are some you
know of which I have omitted.
If so please put them in & feel
free to use this paper in any way
you like. I think I shall
~~send a copy~~ send a copy
to Mr Fitzgerald
as he might like to print it in
the Hants Field Club Proceedings -
or at least a part of it.

Figure 1. An extract from Cruttwell's letter, written whilst on board a ship bound for New Guinea.

Even more remarkably, I have the original hand-written letter that Norman Cruttwell wrote to George Willis in 1946 while aboard the boat to Papua New Guinea (Figure 1). It makes fascinating reading! Just imagine being cooped-up for many weeks on an overcrowded small boat designed for 12 passengers but actually having 106 on board, plus a full load of cargo.

It seems that the Flora of Basingstoke manuscript did not get published. The Hampshire Field Club & Archaeological Society website gives an index to each volume of their Proceedings, and I have checked that there is nothing relevant in Volumes 16 or 17 covering 1946–1952.

Many years ago, I entered all the records from the manuscript onto my database, and from there the records have reached the Hampshire Biodiversity Information Centre (HBIC) and the national BSBI DDb (Distribution Database). Perhaps a facsimile of Cruttwell's flora and his covering letter to Willis should be published, ideally with a current update on each species in the Basingstoke area and some photos of the plants? Oh, for more time!

THE FLORA OF BASINGSTOKE

Being a list of plants found in the neighbourhood of Basingstoke, Hampshire, based on the observations of the Rev. N.E.G. Cruttwell, M.A., Mr. G.W. Willis and others over the years 1940 - 1945.

The area covered is that included in an approximate radius of 10 - 15 miles, though certain plants of especial interest are recorded from greater distances. The aim is to provide botanists with a list of the more interesting plants easily accessible from Basingstoke. New Forest plants have in the main been excluded as being numerous, distant and belonging to a very distinct part of the country. Most of the localities are in North Hampshire (Vice county 12 in Druce's Plants List Edition 2), but there are many records from Berkshire (V.C. 22), whose boundary passes only a few miles from Basingstoke, and a few from South Hants (VC 11) and Oxfordshire (V.C. 23), both of which come within 20 miles.

The richness of the area is doubtless due to the great variety of soils and situations. Chalk is the predominant formation, extending for a great distance S. & W. of Basingstoke, while to the N. there are quite extensive areas of clay, and to N. & E. stretches of plateau gravel and sands. Along the R. Loddon there is a margin of alluvium, and in other low lying areas, bog, marsh and fen are developed according to the reaction of the soil. The fen areas of Wildmoor, Mapleurwell and Greywell are of exceptional interest and support a very rich flora. There is a great deal of woodland in the area, the chalk woodland being rich in Orchidaceae, but there is comparatively little open down, such as there is being very rich in plants. No less than 27 species of Orchidaceae are recorded in this flora. A number of alien species have been recorded when found in wild situations, but though they are of interest, the same importance need not be attached to them. It is always possible however for the adventive of today to become the denizen of tomorrow.

Many of these records are substantiated by Herbarium material in Herb. N.E.G. Cruttwell.

N.E.G.

Figure 2. First page from the unpublished 'Flora of Basingstoke' (1945) by Rev. N.E.G. Cruttwell.

Flora of Basingstoke. Page 8.

402/1	<i>Serratula tinctoria</i> L.	12	Shady heath. <i>Danehill</i> Hook Common. <i>Bramley</i> .
+ 405/12	<i>Centaurea cyanus</i> L.	12	Cornfields. <i>Lodge & Basing</i> Nr. Oakridge Farm.
409/1	<i>Chicorium intybus</i> L.	12	Bare chalky fields. Mapledurwell. Preston Candover
415/2	<i>Picris hieracioides</i> L.	12	Hedgerows etc. Rly. bank. Swing-swang Lane. Old Basing.
425/1	<i>Lactuca virosa</i> L.	12	Waste ground. Worting Rd. Tip.
425/4	<i>L. muralis</i> Fres.	12	Walls. In shade. Hackwood. Tunworth. Upton Grey
+ 428/1	<i>Tragopogon porrifolius</i> L.	12	Waste ground. Canal Tip.
435/1	<i>Campanula glomerata</i> L.	12	Chalk grassland. <i>Supwell field</i> Marnell Dell. Preston Candover
435/3	<i>C. trachelium</i> L.	12	Woodland on chalk. Tunworth. Preston Candover.
433			
+ 433/1	<i>Wahlenbergia hederacea</i> Reichb.	12	Shady bog. Near Fleet Pond.
436/1	<i>Legousia hybrida</i> Del.	12	Cornfields. Shooter's Lodge. Etc.
+ 436/2	<i>L. speculum-veneris</i> Fisch.	12	Cornfields. Alien. Nr. Wootton. (G.W. Willis)
+ 456/1	<i>Monotropa hypopitys</i> L.	12	Beechwood on chalk. Tunworth. Near Alton.
+ 460/3x	<i>Primula "variabilis"</i> Goupil. (= <i>P. vulgaris</i> L X <i>P. veris</i> L)	12	Shady banks. <i>Windsor</i> Greywell. Weston Patrick.
+ 467/1	<i>Anagallis tenella</i> Murr. <i>anagallis caerulea</i> <i>conturbatissima</i> <i>vinca nigr</i>	12	Bogs and Fens. <i>Widemoor</i> Mapledurwell. Greywell. <i>Bernard's field</i>
473/2	<i>Vinca minor</i> L.	12	Woodland on clay. Near Sherfield.
+ 478/4	<i>Centaureum pulchellum</i> Dr. (= <i>Erythraea pulchella</i> Sw.) <i>Blackstonea perfoliata</i>	12	Bare chalky bank. Disused brickfield, Sherborne St. John. <i>Marnell Dell. Hand well</i>
+ 480/1	<i>Gentiana pneumonanthe</i> L.	12	Moist heath. Hook Common, in quantity.

Figure 3. Extract from Cruttwell's Flora of Basingstoke with the record of Large Venus's-looking-glass.

Rosaceous trees and shrubs in a New Forest wood pasture

A note by Clive Chatters

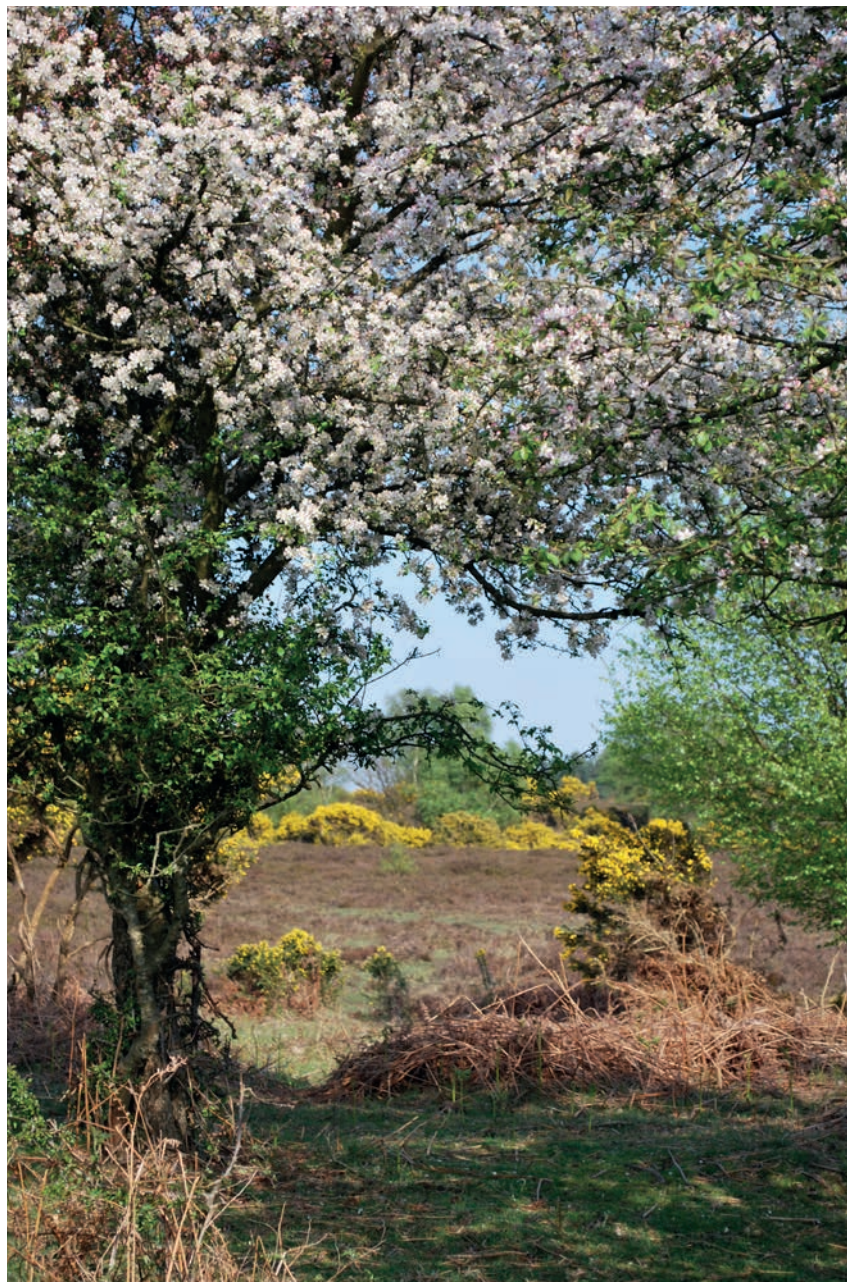
This brief survey was prompted by the convergence of two lines of thought. In February 2021 *British Wildlife* published an article on wild Apples in Britain which highlighted the association of native apples *Malus sylvestris* with wood pastures together with the role of large herbivores in distributing their seeds (Worrell et. al. 2021). Anyone who walks the open country of New Forest in spring will be familiar with clumps of Apple seedlings emerging from decaying cow pats. The related line of thinking was an appreciation of the importance of the New Forest for saxicolous beetles whose larval stages are associated with rot hollows in rosaceous trees, together with the importance of flowering rosaceous trees and shrubs for nectaring insects (Alexander 2002, Falk 2021).

Rosaceous trees in the New Forest

The New Forest supports c. 20,000 ha of semi-natural habitats within a single grazing unit, known as the Open Forest. The Open Forest functions as a common and retains a vigorous pastoral economy.

The Open Forest incorporates c. 4,000 ha of wood pastures on a variety of soils. Wild Apples are frequent and widespread throughout the Open Forest, whereas the native Sorbi – Whitebeam, Rowan and Wild Service-tree have a more localised distribution which is concentrated in the wood pastures and holms, whilst Wild Cherry is distinctly rare. Wild Service-trees in the vicinity of the study site at Busketts have been subject to a separate study (Chatters et. al. 1999). Hawthorn and Blackthorn are widely distributed on the better soils of the Open Forest, particularly where there is a reasonable amount of light. However, Wild Apples, Rowan, Hawthorn and Blackthorn are not confined to the wood pastures and can also be found as a component of the much more extensive heaths and seasonally parched grasslands of the Open Forest where they are regarded as being indicative of relatively fertile soils.

For a couple of weeks each spring, the Wild Apples and Blackthorns of the wood pastures come into flower, so asserting their presence amongst the backdrop of dominant Oaks and Beeches with their sub-canopy of Holly. At that time, the Hawthorn and Wild Service-trees are also conspicuous due to their fresh young foliage, but have yet to flower.



Crab Apple on the open heath. Clive Chatters

Methodology

Three sample sites were selected using the simple expedient that they are working wood pastures within walking distance of home.

The three sample sites were all part of the same wood pasture until fragmentation by plantation forestry in the late nineteenth century. These woods lie to the east of Lyndhurst and occupy the gently undulating topography of the catchments of the upper Beaulieu River and the middle reaches of the Bartley Water, at around the 20–30m contour. The underlying geology is composed of the Barton Clay and Chama Sand formations of the Barton Sands, which have sufficient clay lenses and sub-fossil shells to produce moderately productive soils. There are local concentrations of higher fertility where alluvium is deposited along the narrow floodplains of the minor watercourses.

Each rosaceous tree or shrub was mapped and allocated to one of five categories: Seedling, Clonal Suckering, Small (being a sapling whose crown is within reach of livestock), Medium (being a well-established specimen with a crown beyond the reach of livestock) and Veteran (being a tree of any size exhibiting snags, fissures, rot holes and related features). No systematic attempt was made to separate putative hybrids of domesticated apples from the 'pure' Wild Apple, beyond establishing that a random selection of specimens had the woody spurs and hairless petioles of native apples. Brambles and Wild Roses were present but were not included in the survey.

To enable comparisons between sites, the number of total specimens is reported along with the number of rosaceous species/ha and the number of veteran rosaceous trees/ha.

The sample sites

The sites were sampled in spring 2021.

Busketts (SU 312 112)

This portion of Busketts Wood is a glade of 2.9ha on the very edge of the wood pasture, adjoining farmed fields. The soils are reasonably productive and so, in addition to rosaceous species, the trees of the wood pasture include Hazel, Ash and Field Maple with Brambles, Roses and Honeysuckle in addition to the ubiquitous Oak, Beech and Holly. Veteran Oaks are present with a growth form that indicates they grew in well-illuminated conditions during their years of establishment. The older rosaceous elements in the centre of the glade have recently (post 2018) been partially cleared by Forestry England as part of a grassland restoration initiative. This has reduced the younger cohorts of shrubs, most notably the Hawthorns, and has resulted in rosaceous species being concentrated in the semi-shaded margins of the glade. There is sufficient light to support clonal stands of Blackthorn which in turn provide a stock-proof nursery for other species. The Ordnance Survey of 1869 illustrates a very similar pattern of trees and glades as can be seen today.

	Small	Medium	Veteran	Suckering clumps	Other
Hawthorn <i>Crataegus monogyna</i>	13	29	1		1. Soft growth regenerating from a recently cut stump
Blackthorn <i>Prunus spinosa</i>	4	3		12	
Apple <i>Malus sylvestris</i>	1	9	5		
Wild Service-tree <i>Sorbus torminalis</i>		1	1		

Rosaceous species n=79, being c. 27 rosaceous tree & shrubs/ha of which 2.5 trees/ha are veterans.

Lodgehill (SU 320 093)

Lodgehill is a 3.7ha portion of a relatively young wood pasture with a substantially closed canopy of Oak that has formed since the Ordnance Survey mapped a landscape of open glades in 1869. The colonisation of the glades by trees was probably assisted by the artificial deepening of a minor natural watercourse which flows through a former grassy lawn in the sample site. The phenomenon of drainage that was intended to improve grazing, inadvertently resulting in colonisation by trees, is known from elsewhere in the New Forest. The fencing of the A35 road in the 1960s has compounded the fragmentation of the part of Lodgehill to the south of the road from Busketts to the north.

The structure of the sample area is of a dominance of young (c. 100-year-old) high canopy trees with no clearly defined glades. There is sufficient light to sustain Blackthorn, but not as clonal thickets. The relative abundance of the 'Medium' cohort of rosaceous trees reflects a period favouring the establishment of trees during the closure of the glades.

	Small	Medium	Veteran	Suckering	Other
Hawthorn <i>Crataegus monogyna</i>	8	27	2		
Blackthorn <i>Prunus spinosa</i>	7	2			
Apple <i>Malus sylvestris</i>		11	5		
Rowan <i>Sorbus aucuparia</i>					1 seedling

Rosaceous species n=63, being c. 17 rosaceous tree & shrubs/ha of which 1.8 trees/ha are veterans.

Mallard Wood (SU 314 089)

The sample area is part of the same block of woodland as Ironshill but differs in character in being a glade of 2.5ha that straddles the upper Beaulieu River and incorporates its grassy, well-illuminated, floodplain. The structure of the wood is very similar to that illustrated by the Ordnance Survey in 1869, albeit the fencing of the A35 has enabled the dense growth of trees along the northern edge of the glade. Rosaceous species are present in the well-illuminated body of the glade as well as around its more shaded margins. Both Oak and Beech are present as veterans and there is little by way of a Holly sub-canopy.

The fertile soils of this glade support a species rich sward, the most notable herbaceous plant being Ivy-leaved Bellflower. There is also a clonal stand of Guelder Rose, a local abundance of Brambles and Roses along with a few flowering specimens of Wych Elm.

Of the rosaceous trees, only Hawthorn and Apple are present, both of which are represented by numerous veterans along with a few younger cohorts.

	Small	Medium	Veteran	Suckering	Other
Hawthorn <i>Crataegus monogyna</i>	2	9	6		
Apple <i>Malus sylvestris</i>		1	16		

Rosaceous species n=34, being c. 14 rosaceous tree & shrubs/ha of which 9.6 trees/ha are veterans.

Observations

This survey illustrates the diversity of tree species and vegetation structure that can be found in a working wood pasture. Descriptions of wood pastures elsewhere in England frequently suggest this habitat is inherently species poor in the diversity of trees and shrubs it supports. This may be the case where wood pastures persist on infertile soils but is not so where they are found on more productive soils.

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Hampshire allotments: plant-hunting hotspots

An article by Tristan Norton

In September and October 2021 I visited two Hampshire allotment sites and was delighted to find some very interesting plant species. Such sites are often home to scarce species sadly lost from the wider farmed landscape and, in need of some new plant-hunting grounds, I thought that it was well worth a look around some allotments. My hunch was right, and I was not to be disappointed.

Highcliffe Community Allotments in Winchester, a long-established site in the east of the city, is just a few tens of metres inside the VC11 South Hampshire boundary. I was kindly granted access by the Allotment Committee in mid-September. Like many older allotments, the site is a varied mix of plots growing vegetables, fruits and flowers from all corners of the globe. In common with other allotment sites I've visited, there is a high degree of variability in the 'weediness' of plots, ranging from exceptionally neat and tidy to wholly overgrown.

After finding some interesting species such as Weasel's-snout *Misopates orontium* (locally quite frequent) and both Round-leaved Fluellen *Kickxia spuria* and Sharp-leaved Fluellen *K. elatine* I walked past a green plastic *Brassica* cage, inside which I spotted a large ramping-fumitory. The inflorescences were large, pinkish-white and with recurved pedicels – I immediately thought it might be White Ramping-fumitory *Fumaria capreolata*. I was reasonably familiar with that species, having studied a recently-discovered population from Kings Worthy just outside Winchester. However, this plant didn't look quite right: the sepals were not obviously large and toothed as in *capreolata* but were very noticeably ovate and more or less entire, and I was sure that *capreolata* wouldn't be quite so pink even late in the season. A quick look at a *Fumaria* crib I keep on my phone led me to think this must either be Tall Ramping-fumitory *F. bastardii* or Martin's Ramping-fumitory *F. reuteri*.

Following some initial input online from Tim Rich (BSBI *Fumaria* referee) and Mark Spencer (Vice-county Recorder for London), plus opinions from Tony Mundell and Gareth Knass, the consensus was that the plant was likely to be *reuteri*. I managed to get a fresh sample to Tim Rich and he was able to confirm the identification. This is the fourth modern Hampshire site for this nationally scarce, Schedule 8 species.

The identification clincher was getting a good look at the stigma, which in *reuteri* has a unique distinct conical appendage at the apex. The upper petal on *reuteri* is also tipped blackish-red unlike the nominate form of *bastardii* which is wholly pink. Two very rare *bastardii* varieties do however exhibit dark-tipped upper petals so, as ever with fumitories, caution is needed.

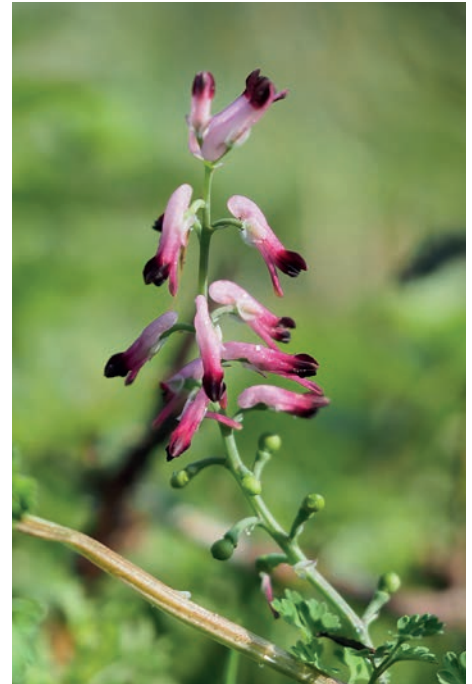
The second allotment site I visited was the huge Hunts Pond Road site in Park Gate, Fareham. This site is well known for the *Fumaria reuteri* discovered there in 2010 by Gareth Knass. I was kindly granted access and was amazed to find *reuteri* present in huge numbers across large swathes of the site. Some of the patches are very big and the plant is best described as locally frequent, being found in nearly any slightly weedy plot.

Alongside the *reuteri*, the site also supports a diverse flora of scarcer arable species. Weasel's-snout is very common indeed, and Field Woundwort, *Stachys arvensis* and Sharp-leaved Fluellen widespread. Other interesting species recorded were Corn Marigold *Glebionis segetum*, Balkan Spurge *Euphorbia oblongata*, Shaggy-soldier *Galinsoga quadriradiata* and Gallant Soldier *G. parviflora*.

Back in Winchester I found an unfamiliar calamint. Following examination of the relative length of the calyx teeth (these were even lengths) and the presence of protruding hairs from the calyx tube I was feeling confident that this was Lesser Calamint *Clinopodium nepeta*. With on-site help from Tony Mundell, Martin Rand, Gareth Knass and John Poland it was agreed that it was indeed *nepeta*. Whatever its origin, the Winchester plant is the second record for Hampshire, the last being recorded near Morestead (c. 4 km SSE) in 1933. The species was



Martin's Ramping-fumitory *Fumaria reuteri*, Highcliffe, Winchester. Photographs by the author



The allotments at Hunts Pond Road, Park Gate, with Martin's Ramping-fumitory *Fumaria reuteri* (right), Weasel's-snout *Misopates orontium* and other arable species, October 2021.

presumed extinct by Brewis, Bowman and Rose in their 1996 *Flora of Hampshire*.

A third interesting plant was found in Winchester, oddly enough next to a plot that my wife and I used to tend when we lived in Winchester over ten years ago. Whilst walking through this now abandoned area I noticed a strange plant amongst the tangled growth. The plant was clearly a *Rubia* species with leaves in whorls, distinctly spiny four-angled stems and strongly toothed leaf edges. The flower was a small yellowish calyx of five petals. This didn't look quite right for the Wild Madder *Rubia peregrina* that I was familiar with from trips to Devon. That species was, to my recollection, distinctly dark green and shiny: this plant was bright apple-green and not shiny at all. I had 'Stace' in my bag and was able to discern that *Rubia* ID is not quite that simple.

I sent some images to Tony and Martin and Martin was able to provide some insight from European Flora sources. The key feature on the Winchester plant was that the leaf veining formed a complex closed network (anastomose), with the main and secondary veins turning back on themselves before the leaf margin: this is a feature of Madder *Rubia tinctorum*, whereas *peregrina* doesn't do this to such an obvious extent. The corolla tube is also longer/deeper on *tinctorum*. A few days later Martin was able to visit the plant and brought along a pressed specimen of *peregrina* for comparison: the ID was confirmed as *tinctorum*, an apparent first record for Hampshire (but see below). Madder is a decidedly scarce plant in Britain, with only a handful of records on the BSBI Distribution Database.



Lesser Calamint *Clinopodium nepeta*, Winchester, September 2021. The bottom photo shows the protruding hairs on the calyx tube.

Back to Park Gate, and in early October Gareth Knass and I found another example of Madder, this time very obviously planted in a raised bed. It must be for home dyeing purposes. On reflection, I think it may have been growing alongside planted Woad *Isatis tinctoria*: I noticed some odd leaves but failed to pay further attention. Two records of Madder within a couple of weeks!

The Winchester Madder find got me thinking about possible origins. Obviously, the simplest answer was that in the last decade a plot holder had planted some for home dyeing purposes. However, there are other possibilities, including the chance of this being a relic from former Madder cultivation for the Winchester dye trade.

Tracey Matthews, the Winchester City Council Historic Environment Officer, unearthed some references for me on the historic use of Madder in early-mediaeval Winchester. This includes c. 300 Madder-stained pottery fragments from Late Saxon/Saxo-Norman contexts in excavations at Northgate House (in the city centre, c. 1.5 km north-west). Before renaming in modern times, the nearby Tower Street was known as Snithling Street (Street of the Tailors). It is evident that late-Saxon and early-medieval Winchester held a thriving textile industry that included the use of Madder dye and it seems reasonable to assume that domestic or artisanal cultivation occurred to serve this trade.

Interestingly, D.E. Allen (1982) provides some commentary on an early record of 'a madder' from 1568 by William Turner, who stated '*the farest and greatest that ever I saw groweth in the lane of [sic] beside Wynchester in the way to Southampton*'. Allen postulates that, rather than what was previously thought of as an anomalous record of *R. peregrina* (being some way distant from native coastal Hampshire populations), this might actually be a relic of former *tinctorum* cultivation. Allen mentions that there is documentary evidence from a 12th century census of two 'waranchiers' (dealers or dyers of Madder) living in the city at that time, and an early 13th century record also mentions this occupation. There is also evidence that Madder was cultivated around Winchester and nearby Alresford in the 14th century. It is quite possible then that this 1568 plant may be a relic from former cultivation.

Does this prove that my Winchester allotment plant is a survivor of an ancient Madder industry? No, it doesn't of course. It does however at least indicate that the current distribution of some of our plant species may be explained by examining our social, cultural and industrial history. Plants can tell us so much about the places in which we live. Oh, and allotments are well-worth exploring.

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Madder *Rubia tinctorum* showing veining on leaf underside (inset), Winchester, September 2021.

Recovering Slender Cottongrass *Eriophorum gracile* populations in the New Forest

An article by Neil Sanderson

Introduction

The New Forest supports nationally important populations of Slender Cottongrass *Eriophorum gracile*. This is a species of very swampy mires with an unusual chemistry between low productivity oligotrophic bog and low productivity fen (transition mire). The habitat is naturally prone to succession, especially from tree invasion, but is also very vulnerable to drainage. Outside the New Forest, most English populations have been lost to either of these pressures. In the New Forest it may have been at least partly dependent on traditional coppicing of Alder for charcoal to maintain open conditions in the few suitable areas of mire in the New Forest.

In the Forest it has been recently recorded in three mires, with a somewhat indeterminate number of lost sites. Old records are bedevilled with probable species misidentifications and duplicate names for the same site, and really only one lost site can be accepted with any confidence. This is the next bog west from Fort Bog in Matley Heath (SU 328 082), where the cottongrass was still present in the latter half of the 20th century (Martin Rand, pers. comm.). This site has been lost to the expansion of Sallow from the adjacent formerly coppiced swampy Alder stand. Of these three mires, one, Widden Bottom (SZ2899), was relatively recently discovered by Paul Bowman in 1987 and was threatened by serious headward erosion into the lower end of the mire originating from post 1946 drainage works. This was repaired during the LIFE II programme in the early 2000s. The results were spectacular, the mire surface became much wetter and the head count went from 40 heads of *Eriophorum gracile* in one population in 1987 to near 900 heads in five populations in 2014 (Chatters & Sanderson 2014). This mire has few trees and no issues with colonisation and is still doing well.

The other two mires, Fort Bog (SU3308) and Holmsley Bog (SU2200 to SU2210), have no current drainage threats but both have had issues with tree invasion. This threat nearly wiped out the second population (twice!) and was reducing the habitat available to the former. In both these mires the author has liaised with Forestry England to organise tree clearance work to restore open mire conditions. These have had mixed results over time but have finally produced very positive results which are reported on here.

Monitoring *Eriophorum gracile*

The only practical way of measuring *Eriophorum gracile* populations is to count the flowering heads; the vegetative parts of the plant are very difficult to determine in the sedge-dominated vegetation in which it grows. Counting is straightforward but over time it is clear that flowering performance is very much influenced by the annual wetness. In a wet year flowering can be far denser than in a drier year, without any loss of extent of the population. So, it is important that the population is mapped as well as simply counted, so that extent as well as performance can be measured.

Fort Bog

Eriophorum gracile has been recorded from mires in this area since 1882 and still has a large population in the small mire known as Fort Bog. Here it grows in a seepage of base-rich water that rises within an acid bog and then flows down the side of an ancient Alder swamp. This is deep and very swampy to the south but rather narrow and intermittent, as the flow line was patchily occupied by Sallow scrub producing patches of open transition mire with discrete *Eriophorum gracile* populations between scrub patches. To the northern end of the mire, the base-rich water spreads out over a wider but shallow area of swamp. The latter area supports a large, continuous population and in good years had the majority of the flowerheads.

Chatters & Sanderson (2014) looked at historic maps and aerial photographs and showed that Sallow scrub had expanded over parts of the swampy base-rich flow line after WWII and had resulted in the fragmented *Eriophorum gracile* population, to the south. Later monitoring also showed that in the deeper, but fragmented, southern open mire the species performed much better in terms of flowering in dry years compared to wet years. In the wet year of 2018 there were about 1200 flowering heads, mostly in the shallow mire to the north, but in the dry year of 2019, only 46 flowering heads were counted, nearly all of these in the pockets of deeper open transition mire to the south.



Fort Bog looking south along the southern section of the site, in the summer of 2019, the summer after clearance, showing the width of post war Sallow invasion into the transition fen habitat. Photographs by the author

Chatters & Sanderson (2014) recommended that the post war Sallow scrub be removed to extend the area of habitat available. This recommendation was given urgency by the later observations that the areas most impacted by Sallow spread were best refuges for the species in dry years. This recommendation was implemented by the then Forestry Commission in the winter of 2018/19. This opened up extensive new areas of habitat adjacent to the southern section of the *Eriophorum gracile* population.

The cleared area had matured by 2021, with the vegetation recovered and the Sallow stools kept down by pony browsing. The *Eriophorum gracile* population was counted by the author (Sanderson 2021). The *Eriophorum gracile* was doing astonishingly well with a total of 1822 flowering stems estimated, as opposed to 411 counted in 2014, more than quadrupling the population. The increases were not even, however; what was the main population in the northern shallow swamp had done well, having just over doubled on the 2014 population. The area occupied was similar to 2014, so this increase was mainly down to good performance in a wet year. The western strip, however, had out-performed this, having increased over nine-fold since 2014. Here what were formerly two main populations have expanded and merged. The main reason for the very large increase to the south was expansion of the area occupied. There had been a full-scale expansion into the area of mire that had been shaded by leaning and collapsing Sallows, along with some invasion inside the actual coppiced area. This had allowed the formerly fragmented southern populations to join up again.

The results exceeded expectations; the formerly discrete areas of *Eriophorum gracile* to the south had merged into a single block, reversing decades of fragmentation. The population is now much more secure, with the deep swamp refuge from dry years to the south now much larger and harbouring the majority of the flowering population. The latter is a complete reversal of the situation since at least the 1980s, when the bulk of the population was in the shallower swamp to the north.

Fort Bog, total site counts:

1985: 300 plants (Winship 1994).

1994: 1000 – 1500 plants (Winship 1994).

2004: 334 flowering heads (Sanderson 2004).

2013: 'massive population this year, well over 1000 heads' (N.A. Sanderson's Journal, 20 July 2013 Ashurst to Matley Heath).

2014: 411 flowering heads (Chatters & Sanderson 2014).

2015: 'at least as abundant as 2014' (N.A. Sanderson's Journal, 3 July 2015 Fort Bog).

2018: c. 1200 flowering heads (Spot counts indicated 3 times the 2014 population, N.A. Sanderson's Journal 1 June 2018 Fort Bog).

2019: 46 flowering heads (A full count in dry year, N.A. Sanderson's Journal 5 June 2019 Busketts Lawn & Fort Bog).

2021: 1822 flowering heads.

Holmsley Bog

This area was well known for its population of Slender Cottongrass *Eriophorum gracile* recorded from 1893 to 1968 (Rand & Mundell 2011), with numerous collections of vigorous material made between 1893 and 1940. These were seen in the south-east of the site and south of the old railway. Historically this area included a mix of open coppiced swampy Alder stands and open fen and one record refers to the habitat as 'Alder bog'. With the cessation of Alder coppicing. However, dense scrub spread across the site, with an aerial photograph showing most of the open mire had been lost by 1946. The last records from this part of the site were made in 1968. It has not been re-found here since in spite of extensive scrub clearance. Restoration of open transition mire habitats here has been bedevilled by the regrowth of Alder that the ponies fail to contain.

In 2003, however, a small population of *Eriophorum gracile* was found in a small relic patch of open mire by the author in a separate part of the site to the north-west and north of the old railway. This was probably the westernmost outlier of what was once an *Eriophorum gracile* colony extending east towards Holmsley Station. Here the main scrub colonist was Sallow, which had occupied a substantial strip of fenny transition mire since WWII.

In the winter of 2003/2004 a large area of Sallow was cleared from the *Eriophorum gracile* glade eastwards. This successfully produced extensive species rich transition mire largely kept open by pony grazing and let in more light to the *Eriophorum gracile* glade. Only one side of this glade was opened up and after this *Eriophorum gracile* flourished for a few years. Then, however, the glade began to close over and the population declined, although the fully cleared mire to the east remained in good condition. After 2014 *Eriophorum gracile* was not seen in flower and the proposals to fully open up this section made by Chatters & Sanderson (2014) were pursued and actioned in the autumn of 2017 by the then Forestry Commission.



Fort Bog looking south along the southern section of the site with widespread abundant *Eriophorum gracile* flowering heads visible. Much of this area was shaded by collapsing Sallow in 2014 and flowering was rare then.



Holmsley Bog showing the mire surface in November 2011 shortly after being cleared of Sallow scrub, while the site was still very raw. The transformation since has been stunning.

Although excellent swampy mire vegetation regenerated after the clearance, no *Eriophorum gracile* was re-found, including during a reconnaissance in 2021. This was worrying; had we taken too long to clear the site? One problem was re-finding the original site of the relic glade as the site had changed so much with the clearance. On a second visit, a GPS receiver was used to locate the original site and this led the survey party right to a single flowering plant of *Eriophorum gracile*. Two more plants were found at about 7 metres away. Thankfully it was back after a break in flowering of seven years. The transition mire was much more open than before the second clearance, with the *Molinia* now grazed well and larger and more open pools present than were produced by the first clearance (Sanderson 2021).

The counts of flowering *Eriophorum gracile* heads since found since 2003 are given below (Sanderson 2005, Chatters & Sanderson 2014 & Neil Sanderson's Journal). This shows a strong positive response to being opened up initially but with the population tailing off as the conditions deteriorated, to apparently disappeared after 2014. It is to be hoped a similar surge is seen in following years.

Counts of flowering *Eriophorum gracile* heads at Holmsley

Year	2003	2005	2006	2007	2014	2015	2018	2021
Flowering heads	12	31	9	21	3	0	0	3

Conclusions

Under current Forest conditions, restoring transition mire habitat from Sallow invasion is relatively straightforward as long as the clearance is done at sufficient scale and the ponies have good access to suppress the Sallow. Alder-invaded transition mire and fen is much more problematic to restore; the current browsing levels do not suppress Alder growth. Probably only a revival of an active coppicing cycle would work, which appears to be how the habitat was managed in the 19th century when the south-east Holmsley *Eriophorum gracile* population was thriving. This is not likely to be economic but could be trialled as a conservation measure.

The work reported on here has given Slender Cottongrass *Eriophorum gracile* a more secure future and further work has been discussed with Forestry England. Clearance of further areas of Sallow scrub to recover further transition mire has been discussed in the field, including the lost *Eriophorum gracile* site west of Fort Bog.

Thanks are due to the Forestry England staff for the excellent and successful habitat restoration work at these two sites.

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Holmsley Bog – the three *Eriophorum gracile* flowering heads in a magnificent restored swampy transition mire habitat.

Froyle re-survey project

A note by Isobel Girvan

As a joint effort between Alton Natural History Society and Froyle Wildlife Group, we have embarked on a re-survey of Froyle Parish. This was first undertaken in 1952 and then again in 1991. So far we have been out recording 16 times over the summer from April to August 2021 and collected just over 1500 plant records. We have visited 17 of the 33 monads that cover the parish, walking through a range of habitats from ancient woodland, arable fields, chalk grassland and roadside banks. Highlights have been the common such as the wild Teasel, to the rare Violet Helleborine and the beautiful Nettle-leaved Bellflower. However, there is still more to do next year and if you would like to come along, please get in touch via email at isobel.girvan@surreywt.org.uk or telephone 07811 440892.

Hill Head urban flora project (2020–2021)

An article by Margaret Wonham

Introduction

Ilive in Hill Head, a suburb of Stubbington village on the Solent, south of Fareham. I've always been interested in the plants which grow in towns and cities so when I read a study about Cambridge¹, I thought I would see how my area compared with that area. I looked at the plants which grew between people's gardens and the roadway and saw that there were actually different small habitats (microhabitats) which offered different things to the plants which grew there. The base of a hedge, for instance, was quite a dry area compared with the soil at the base of a ranch-style fence. Although the same number of different species grew there, I found that the lists of plants were rather different. Another thing I had noticed was that plants that I had thought of as biennials seemed to continue growing and flowering throughout the winter. They were more like short-lived perennials. We have a mild climate here in Hampshire and with concerns about climate change, it is likely that this will have an important effect on the plants that grow here. More people, too, throughout the world, are living in towns and cities, so it is really quite urgent that we begin to understand more about urban plants.

Methodology

The study area is shown on the next page. I walked a path each month from Titchfield Haven Nature Reserve in the west, along Cliff Road, Knights Bank Road (and the small roads off it), Old Street, Short Road, Solent Road, Carisbrooke Avenue and Cottes Way. It is within OS squares SU 5302 and 5402 and covers about 1 km². Most of this area has been built up since the 1920s and was completed by 1970. Before then it was farmland with few houses, the Osborne View Hotel and a coastguard station.

I grouped the roads into five locations:

Solent Road (0.47 km)

Old Street and Short Road (0.59 km)

Knights Bank Road with Little Gays, Great Gays and Haven Crescent (1.02 km)

Cliff Road (0.63 km)

Carisbrooke Avenue with Cottes Way and Pemberton Crescent (0.94 km).

Two contrasting locations – Cottes Way represents the most recently settled area (1960s) and Old Street, built up in the 1920s.

A great deal of renovation is taking place at the moment and there has been a little infill of new houses on large garden plots. In Hill Head the houses are detached and semi-detached with front gardens, broad grass verges, banks, amenity street trees planted by Fareham Borough Council, amenity grassed areas and car parks. In Hill Head the gardens are bounded by fences, hedges, walls and sometimes there is no boundary feature except for marking circular brick planters. As you see from the photographs, there are many areas of grass and mown grass verges. When all the grass area is put together, and with some larger grassed amenity areas, the amount of mown grass would cover the area of a football pitch. Although there are many grasses in the mown verges, such as Creeping Bent *Agrostis stolonifera*, as they are mown every three weeks the grass



Aerial photograph of the study area. Copyright Google 2021



Cottes Way and Old Street. Margaret Wonham

flowers are not often seen. In Cambridge, the study area includes terraced houses with front doors opening onto the pavement, verges, walls, hedges and public flowerbeds. Some houses have very small paved forecourts behind mainly walls. Hanging baskets, window boxes and planters allow direct seeding onto the pavement in Cambridge but during the pandemic these have been absent in Hill Head, with the café and pub being closed.

Walking a path regularly is termed a transect and works well with an area of streets. I recorded the plants I saw in flower round about the beginning of each month from October 2020 to September 2021. I decided that I needed to see the colour of petals (or for plants with no petals – anthers instead) to count as ‘in flower’.

Although it wasn't possible to count how many plants of individual species were present, I noted that for 28 species there was just a single colony and 7 of these were represented by a single plant.

Results

The big picture

There was a total of 306 species recorded in flower and this included 33 grasses, 4 sedges and 3 rushes totalling 40 (12%).

I also saw 4 non-flowering species – 3 ferns and 1 horsetail (1% in all). These are not included in the study as I was focusing on plants in flower but I recorded them as two of the ferns, Wall-rue *Asplenium ruta-muraria* and Hart's-tongue *Asplenium scolopendrium*, added to the plant richness of the walls.

Life cycle of the plants recorded

Reference books are not always definite about how they describe life cycle, possibly because, in different areas, plants which usually disappear in the winter months, persist; they often seem to be more like short-living perennials.

I define 'perennial', 'annual' and 'biennial' as follows:

Perennial – a plant living at least two years, generally flowering each year.

Annual – a plant completing its life cycle in one year.

Biennial – a plant living two seasons, flowering in the second and then dying.

Perennial plants well out-numbered the combined total of annual and biennial species (the number of true biennials is very small – 6) (Figure 1).

Native and alien (introduced) species

'Native' species are those which have been present in the British Isle since Medieval times (before 1500) and 'alien' species are more recent arrivals.

As we saw from the recent Glasgow Climate Pact COP26, climate change is a recognised reality in the scientific (and now political) communities and plants like Guernsey Fleabane *Erigeron sumatrensis*, which were not even mentioned in 1981 in reference books, are now very numerous and widespread in South Hampshire. A plant categorised as native by reliable reference books, may not, of course, be native in all areas of the British Isles.

Overall, there are twice as many native species than aliens recorded in Hill Head (Figure 2). This is similar to the Cambridge study.

Location of species

The three locations which are shorter in length but have been settled the longest (by 1941) – Solent, Old/Short and Cliff streets, have on average more species per 100m than Knights Bank and associated roads (built up by 1960) and Carisbrooke/Cottes location (built up by 1970). Cliff Road as well as being the area which has been settled longest (the settlement is present on 19th century maps) is also very close to the sea, ending by the harbour, and

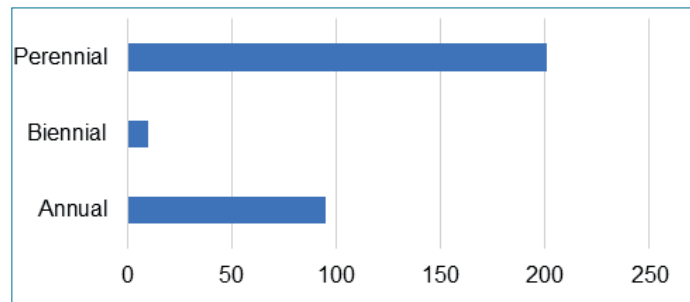


Figure 1. Numbers of annual, biennial and perennial species flowering in the transect.

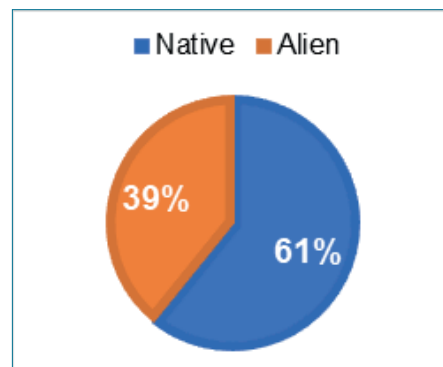


Figure 2. Percentages of native and alien species in the transect.

has 20 species particularly found in maritime and sandy environments².

Many of the properties on Solent Road have concrete drive entrances laid down when the houses were built 80 years ago. These have a large number of crevices in them which may also account for the larger average number of species per 100m length (Figures 3 and 4).

Microhabitats

When I started the project and looked at the area, I thought that there were **hard areas** like the pavement crevices, gutters, walls and gravel, **grassy areas** like the mown verges, large grass areas, banks and rougher verges and **other areas** like the bases of fences, walls, hedges, posts and trees and so I recorded in detail the microhabitats, e.g. crevice, wall, etc. where I saw the plants in flower. When I looked at the data, I was surprised to notice that microhabitats which had the same number of species had quite different plant lists. Taking into account the different advantages and threats to plants in the different microhabitats that I had identified, and the number of shared species, it seemed that there were clear differences (Tables 1 and 2).

Plants growing in crevices – i.e. gaps between two hard materials (like stone, concrete or asphalt) of varying sizes and which contain a substrate (like soil, sand or plant debris) – often look different in shape and size from the same species growing in soil. This is known as phenotypic plasticity (i.e. the ability of a species to produce changed morphology in unique environments).

How many species grow in each microhabitat?

Boundaries using ranch-style and picket fences with a soil substrate make good opportunities for enlarged numbers of species and some species not found elsewhere in an area and are preferable to hedges. Crevices are an important microhabitat in terms of the number of species; even regularly mown verges host good numbers of species and unique species, though the occasionally mown and trimmed verges and banks are better, having both a high number of species and a high number of unique species (Figures 5 and 6). For key to abbreviations see Table 1.

The weather and flowering patterns

Hill Head, on the south coast, has a mild climate, due to the influence of sea and river water temperatures.

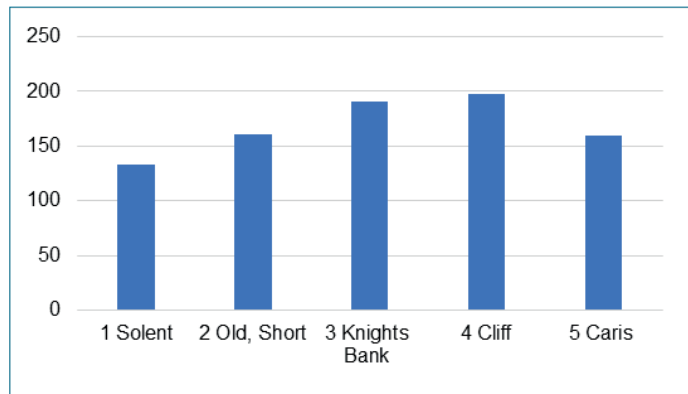


Figure 3. Number of flowering species in each location

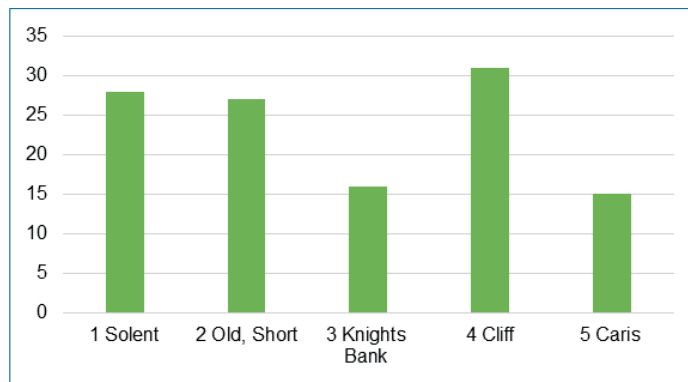


Figure 4. Number of flowering species per 100m in each location

Table 1. Habitat areas and microhabitats.

Hard areas	
Crevices	
Gravel	
Gutter	
Wall	
Grassy areas	
Regularly mown verges (RMV)	Sward of small forbs and grass species
Large grassy areas (LGA)	Sown with amenity rye seed mixture
Banks	Occasionally mown or trimmed
Verges	Rougher vegetation occasionally trimmed
Other areas	
Base of hedges (BH)	
Base of walls (BW)	
Base of fences (BF)	
Base of posts (BP)	
Base of trees (BT)	
Hedgerows (HR)	

Table 2: Microhabitats showing advantages (A) and threats (T) to plants.

Microhabitats	Water sufficiency	Water excess	Light	Competition	Available area for growth	Predation/ mowing	Wind damage	Uprooting/ scouring	Herbicide	Substrate (soil/gravel/ turf)
Crevice	A		A	A	T	A	A	A		A
Gravel/shingle	A	T	A	A	A	A	A	A		A
Gutter	A	T	A	A	A	A	A	T		T
Wall	T		A	A	T	A	T	A		T
LGA	A		A		A	T				A
RMV	A		A		A	T		T		A
Verge	A		A		A	A				A
Bank	A		A		A	A				A
BF	A		A			A	A	T		A
BH	T		T	T		A	A	T		A
BP	A		A		T	A	A	A	T	
BT	T		T	T	T	A	A	A	T	
BW	A		A		T	A	A	T	T	A
HR	T		T	T	A	A	A	A		A

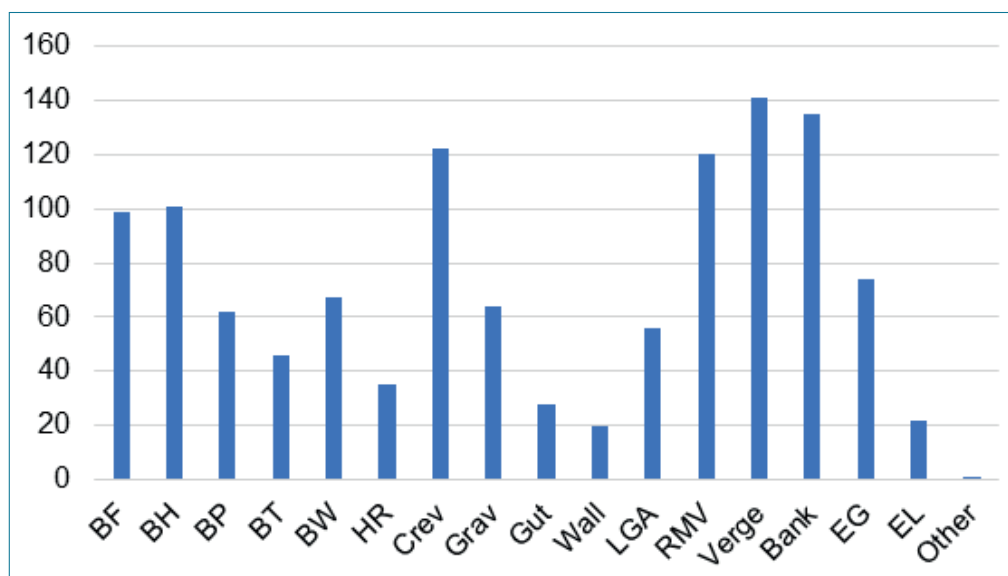


Figure 5. Number of species recorded in each microhabitat.

The Meon on the west of the study area, being a chalk stream, is at a constant temperature of 10–11°C throughout the year and the sea to the south rarely falls below 5°C even at its coldest in March³. The average annual minimum air temperature for this area is 8.5°C (Gosport Weather website) and the average length of growing season is more than 310 days, the highest category on the mainland of the UK, according to the Met Office⁴.

Figures 7 and 8 illustrate the close links between the pattern of average monthly temperatures and the numbers of species in flower each month. February and March have the fewest species in flower and most are seen in flower in July.

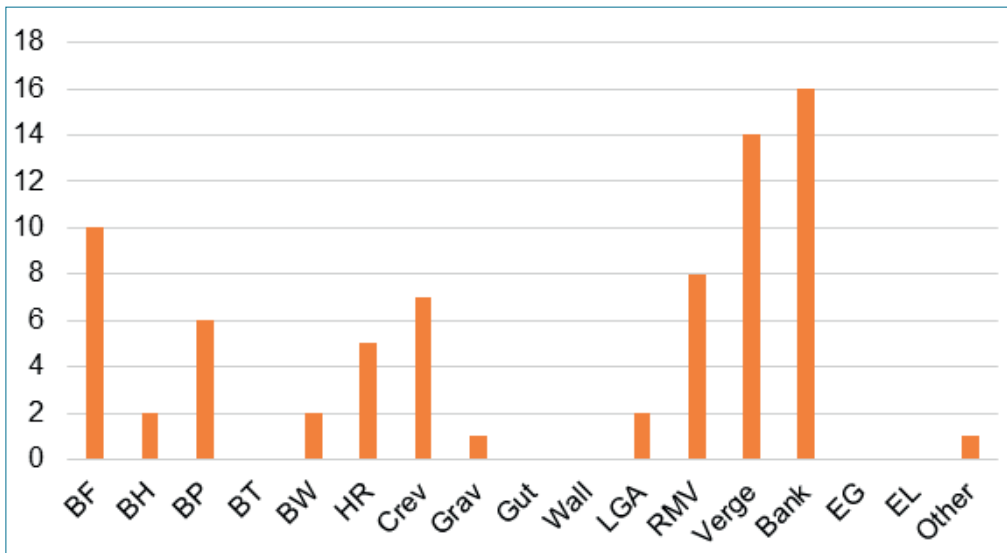


Figure 6. Number of unique species in each microhabitat.

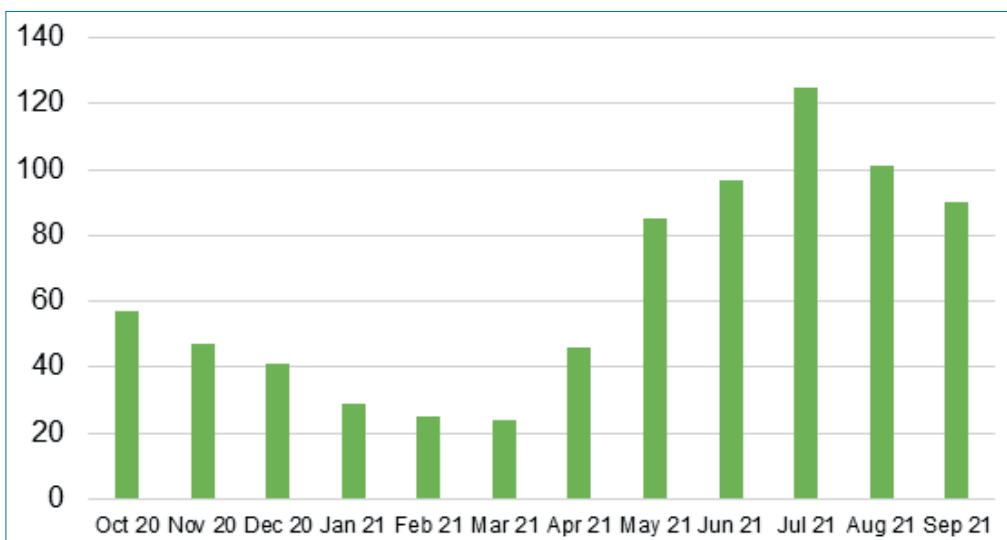


Figure 7. Total number of species recorded in flower each month.

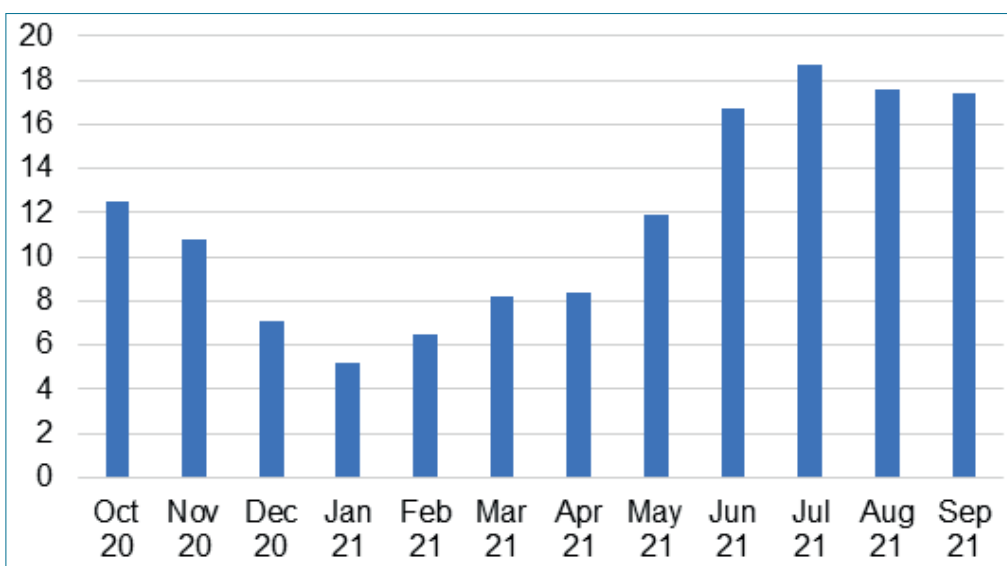


Figure 8. Average monthly temperatures for Hill Head area (°C) October 2020 to September 2021⁵.

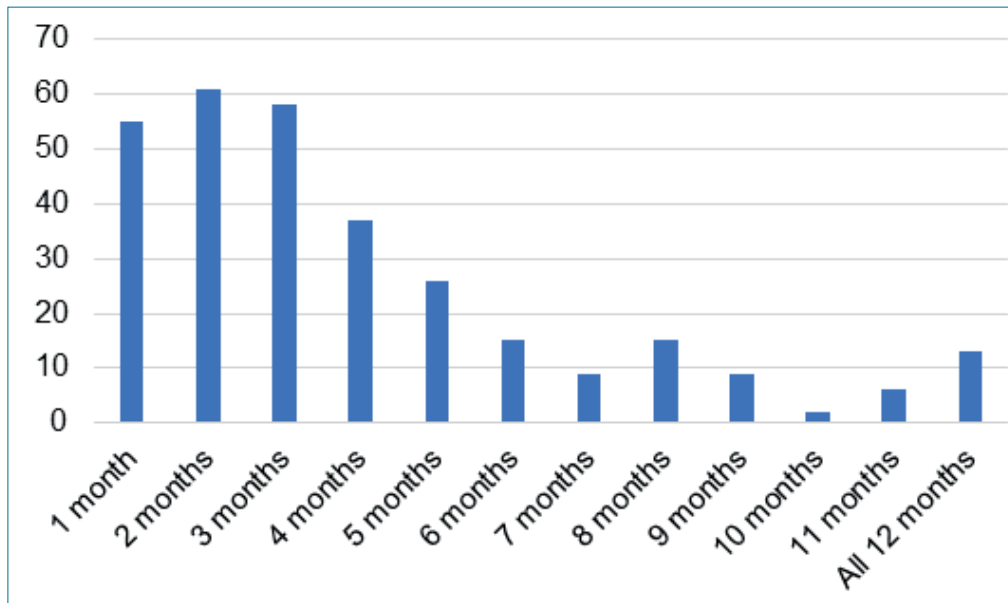


Figure 9. No of species flowering for different lengths of time.

Life cycle and flowering

Most plants have a short flowering season of one, two or three months but some (13 species) are in flower for the whole year (Figure 9).

Most species had one main flowering period but 21 appeared to produce a second flush. This second flush was not usually as vigorous as the first, main flowering period. Some species, like Lilac *Syringa vulgaris* and Blackthorn *Prunus spinosa* are shrubs which have the very occasional flower outside their usual flowering period.

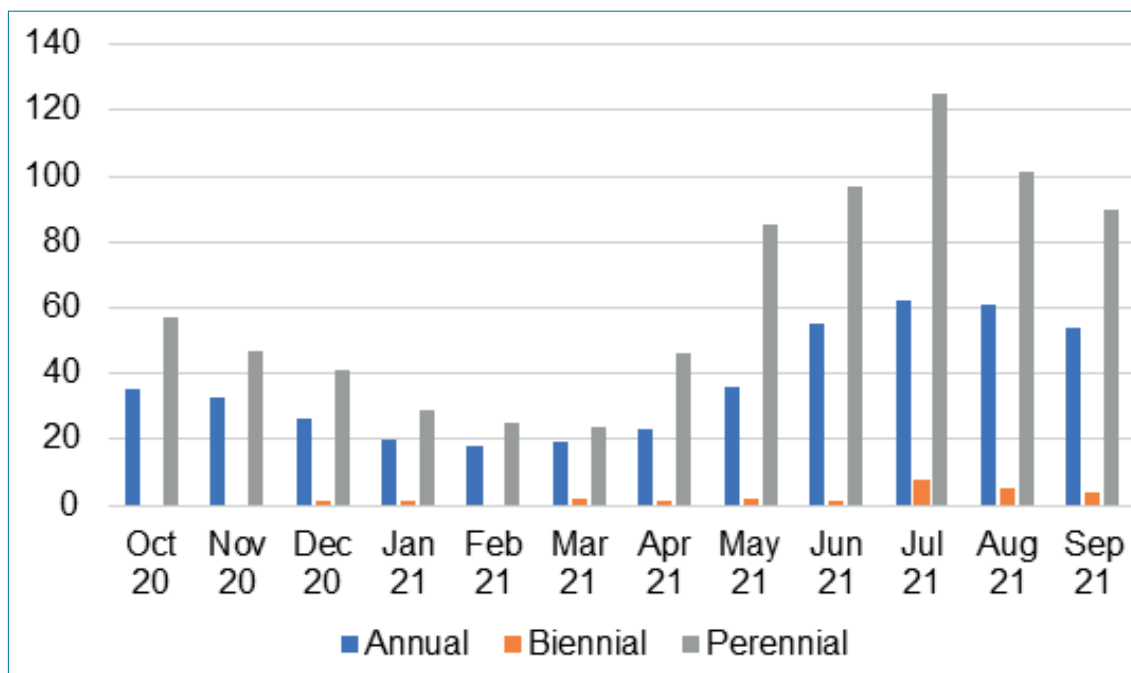


Figure 10. Numbers of annuals, biennial and perennial species in flower each month.

The numbers and percentages of annual, biennial and perennial flowering species were broadly the same each month (Figure 10) with the perennial plants consistently well outnumbering the other two categories (annual and biennial). The proportion of annual, biennial and perennial plants is different, however, in the different locations. (Figure 11).

Native and aliens in flower each month

In winter and in spring the numbers of native and alien species are fairly equal but this changes in May to September where the number of native species becomes much greater than alien, (Figure 12).

Successful plants

Taking into account the number of months in flower, the number of locations, the number of microhabitats and the number of records, the most successful five flowering plants in Hill Head are Common Chickweed *Stellaria media*, Groundsel *Senecio vulgaris*, Petty Spurge *Euphorbia peplus*, Smooth Sow-thistle *Sonchus oleraceus* and Annual Meadow-grass *Poa annua*. They are predominantly annual, native species.

It is interesting to note that the plants which are found in all five locations are also the ones found in most microhabitats and in most categories of habitat, whereas the ones found in only one location are found in both the fewest number of microhabitats and categories of habitat (Figure 13). Total transect data are there for comparison.

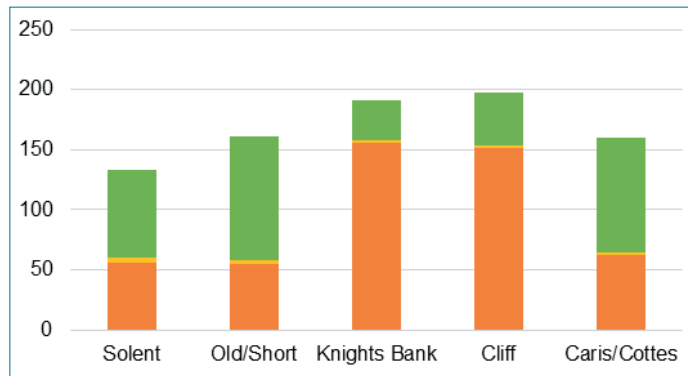


Figure 11. The number of annual (orange), biennial (yellow) and perennial (green) species recorded by location.

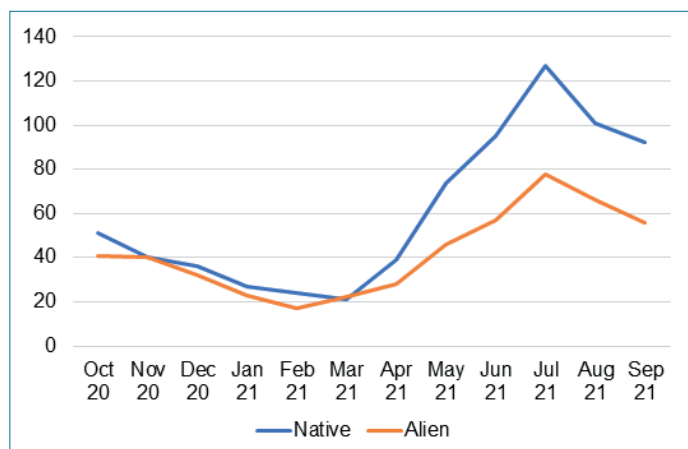


Figure 12. Number of native and alien flowering species recorded each month.

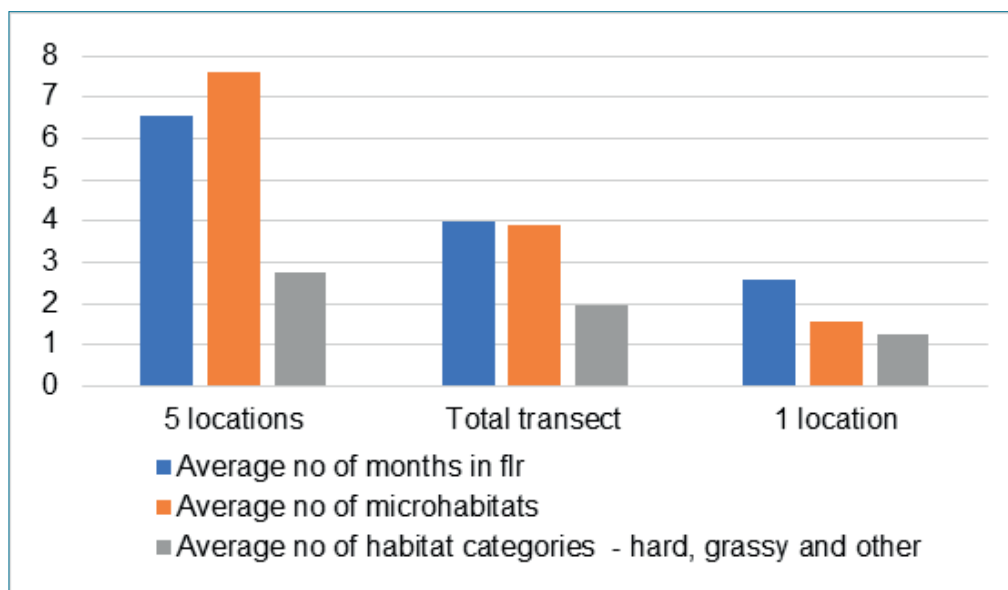


Figure 13. Comparison between species in 1 section, 5 sections and total transect.

Hard habitats include – crevices, walls, gravel/shingle and gutters. Grassy habitats include – regularly mown verges, occasionally strimmed verges, banks and large grassy amenity areas. Other habitats – mainly where the residents’ property meets the public area (base of fence, hedge, hedgerow, wall, etc.).

Effects of climate change

As so many garden centre plants are imported not only are we importing interesting plants but we may be also importing new plant diseases. With milder weather, plants which previously would have been killed by heavy frosts may persist and even thrive. Plants which are not part of our natural ecosystems cause a huge problem as they become invasive in our countryside and difficult to control, let alone eradicate.

We may have started to notice accelerated changes 'on the ground' and, importantly, descriptions in reference books will need to be looked at. Most of us use keys in reference books, which rely on descriptions of characteristics of plants including life cycle (annual, biennial and perennial), status (native or introduced) or when the plant is in flower, could find all the changes very confusing and perhaps such essential aids will have to be revised. Fascinating as the 'Google Search Image' facility is, it may not lead to correct identification.

Discussion

The transect method of walking the same path each month is a convenient and enjoyable way to sample the area. Residents are interested and it is an opportunity to share information about botany.

Although unusually hot dry conditions may be increasing with climate change, at the moment the brown and dry verges rapidly green up again when it rains. Heavy rain often washes away the plants growing in gutters. They come back again, but if weather becomes more intense, perhaps we can't take recovery for granted.

Weedkillers, and regular 3-weekly mowing of verges by the council, remove flowers before they are able to seed but currently this Borough Council activity seems to be supported by the community. It does not, however, encourage diversity and this will affect insects and the ecosystem.

Recent seeding of part of one of the large, grassed amenity areas with a wildflower mix may have a longer term effect on the area. The large grass areas were originally seeded with an amenity rye-grass mix.

Apart from Garden Pansy *Viola × wittrockiana*, Love-in-a-mist *Nigella damascena*, Garden Lobelia *Lobelia erinus* and Hollyhock *Alcea rosea*, few garden plants seem spread by seed far from the residents' gardens.

If you would like further details, including an annotated plant list, my contact email is mwonham7@gmail.com.

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Flora Group – the early years

A note by Catherine Chatters

During the Flora Group committee meeting last October, it was noted that the first Flora Group newsletter was published thirty years ago in November 1991. This discussion sparked an interest in the early history of the Flora Group and inspired me to have a look through the archive of paperwork stretching back to the time when the idea of forming a Flora Group was first suggested.

The suggestion for a Flora Group arose during 1988 following a presentation by botanist Sue Everett of the results of her survey to monitor the Red Data Book plants of Hampshire and the Isle of Wight on behalf of the Nature Conservancy Council (NCC). Amongst those present were members of the Hampshire and Isle of Wight Naturalists' Trust (HIWNT), the BSBI vice-county recorders and NCC staff including Andy Byfield. It was suggested that a 'Flora Conservation Group' could be hosted by HIWNT and Andy Byfield was asked to write a discussion paper regarding the aims and functions of the proposed group, to stimulate further ideas from local botanists.

Andy's discussion paper suggested that the Flora Group could (a) monitor the flora of Hampshire and the Isle of Wight, (b) manage populations of plants as and when such action was required and (c) have a 'beneficial educational role'. It is interesting to read about the sites and species that Andy chose as examples to illustrate this document; he suggested that the Flora Group could undertake small scale management work to benefit plants such as Red-tipped Cudweed.

Andy commented 'Whilst the Trust and NCC amongst others have organised these and similar tasks in the past, much remains unmanaged. Flora Group would be able to mastermind and co-ordinate annual programmes of work to ensure that no further rare species are lost from the county'.

During Spring 1989 Clive Chatters, in his role as Conservation Officer for HIWNT, invited botanists to an inaugural meeting in Winchester. This meeting was held on 22 June 1989, chaired by Dr Peter Brough and attended by Dr Bob Page (Director of HIWNT), Jonathan Stokes, Dr Colin Pope, Lady Anne Brewis, Jon Cox, Michael Baron, Rod Stern, Dr Francis Rose, Andy Byfield, Clive Chatters, Dr Robin Walls, Mr Brookner, Tony Mundell,



Flora Group meeting in the New Forest on 4 August 2002 with Pete Selby (former VC11 Recorder) in front row, wearing blue jeans. Tony Mundell

Alison Bolton, Gerry Munday, Neil Sanderson, Paul Bowman, John Ounsted and Geoffrey Field.

During the meeting, Andy Byfield introduced the idea of a Flora Group and Peter Brough opened a discussion about what such a group might achieve in Hampshire and the Isle of Wight. It was suggested that the Flora Group could comprise a group of experts and trainers who would encourage new botanists and be a 'forum for conservationists' and 'a focus for botanical conservation' within the Naturalists' Trust. The Flora Group could undertake research and fieldwork, including surveys relating to threatened flora. Tony Mundell suggested that the Flora Group's remit could include lichens, bryophytes and fungi. The Flora Group could manage botanical localities and Alison Bolton suggested that it could help to 'prevent extinctions' and 'prevent the need for re-introductions'. Rod Stern explained how flora groups operated in Surrey and Sussex, Francis Rose recommended that HIWNT could provide the 'infrastructure' required by the Group and Colin Pope noted that the Isle of Wight would benefit from expertise and conservation effort.

Peter Brough concluded that there was consensus for the formation of a group to 'promote flora conservation'. A small Working Party was formed to agree a constitution, aims and objectives and report back by late summer 1989.

In his invitation to the first meeting of the Working Party, Clive Chatters summarised the outcome of the meeting held on 22 June 1989:

- the Flora Group would be a component part of the HIWNT and would have a similar status to other HIWNT groups, e.g. Bat Group and Badger Group;
- the Flora Group would act as a focus for botanists and a focus for those interested in botany and conservation;
- various aims and objectives were discussed, including: to record; to conserve; to educate; to encourage new botanists; to carry out practical conservation work; to devise conservation strategies.



Photographs from a Flora Group event organised to manage the Heath Lobelia site in the south-west of the county which took place in February 1991 or 1992 (see p. 39). Top to bottom: Clive Chatters and Michael Way; Alison Bolton, Simon Aspinall and Andy Byfield; Andy Byfield (centre) and Clive Chatters (right); Michael Way and Ian Pearson. Catherine Chatters

The Working Party met in July and September 1989 and agreed that the Flora Group should tackle three main areas of work: scientific, conservation and education. The Working Party prepared a draft constitution, discussed the composition of a 'small active Flora Group committee' which would meet at least twice a year and agreed that the Flora Group would be launched in a forthcoming HIWNT newsletter. Ten events a year was considered to be 'the right level to start with' and would include workshop meetings to study particular groups, flora recording/mapping and rare species monitoring. It was felt that many meetings could combine elements of all these aspects and that the first year or so should concentrate on flora recording prior to publication of the Flora of Hampshire. Andy Byfield agreed to prepare a draft list of possible meetings/venues.

At a meeting held on 14 November 1989, chaired by Dr Peter Brough, the Flora Group constitution was adopted and the committee was formed: Andy Byfield (Chair), Catherine Chatters (Secretary), Clive Chatters (Treasurer and VC10 representative), Neil Sanderson (VC11 representative). Subsequently Tony Mundell agreed to represent VC12. Peter Brough asked the committee to consider producing a newsletter, exchanging field meeting dates with complementary botanical societies and holding an inaugural meeting for members in late April 1990.

The Flora Group Committee held its first meeting in December 1989 and was attended by Andy Byfield, Catherine Chatters, Clive Chatters and Neil Sanderson. Andy offered to write an article for inclusion in the April 1990 edition of the Naturalists' Trust newsletter to inform people of the existence of the Flora Group and it was decided that dates of Flora Group events would be included in the 'diary of events' sent out with the HIWNT newsletter. Clive and Andy agreed to discuss the possibility of producing a separate Flora Group newsletter.

The committee discussed suggestions for a programme of events in 1990:

- April New Forest ponds. Charophyte workshop to be led by Alison Bolton. Pond flora and ecology in general.
- May Flora mapping led by Rod Stern near Ditcham (Hampshire/Sussex boundary) with Sussex Botanical Recording Society.
- June Flora mapping exercise in north-west Hampshire.
- July Aquatics workshop on Basingstoke Canal with Chris Hall.
- August North coast, Isle of Wight.



Francis Rose (centre, with walking stick) during a Flora Group visit to Greywell Moors on 27 June 1992. Other people in the photo are Tony Mundell (far right), Vera Scott and Robin Walls (in shorts). Catherine Chatters



Lady Anne Brewis, Robin Walls and Francis Rose at Greywell Moors on 27 June 1992. Tony Mundell

September A day in the New Forest led by Clive Chatters to monitor Small Fleabane *Pulicaria vulgaris*/Pennyroyal *Mentha pulegium*.

October Flora mapping.

Other possible ideas for future consideration were discussed including a survey of the distribution of *Pulmonaria longifolia* in Hampshire and a study of the changes in density of Bracken in the New Forest.

Rather tantalisingly, I have found the file copy of a letter dated 12 April 1990 that I sent to people whom the Flora Group committee considered might be interested in Flora Group events. The letter states that the 'Hampshire Flora Group' had been formed under the auspices of HIWNT with the aim of monitoring Hampshire's flora (particularly rare, threatened and vulnerable species), to manage populations as and when action is required and to encourage knowledge and understanding of the botany of this county. The letter continues 'We have planned a number of events for the summer of 1990, details of which are enclosed with this letter'. Unfortunately, no programme of events is attached to this file copy of the letter. I have therefore attempted to piece together the early Flora Group events which were held prior to the production of our newsletter in November 1991.

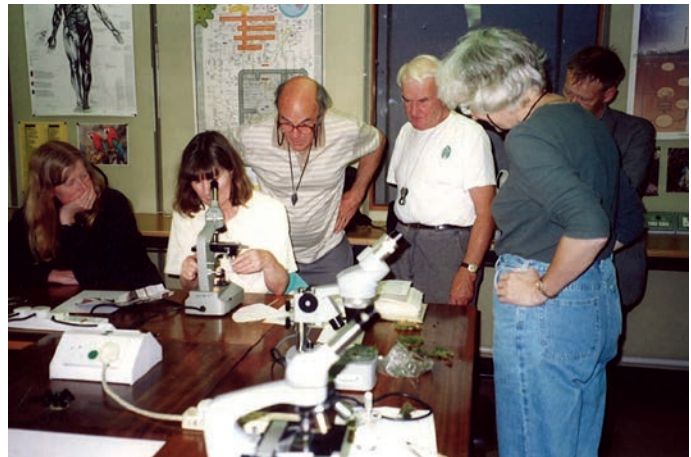
I have found a list of people who attended the Flora Group field meeting held on 22 April 1990 in the New Forest to study charophytes. It was kindly led by Alison Bolton in the marl pits near Crockford Bridge and was attended by Andy Byfield, Neil Sanderson, John Ounsted, Andrew Branson, Audrey Hold, Mary Cockerill, George Forster and me. A copy of a letter written by Andy Byfield in February 1990 confirms that this was the first event arranged by the Flora Group.

Andy's letter also refers to a survey of Hampshire localities for Long-leaved Helleborine that he was due to co-ordinate on behalf of the Flora Group on 10 June 1990 and I have found a letter from one of the participants who said she was 'delighted' to have been 'deployed to survey The Warren'.

There is correspondence on the file relating to a Flora Group visit scheduled for the evening of Wednesday 2 May 1990 to survey the shingle flora at Calshot.

Rod Stern kindly led the joint meeting on the Hampshire/Sussex border with the Sussex Botanical Recording Society on 19 May 1990; a letter from one of the participants describes it as 'excellent, well organised, efficient, fun and full of flowers'.

On 16 September 1990 Clive Chatters led a day in the New Forest to monitor the populations of Small Fleabane *Pulicaria vulgaris* and Pennyroyal *Mentha pulegium*. According to the newsletter produced in November 1991 these surveys 'proved to be very successful'. The report on Small Fleabane was summarised for *Watsonia* and the Pennyroyal information was being fed into the BSBI scarce plants project. The newsletter stated 'we hope re-surveys and monitoring of sites will reveal the populations dynamics of these rare specialist Hampshire species. Such information will be invaluable in understanding the conservation needs of the species in relation to long term trends and short term population fluctuation'.



Flora Group moss identification training session on 5 October 2002 at Cricklade College, Andover. Sarah Ball (with microscope), watched by Barry Goater and Rod Stern. Catherine Chatters



Roger Veall (centre) and Barry Goater (right) during a Flora Group event. Date and place unknown. Any suggestions? Catherine Chatters

During August 1991 Flora Group members met at Hatchet Pond in the New Forest to see Hampshire Purslane *Ludwigia palustris* and then split into smaller groups to search various localities to provide a census of this species. The survey showed that 'most of the historic sites still support the plant and a number of new localities were discovered. These surveys, together with the excellent studies by Paul Bowman and Alison Bolton are revealing the plant as a healthy and vigorous component of New Forest wetlands'.

Correspondence on the file reveals that when the Flora Group committee met in summer 1990, there was discussion about the possibility of producing a newsletter 'early in 1991'. Perhaps this never happened but if anyone has a Flora Group newsletter which was produced *before* November 1991, I would be very interested to hear from you (my contact details are on the back page of this current edition of *Flora News*).

Copies of the Flora Group newsletters from November 1991 onwards are available on the Hants Plants website. You will see that they have evolved beyond recognition since the early days when the newsletter was simply a few sheets of typed paper with no illustrations.

If anyone has any memories of past Flora Group events that they would like to share, please do get in touch. In the days before digital photography I didn't take many photographs of Flora Group events but I spent a pleasant evening recently sifting through a box of my old photos and have scanned those that relate to Flora Group activities. Foolishly I hadn't written the date on the back of any of the photos but I have worked out where or when some of them were taken. Thanks to Tony Mundell for confirming the date of the Flora Group event with Dr Francis Rose on 27 June 1992 at Greywell Moors; Tony has kindly provided a photograph that he took during that event and one of Flora Group members during a Flora Group event held in the New Forest in August 2002. If anyone remembers when/where the lower photo on p. 38 was taken, please let me know.

The four photos on p. 36 were taken during a Flora Group event to conserve the Heath Lobelia *Lobelia urens* site on the Hampshire/Dorset border. The Flora Group newsletter dated November 1991 states that the Heath Lobelia had 'responded well' to the clearance work undertaken by Flora Group during February 1991 with '120 flowering spikes showing in August'. It was noted that 'The Estate who own the site on the Hampshire/Dorset border have sought HWT's advice on the long term management of the site. We are planning to arrange further work on 16 February 1992'. I don't know whether the photos below of the Heath Lobelia working party were taken during February 1991 or in February 1992; does anyone remember?

Inspired by the 30th anniversary of Flora Group newsletters, Tony Mundell intends to write a brief article for a future edition of *Flora News*, about the Group's early attempts to conserve a couple of rarities.



Flora Group and BSBI party at Gilkicker Point, 2 June 2007 during the joint meeting to Gilkicker and Browndown, Gosport. John Norton

A field guide to the NVC – Part 6: lowland dry acid grassland

An article by John Norton



Parched acid grassland at Browdown SSSI, Gosport , 9 June 2019. Photographs by the author

Introduction

This completes my series of articles on the National Vegetation Classification (NVC) grassland communities. In past issues of *Flora News* I wrote a general introduction to grasslands and covered dry neutral grassland (*Flora News* No. 50, January 2016), wet grassland and rush pasture (*Flora News* No. 51, September 2016), calcareous grassland (*Flora News* No. 53, September 2017) and wet brackish grassland (*Flora News* No. 56, January 2019). The present article describes the core communities of dry acid grassland in the lowlands of Britain. To keep this reasonably concise I have not covered certain types of acid grassland that fall within the sand dune vegetation and maritime cliffs chapters (Rodwell 2000), although these are either absent from Hampshire or very limited in their extent. I have also omitted a few other less frequent types which I may tackle at a later date. In a future issue of *Flora News* I hope to publish a detailed account of my proposed new community nicknamed ‘*Geranium molle* grassland’, mentioned in my article on acid grassland indicators in *Flora News* 57.

As usual I have given scientific names of vascular plants, now following Stace (2019), on the first mention of each species. Within each sub-community account I have given the average number of species per sample from the published NVC floristic tables.

Definition and ecology

Dry acid grasslands have an interesting and quite complex ecology, so the following is only a brief summary. For a more comprehensive account refer to Neil Sanderson’s acid grassland review (Sanderson 1998), which is available on the Natural England website. It is also worth reading the introduction to the calcifugous grasslands and montane communities chapter of the NVC grasslands volume (Rodwell 1992), especially the Habitat section for U1, which is the predominant type of acid grassland in lowland Britain.

Lowland dry acid grassland is grassland that occurs on nutrient-poor, often freely draining soils, especially sands and gravels. These substrates are therefore usually base-poor and 'acidic', with a pH as low as 3 on heathland podzols, up to around 6–7 in other habitats. Lowland dry acid grassland is also often characterised by high levels of insolation, which can lead to parching of the vegetation during spells of warm, dry weather, especially by mid summer.

Dry acid grassland vegetation may be grass or herb dominated and may also support a variety of lichens and bryophytes. It occurs mainly on heaths and commons, coastal vegetated sand and shingle, abandoned sand and gravel quarries and sometimes along forestry tracks and on post-industrial land (where it can even develop on weathered calcareous substrates, such as asphalt). In most of these habitats it will typically receive grazing of some sort, be it by rabbits, deer or livestock, thereby preventing succession (and some might say degradation), to dwarf shrub heathland and scrub. Less acidic types of acid grassland sometimes occur in hard-grazed pony fields, public parks, churchyards and on road verges, though often only as localised patches within larger areas of neutral, moister (mesic) grassland.

A distinctive feature of many acid grasslands is their high level of disturbance. They are often subject to soil disturbance (from ants, rabbits and livestock), and also compaction and erosion (e.g. due to trampling by animals or people) and other biotic and environmental stresses. In combination with the summer parching this leads to the development of patches of bare ground, which provide an important habitat for the often characteristic annuals and ruderal species. Many of these are 'winter annuals' which typically develop over the late autumn to early spring period. Other well-represented groups of species in acid grassland are the slow-growing stress-tolerators with tough leaves (such as fescues *Festuca* spp.) and the hemicryptophytes with rosette leaves (e.g. Cat's-ear *Hypochaeris radicata*), both of which are resistant to trampling and grazing. Competitive, nutrient-demanding species are poorly represented in acid grassland because drought-prone soils restrict the growth and nutrient take-up of plants, even if nutrients are present in the soil.

The ability of acid grassland species to survive in dry, disturbed habitats means that several have also now found their way into the urban environment, particularly along road verges, kerbs and pavements. Some species which we regard mainly as urban 'ruderal' species are in fact acid grassland species (a good example being Whitlowgrass *Erophila verna*). There is also evidence that some acid grassland species are expanding their native ranges as a result of climate warming and a change to a more Mediterranean style of weather (wetter winters and warm, dry summers). Examples include species such as Early Meadow-grass *Poa infirma*, Clustered Clover *Trifolium glomeratum* and Knotted Hedge-parsley *Torilis nodosa*.

Floristics

Lowland dry acid grassland is typically dominated by Common Bent *Agrostis capillaris*, with variable amounts of Red Fescue *Festuca rubra*, Meadow-grasses *Poa* spp. and Sweet Vernal-grass *Anthoxanthum odoratum*. Other graminoids of heathy, more strongly acidic habitats include Bristle Bent *Agrostis curtisii*, Heath Grass *Danthonia decumbens*, Fine-leaved Sheep's-fescue *Festuca filiformis*, Heath Wood-rush *Luzula multiflora* and Pill Sedge *Carex pilulifera*. Wavy Hair-grass *Deschampsia flexuosa* is a feature of semi-upland heathy grassland, but requires damper conditions so is rarely found in open dry acid grassland in the south. In sandy or parched areas, annual grasses are distinctive, especially Squirrel-tail Fescue *Vulpia bromoides*, Soft Brome *Bromus hordeaceus* (sensu lat.), Early Hair-grass *Aira praecox* and Silver Hair-grass *A. caryophyllea*.

A large variety of herbs occur, but probably the most common and widespread are Sheep's Sorrel *Rumex acetosella*, Cat's-ear, Common Bird's-foot-trefoil *Lotus corniculatus*, Lesser Hawkbit *Leontodon saxatilis* and Ribwort Plantain *Plantago lanceolata*. Also characteristic, particularly on bare gravel and stony substrates, are the two native stonecrops,



Sheep's Sorrel *Rumex acetosella* and Heath Milkwort *Polygala serpyllifolia*, Browndown Common, May 2018.

Biting Stonecrop *Sedum acre* and English Stonecrop *S. anglicum* (the latter particularly in the south-west). Mossy Stonecrop *Crassula tillaea* is a characteristic species of heavily disturbed sites and is another species which is spreading in the UK. In certain situations Ragwort *Jacobaea vulgaris*, Common Nettle *Urtica dioica* and other taller weedy species may be locally frequent, including around rabbit burrows, where there may also be one or two species distasteful to rabbits, such as Ground-ivy *Glechoma hederacea*.

On heathy soils with low pH a suite of characteristic herbs appears, including Heath Bedstraw *Galium saxatile*, Slender St John's-wort *H. pulchrum*, Heath Milkwort *Polygala serpyllifolia*, Tormentil *Potentilla erecta*, Sand Spurrey *Spergularia rubra*, Heath Speedwell *Veronica officinalis* and Common Dog-violet *Viola riviniana*. These will often be joined by scattered, often grazed plants of Heather *Calluna vulgaris*, Bell Heather *Erica cinerea*, gorse species *Ulex*, bramble *Rubus* agg. and varying amounts of Bracken *Pteridium aquilinum*. Although more a feature of the west and north, woodland species such as Bluebell *Hyacinthoides non-scripta* and Wood Anemone *Anemone nemorosa* also occur in this type of acid grassland. Apart from Bracken, the only fern characteristic of acid grassland is Moonwort *Botrychium lunaria*, which is also primarily a northern and western species.

A large group of predominantly annual and ephemeral herbs is to be found on light soils, bare sand and more heavily disturbed or stressed areas. These include Slender Parsley-piert *Aphanes australis*, Little Mouse-ear *Cerastium semidecandrum*, Common Stork's-bill *Erodium cicutarium*, Smooth Cat's-ear *Hypochaeris glabra*, Small Cudweed *Logfia minima*, Upright Chickweed *Moenchia erecta*, Early Forget-me-not *Myosotis ramosissima*, Bird's-foot *Ornithopus perpusillus*, Annual Knawel *Scleranthus annuus*, Lesser Chickweed *Stellaria pallida*, Hare's-foot Clover *Trifolium arvense*, Hop Trefoil *T. campestre*, Knotted Clover *T. striatum* and Wall Speedwell *Veronica arvensis*. Several of these are particularly distinctive of pure sand and characterise the 'Thero-Airion alliance' type of vegetation which was not fully covered by the NVC (see further comments below, under U1).

Rather surprisingly, despite the frequent disturbance, acid grassland tends not to support many neophyte aliens, but one example is Pirri-pirri-bur *Acaena novae-zelandiae*, which is also mainly associated with sandy substrates. Some acid grassland species have a preference for coastal habitats, including Bulbous Meadow-grass *Poa bulbosa* and several of the clovers.

Herbs of more mesic (less water-stressed) mildly acidic grassland in man-made environments include perennials (some short-lived) such as Yarrow *Achillea millefolium*, Daisy *Bellis perennis*, Common Mouse-ear *Cerastium fontanum*, Dove's-foot Crane's-bill *Geranium molle*, Musk Stork's-bill *Erodium moschatum*, Buck's-horn Plantain *Plantago coronopus* and Lesser Trefoil *Trifolium dubium*, plus a variety of annuals, especially Annual Meadow-grass *Poa annua*, Early Meadow-grass, Spotted Medick *Medicago arabica* and Sticky Mouse-ear *Cerastium glomeratum*. These are all distinctive of 'Geranium molle grassland'.

A further group of species occurs on both dry acidic and calcareous soils, including Sheep's Fescue *Festuca ovina*, Slender Sandwort *Arenaria leptoclados*, Harebell *C. rotundifolia*, Carline Thistle *Carlina vulgaris*, Field Mouse-ear *Cerastium arvense*, Stemless Thistle *Cirsium acaule*, Eyebright *Euphrasia* agg., Common Cudweed *Filago germanica*, Lady's Bedstraw *Galium verum*, Mouse-ear Hawkweed *Pilosella officinarum*, Hoary Plantain *Plantago media*, Autumn Lady's-tresses *Spiranthes spiralis*, Dandelions *Taraxacum* in section *Erythroperma* and Large Thyme *Thymus pulegioides*.

Characteristic lowland acid grassland lichens include *Cladonia furcata*, *C. rangiformis* and *Peltigera* spp., especially *P. canina*, *P. hymenina* and *P. rufescens*. In heathy acid grassland other *Cladonia* species sometimes appear, together with *Cetraria aculeata*. Typical mosses found in various types of acid grassland include *Atrichum undulatum*, *Brachythecium albicans*, *Ceratodon purpureus*, *Dicranum scoparium*, *Hypnum cupressiforme* var. *jutlandicum* and var. *lacunosum*, *Polytrichum juniperinum*, *P. piliferum*, *Pseudoscleropodium purum*, *Rhytidiadelphus squarrosus* and *Syntrichia ruraliformis*.

Evaluation, conservation and threats

In the UK, acid grassland has been well-studied historically, especially in the Brecklands of East Anglia, but overall is rather poorly understood and under-appreciated (in marked contrast to calcareous grassland and dwarf shrub heathland vegetation). Rodwell (1992) noted that 'compared with their calcicolous counterparts' acid grasslands in Britain had 'commanded somewhat sporadic interest'. In more recent times little appears to have been published on acid grassland ecology, conservation and management since Neil Sanderson's review (Sanderson 1998), which is now more than twenty years old, though still highly relevant. The account of U1 in

Vegetation of Britain and Ireland (Proctor 2013) is contained within just a single paragraph. In addition to the much greater attraction of ecologists to species rich calcareous grasslands in the past, the lack of recent study of acid grasslands is undoubtedly due to the more pressing concern for old hay meadows and other types of herb-rich neutral grassland which have undergone much more serious declines in the UK in recent decades.

The four dry acid grassland NVC communities likely to be encountered in lowland Britain – U1 to U4 – fall within the definition of Lowland Dry Acid Grassland Priority Habitat in the UK (Maddock 2011) and qualify as a Habitat of Principal Importance in England under S.41 of the Natural Environment and Rural Communities (NERC) Act 2006. Also included are two of the sand dune communities, SD10 and SD11, not covered by this article. These types correspond to Lowland dry acid grassland ('g1a') of the UK Habitat Classification (Butcher et al. 2020). Only one rare lowland type of acid grassland of inland dunes is protected by European legislation as a Habitats Directive Annex 1 habitat.

As well as often being floristically rich, lowland dry acid grassland is important nationally for supporting a large number of rare and declining plants, such as Maiden Pink *Dianthus deltoides*, Heath Lobelia *Lobelia urens* (both Vulnerable in England) and Prostrate Perennial Knawel *Scleranthus perennis* subsp. *prostratus* (Endangered). Certain types of acid grassland (particularly those on moister soils not subject to summer parching) are important for grassland fungi, especially waxcaps and earth-tongues. Lowland acid grassland is also immensely important for reptiles, spiders and many insect orders which require summer warmth and bare soil, especially Lepidoptera, Orthoptera, Hemiptera, Coleoptera and Hymenoptera. Further information on important species of acid grassland is given in the review by Sanderson (1998).

Acid grassland of Priority Habitat quality is widespread throughout England and parts of Wales, with the majority of sites found on heathlands, coastal habitats and disused sand and gravel quarries. Many sites are nationally and internationally protected by virtue of their inclusion within larger heathland or coastal vegetated shingle sites, whilst smaller areas may receive non-statutory protection within county wildlife sites and nature reserves. However, dry soils supporting acid grassland often make good building land so often come up for development. Many smaller sites are therefore being lost through housing development – especially pony fields, former quarries and sand pits and sites which are managed as amenity grassland. Unfortunately, these types of sites are being lost because acid grassland is inherently difficult to survey (see below) and many ecological consultancies do not employ experienced vegetation surveyors when carrying out initial 'Phase 1' site appraisals. Moreover, the latter are often undertaken out of season and tend to focus on identifying habitats which might support protected species (of fauna). Acid grasslands are therefore often overlooked completely, mis-classified or in some cases deliberately downgraded to 'improved' or 'semi-improved' grassland of lower ecological value to reduce the 'burden' of habitat mitigation or Biodiversity Net Gain on developers.

Surveying acid grassland

Acid grasslands are probably the most difficult lowland habitat type to survey in the UK, even for experienced vegetation surveyors. There are several reasons for this, including the difficulty in identifying plants vegetatively or in a stunted state and the fact that annual plants may be absent or not visible out of season or in certain years when weather conditions are not suitable for germination. Periods of drought and rainfall can affect the appearance of acid grassland considerably and can give a false impression of the lack of herb richness and quality of the sward.

Notwithstanding these limitations, a good botanist should be able to recognise acid grassland vegetation based on the presence of the more characteristic perennial species, provided that the survey is undertaken during the key season of early spring to early summer. It is useful to be able to recognise the commoner mosses listed above.

For a reliable survey at least two visits should be carried out, timed for early April and late May to June in southern England, depending on the mildness and wetness of the preceding winter. It is very difficult to distinguish acid grassland from dry neutral grassland outside the main May to June period, especially when the ground is parched or if the grassland has been recently mown. To obtain a comprehensive species list for an acid grassland site would take much more effort – at least three visits between early spring and late summer (a visit in August can be useful) – and ideally a number of visits spread out over several years.

Classifying and mapping acid grassland is also made rather difficult because of some problems with the arrangement of sub-communities within the main U1 type (see below), but more importantly because intermediate

(transitional) types with other neutral grassland communities frequently occur. On heathlands, there may be mosaics of acid grassland with heathland vegetation and there is the added problem of how to record Bracken and scrub cover.

Descriptions

Overview

The 12 acid grassland types dealt with in this article are listed in Table 1. They are all included in Volume 3 of Rodwell (1992) and comprise the four main NVC communities of lowland dry acid grassland (U1 to U4), three of which are divided into sub-communities, plus U20a (Bracken stands with acid grassland). Note that some additional sub-communities not listed in the table are predominantly upland or do not count as grassland, so are not covered in this article. Also omitted are SD10, SD11 and a few rare or localised types, including specialised communities of the Lizard Peninsula in Cornwall, a mainly coastal type characterised by *Sedum* spp. and Sheep's-bit, and 'Chamomile grassland'. I may look at some of these in future articles. The descriptions which follow are mostly based on the published accounts, but are supplemented by my own observations.

Table 1: Types of lowland acid grassland. Where scientific names have changed the current names (e.g. Stace Ed. 4 for vascular plants) are shown in square brackets.

NVC chapter	Community	Sub-community
Calcifugous grasslands and montane communities (Rodwell 1992, Vol. 3)	U1 <i>Festuca ovina</i> - <i>Agrostis capillaris</i> - <i>Rumex acetosella</i> grassland	U1a <i>Cornicularia aculeata</i> [<i>Cetraria aculeata</i>]- <i>Cladonia arbuscula</i> sub-community
		U1b Typical sub-community
		U1c <i>Erodium cicutarium</i> - <i>Teesdalia nudicaulis</i> sub-community
		U1d <i>Anthoxanthum odoratum</i> - <i>Lotus corniculatus</i> sub-community
		U1e <i>Galium saxatile</i> - <i>Potentilla erecta</i> sub-community
		U1f <i>Hypochaeris radicata</i> sub-community
	U2 <i>Deschampsia flexuosa</i> grassland	U2a <i>Festuca ovina</i> - <i>Agrostis capillaris</i> sub-community
	U3 <i>Agrostis curtisii</i> grassland	(no sub-communities)
	U4 <i>Festuca ovina</i> - <i>Agrostis capillaris</i> - <i>Galium saxatile</i> grassland	U4a Typical sub-community
		U4b <i>Holcus lanatus</i> - <i>Trifolium repens</i> sub-community
U4c <i>Lathyrus montanus</i> [<i>Lathyrus linifolius</i>]- <i>Stachys betonica</i> [<i>Betonica officinalis</i>] sub-community		
U20 <i>Pteridium aquilinum</i> - <i>Galium saxatile</i> community	U20a <i>Anthoxanthum odoratum</i> sub-community	

U1 *Festuca ovina*-*Agrostis capillaris*-*Rumex acetosella* grassland

Distribution and general characteristics

U1, also known as 'parched acid grassland' (Sanderson 1998) is the most common and widespread type in southern and eastern Britain. The NVC community and its six sub-communities were delineated on the basis of relatively few samples ($n = 203$) of which a large proportion were from historical data collected from the Brecklands of East Anglia. This has unfortunately caused some anomalies in the described types due to the inclusion of records of species characteristic of more calcareous sandy soils. Nevertheless, at least three of the six sub-communities are widespread outside of the Brecks and are reasonably well defined.

Some of the sub-communities of U1 are relatively species rich, and are on a par with some of the richer types of neutral and calcareous grassland in this respect. In the published floristic tables Rodwell (1992) gives the average number of species per sample over the community as 16, compared to 23 for MG5, but the 'true' figure for U1 could be nearer 20. The NVC data are likely to have been affected by sampling too late in the year to adequately record the earlier-flowering annuals, and may also have been influenced by some of the other factors mentioned above (see 'surveying acid grassland').

One important point to be aware of is that although included in the community name, Sheep's Fescue *Festuca ovina* is almost *never* found in typical examples of U1 in southern Britain outside of the Brecks. The nominate

subspecies *F. ovina* subsp. *ovina*, which according to Stace (2019) does occur mainly on acid soils, is 'very sparse' in south-central and south-east England. It seems that in these regions *F. ovina* is replaced by Fine-leaved Sheep's-fescue *F. filiformis* (formerly *F. tenuifolia*), particularly on more strongly acid soils. The NVC did not differentiate between *F. ovina* and *F. filiformis* and the name '*F. ovina*' should be regarded as an aggregate of these.

U1 is usually dominated by smaller, fine-leaved perennial grasses, especially Common Bent, Sweet Vernal-grass, Red Fescue and some *Poa* species. A number of other grasses may occur at low frequency, including tussocky or coarser species such as False Oat-grass *Arrhenatherum elatius*, Heath Grass and sometimes Yorkshire-fog *Holcus lanatus*. On more strongly parched and disturbed soils the predominant species are the annual Squirrel-tail Fescue, Early Hair-grass and Soft Brome *Bromus hordeaceus* (including subsp. *thominii* and *feronii* in coastal areas). There are relatively few associated rushes, sedges and relatives, the more frequent being Field Wood-rush *Luzula campestris* (though often more characteristic of MG5), Prickly Sedge *Carex muricata* subsp. *pairae* and Spring Sedge *Carex caryophylla*.

Sheep's Sorrel is the only herbaceous constant in U1, but even though perennial, this species is strongly dependent on regular disturbance to open up niches for it, so is not always visible in closed, mown turf. The other most frequent perennial herbs comprise Cat's-ear, Lesser Hawkbit and Ribwort Plantain, plus Common Bird's-foot-trefoil which is most characteristic of U1d. Heathy perennials are usually scarce or absent, except for Heath Bedstraw and Tormentil which occur in U1e.

Annual species help to characterise the community, and are most diverse and numerous in U1c. The most frequent annual herbs across the community as a whole are Common Stork's-bill, Slender Parsley-piert, Wall Speedwell, Bird's-foot and the two Forget-me-nots *Myosotis discolor* and *M. ramosissima*. It is worth noting that there is a distinctive community of annual grasses, herbs and mosses on pure, often unconsolidated sand, which can include most of the annual listed under Floristics (above), but is especially characterised by Silver Hair-grass, Hare's-foot Clover, Bird's-foot and Small Cudweed. This type of acid grassland falls within the continental Thero-Airion alliance, which Rodwell noted had been omitted from the published NVC (Rodwell et al. 2000, Rodwell et al. 2007), although it is partially covered by MC5 *Armeria maritima-Cerastium diffusum* maritime therophyte community. In their review of the NVC coverage Rodwell et al. (2000) suggested that possibly three additional Thero-airion communities 'ephemeral vegetation of bare but stable acid sands and rock outcrops' should be recognised. I have not delved into these any further in this article, but they are occasionally encountered in Hampshire, particularly in old sand pits and on sandy heathland sites. Interestingly, Neil Sanderson (pers. comm.) is of the opinion that U1a, U1b, U1c and the drier forms of U1e and U1f all belong in the Thero-Airion, whilst U1d and the damper U1f fall under the more mesotrophic Plantagini-Festucion grasslands.

If undergrazed or neglected, U1 can become strongly dominated by fescues, especially Red Fescue, which forms small but very dense tussocks. A few herbs may still be visible, growing in gaps between the tussocks or where there has been some disturbance by rabbits, especially Sheep's Sorrel and Common Bird's-foot-trefoil, but annuals and ephemerals may be scarce. Pleurocarpous mosses may also form a dense ground layer in longer swards, particularly *Pseudoscleropodium purum*. Species poor stands are generally placed under the U1b Typical sub-community; richer stands tend to fall under U1d or U1f.

Sub-communities

U1a *Cornicularia aculeata* [*Cetraria aculeata*]-*Cladonia arbuscula* sub-community is a lichen-rich type of highly stressed vegetation on very nutrient poor sandy substrates. It is largely confined to the Brecklands of East Anglia, but also occurs at Dungeness in Kent and Woolmer Forest in Hampshire where there is a nationally important stand of it. It is a very herb poor sub-community, dominated by Sheep's Fescue (sensu lat.) with frequent Sheep's Sorrel, but only scattered plants of other acid grassland species. The lichens mainly comprise *Cladonia* species, especially the 'Reindeer mosses' in the *Cladina* section, especially *Cladonia arbuscula*, *C. ciliata* and *C. portentosa*, and also *Cetraria aculeata*, which is included in the sub-community name, and *Peltigera* spp. Note that some types of U1 can support the commoner *Cladonia furcata* and *C. rangiformis* at high abundance, but to qualify as U1a some of these characteristic species need to be present.

Mosses are also well-represented, with the more frequent comprising *Polytrichum juniperinum*, *P. piliferum*, *Dicranum scoparium* and *Hypnum cupressiforme* var. *lacunosum*, often with *Syntrichia ruraliformis* and

Brachythecium albicans in unconsolidated sand. Small areas of U1a also probably occur in the New Forest, and vegetation resembling this is present on Browdown in Gosport, although here the lichens are mostly subordinate to the mosses, probably partly due to trampling. Interestingly, Rodwell (1992) notes that the moss *Campylopus introflexus* can be seen in some stands of U1a. This introduced species was first found in the UK in 1941 and would have still been relatively scarce when the NVC work on U1 was carried out (but is now abundant everywhere on dry heathland). NVC floristic table: average 14 species per sample; range 7–20.

U1b Typical sub-community is the ‘standard’ type of U1 on moderately acidic, moderately dry and lightly disturbed soils. It is often rather strongly grass-dominated (particularly by Common Bent and Sweet Vernal-grass) and can look rather ‘semi-improved’, but it varies from herb poor to moderately herb rich. It usually supports most of the characteristic U1 herb species, Sheep’s Sorrel and Ribwort Plantain being the most frequent. It also may support some of the weedy and mesotrophic species, such as Ragwort *Jacobaea vulgaris*, Yarrow and Common Mouse-ear *Cerastium fontanum*. Typical annuals include Squirrel-tail Fescue, Early Hair-grass, Slender Parsley-piert and Common Stork’s-bill. Mosses are usually not prominent, though Rodwell notes that *Brachythecium albicans* is sometimes quite extensive. Neil Sanderson (pers. comm.) notes that U1b is local in the New Forest where it occurs on soils too winter dry and/or acid to support U1f, but is probably more frequent on the drier Wealden sands. NVC floristic table: average 13 species per sample; range 5–27.

U1c *Erodium cicutarium*-*Teesdalia nudicaulis* sub-community is described by Rodwell (1992) as the ‘richest and most striking kind’ of U1 grassland. As with U1a it is particularly characteristic of Breckland and described on the basis of historical data from that area, so small differences are observed in other regions, including the absence of Crested Hair-grass *Koeleria macrantha* and rarities such as Breckland Thyme *Thymus serpyllum* (unsurprisingly) and Purple Milk-vetch *Astragalus danicus*. It is worth noting that although included in the sub-community name, Shepherd’s Cress *Teesdalia nudicaulis* is rather uncommon in the sub-community, at least in Hampshire, and may be absent from many examples; it also occurs in three of the other sub-communities, so its presence is not necessarily diagnostic of U1c. U1c is much more widespread outside the Brecks than U1a, and may be at least occasional in Hampshire, particularly around the coast at places like Hayling Island and Gosport, as well as inland in north-east Hampshire and the New Forest. NVC floristic table: average 24 species per sample; range 15–35.

Thus, the ‘non-Breckland’ U1c is composed of mixtures of the main perennial and annual grasses (Common Bent, Red Fescue, Sweet Vernal-grass, Squirrel-tail Fescue and Early Hair-grass), the typical U1 herbs (including Sheep’s Sorrel, Cat’s-ear and Ribwort Plantain) with a wide variety of the other associated species, especially the annuals and ephemerals which help to make the sub-community distinctive. Amongst the more frequent of these are Slender Parsley-piert, Sandwort spp. Common Stork’s-bill, Whitlowgrass, Smooth Cat’s-ear, Small Cudweed, Changing Forget-me-not, Early Forget-me-not, Bird’s-foot, Lesser Chickweed and Wall Speedwell. Trefoils, clovers and other legumes are sometimes also frequent, especially on the coast or on slightly base-rich gravelly substrates. These include Lesser Trefoil, Hop Trefoil, Bird’s-foot Clover *Trifolium ornithopodioides*, Knotted



U1a lichen heath, Woolmer Forest, September 2012.



Shepherd’s Cress *Teesdalia nudicaulis*

Clover and more rarely Slender Bird's-foot-trefoil *Lotus angustissimus*. Bulbous Meadow-grass *Poa bulbosa* is possibly also characteristic of this sub-community.

Most of the typical U1 species of mosses occur in U1c in variable quantity, with the most frequent being *Polytrichum juniperinum*, *Brachythecium albicans*, *Ceratodon purpureus*, *Hypnum cupressiforme* var. *lacunosum* and *Syntrichia ruraliformis*.

U1d *Anthoxanthum odoratum*-*Lotus corniculatus* sub-community develops on more mesic, i.e. moister soils where summer parching does not exert so much influence. It therefore tends to look more like neutral grassland and indeed examples usually show some degree of transition to **MG5c** *Cynosurus cristatus*-*Centaurea nigra* grassland, *Danthonia decumbens* sub-community. It is also quite similar to U1f (see below). Yorkshire-fog often occurs in addition to the main U1 grasses and is preferential to the sub-community. Sweet Vernal-grass and Common Bird's-foot-trefoil are both much commoner here than in the other sub-communities, and are joined by Yarrow and occasionally by Lady's Bedstraw. Ragwort is often present. The other typical U1 herbs are still frequent, especially Mouse-ear Hawkweed. Harebell *Campanula rotundifolia* is slightly preferential. Some of the typical mosses can occur, and can reach quite high cover (especially *Rhytidiadelphus squarrosus*), but lichens are usually not well represented. U1d is likely to be reasonably widespread across lowland Britain. NVC floristic table: average 17 species per sample; range 6–28.

U1e *Galium saxatile*-*Potentilla erecta* sub-community is described by Rodwell (1992) as being composed of Sheep's Fescue and Common Bent, with small amounts of Wavy Hair-grass and Sweet Vernal-grass. Heath Bedstraw and Tormentil are common and characteristic, with occasional Mouse-ear Hawkweed, Ragwort, Common Bird's-foot-trefoil and Common Mouse-ear. Sheep's Sorrel also remains frequent, but the other annual and ephemeral species characteristic of U1c are much rarer. Small plants of Heather and gorse spp. may occur. Mosses and lichens are poorly represented. Due to the presence of Heath Bedstraw and Tormentil, the sub-community is closely related to U4, and the two are sometimes difficult to distinguish, especially in closed swards where Sheep's Sorrel may not be visible. However, usually at least a few annuals are present, including for example, Early Hair-grass, which helps separate U1e from U4. NVC floristic table: average 14 species per sample; range 9–32.

Although samples of U1e mapped in Rodwell (1992) were widely distributed over the country, it seems to be relatively rare in the south and east. In my experience, examples of acid grassland with Heath Bedstraw and Tormentil in southern England usually have Sheep's Sorrel absent and so could be recorded as the closely similar U4. However, as also noted by Sanderson (1998), U4 is really a distinctive type of moist acid grassland of the north and west, especially in semi-upland areas and is probably over-recorded in the south. The sensible approach is probably to record examples in the south and east that resemble U4 as U1e, even if Sheep's Sorrel and other annuals are at low frequency or appear to be absent. In Hampshire, I have come across U1e/U4 grassland in Botley Wood, Havant Thicket and Blendworth Common near Horndean. In the New Forest, it is fairly widespread but its habitat is mostly occupied by U3 (Neil Sanderson, pers. comm.).

U1f *Hypochaeris radicata* sub-community is characterised by the abundance of hemicryptophytes and other rosette-leaved species, especially Cat's-ear, Lesser Hawkbit, Ribwort Plantain and often also with Buck's-horn Plantain and Common Centaury. It is difficult to get a feel for the sub-community from the NVC account, which was based on only 16 samples and mentions several anomalous species which may not be characteristic of the sub-community as a whole (such as Early Hair-grass and English Stonecrop). However, it is clear that U1f is a common and widespread type, possibly even the commonest type of U1 grassland in southern England, being especially distinctive of grazed and mown sites on pony fields, road verges and unimproved garden lawns. However, in terms of its floristics it is quite similar to U1d and these two can sometimes be difficult to distinguish. Like U1d it often occurs in transitions to MG5. Neil Sanderson (pers. comm.) notes that generally the U1d and U1f assemblages merge on the more mesic soils in the south and west. Only in the east of England is it possible to see U1d without any floristic elements from U1f, where the soils are drier and more acidic. NVC floristic table: average 15 species per sample; range 7–27.

U1f is typically dominated by mixtures of Red Fescue (often more abundant than Common Bent), Sweet Vernal-grass and Yorkshire-fog, with Squirrel-tail Fescue appearing on bare areas in spring. Soft Brome may be more frequent here than in other sub-communities. Other occasional to locally frequent herbs include dandelions and Lesser Trefoil. Winter annuals are relatively poorly represented. Common Bird's-foot-trefoil should occur at

much lower frequency than in U1d (except in the intermediate examples referred to above). Wild Thyme *Thymus drucei* is mentioned as being present in one of the NVC samples, but is probably rare in this sub-community outside of the Brecks. However, both this and Large Thyme *T. pulegioides* occur in what is probably this sub-community along some of the dry road verges in the New Forest where there is a strong calcareous influence. Sanderson (1998) noted that annual *Trifolium* and *Lotus* species are also characteristic of some stands but are not represented in the NVC samples (Knotted Clover is one such species). In transitions to MG5 my own data indicates that species such as Bulbous Buttercup *Ranunculus bulbosus*, Red Clover *Trifolium pratense*, Field Woodrush and Selfheal *Prunella vulgaris* start to appear. Rodwell (1992) mentioned a few bryophytes which can attain high cover in some stands, such as *Polytrichum* spp. and *Hypnum cupressiforme* var. *lacunosum*, but lichens are usually scarce.

U2 *Deschampsia flexuosa* grassland

Distribution and general characteristics

As noted earlier Wavy Hair-grass *Deschampsia flexuosa* requires a certain degree of soil moisture, so seldom occurs in open grassland in southern and eastern England. Rodwell (1992) notes that it occurs 'through the upland fringes and moderately oceanic parts of the lowlands' and gives more detail on the moisture requirements and conditions for it to become established. In the south and east it is usually replaced by U1 (e.g. U1e on heathy soils).

The community is strongly dominated by Wavy Hair-grass, with other grasses present only at low cover and frequency, most commonly Fine-leaved Sheep's-fescue *Festuca filiformis* and Common Bent. Heathy acid grassland herbs may also be present, especially Heath Bedstraw and Tormentil. Heather is constant in the community, 'usually as sparse shoots but sometimes absent altogether' (Rodwell 1992), thus distinguishing it from the related heath communities. Bryophytes and lichens may be frequent to abundant, particularly those associated with heathland and moorland.

Only one of the two sub-communities is likely to occur in the south (U2a – see below). The other (U2b) is a more strictly upland type in areas of higher rainfall, characterised by the additional presence of Bilberry *Vaccinium myrtillus* and Crowberry *Empetrum nigrum*. In Hampshire and other parts of the south-east U2 is probably very localised on areas with moister soils and usually only occurs as small stands on ungrazed sites. With grazing it is likely to be converted to U1e or U4 (Sanderson 1998).

Sub-communities

U2a *Festuca ovina*-*Agrostis capillaris* sub-community is dominated by Wavy Hair-grass, with frequent Fine-leaved Sheep's-fescue, Common Bent, Heath Bedstraw and Tormentil. Sheep's Sorrel is a distinctive associate. Other vascular plants listed in the NVC floristic table include Common Sorrel *Rumex acetosa*, Rosebay Willowherb *Chamaenerion angustifolium*, Creeping Soft-grass *Holcus mollis*, Bracken and bramble. Seedlings or saplings of oak *Quercus* and birch *Betula* species may also occur. Typical mosses include *Polytrichum piliferum*, *Dicranum scoparium* and *Campylopus introflexus*. NVC floristic table: average 9 species per sample; range 3–16.

U3 *Agrostis curtisii* grassland

Distribution and general characteristics

This community is straightforwardly characterised by the dominance of Bristle Bent *Agrostis curtisii*, often in association with Fine-leaved Sheep's-fescue. Bristle Bent is associated with heathland habitats in south-west England and the community is characteristic of sites where certain conditions of climate, past management and soil type prevail. Rodwell (1992) gives a very detailed account of its ecology. He noted that some 'large stands' occur



U3 acid grassland dominated by Fine-leaved Sheep's-fescue *Festuca filiformis* and Bristle Bent *Agrostis curtisii* in ungrazed heathland at Browndown Common, Gosport, August 2017.

in the southern parts of the New Forest, but it is also probably widespread elsewhere in Hampshire, though sometimes present only as small patches or thin strips associated with paths and tracks on heathland sites. No sub-communities are distinguished in the published NVC but Neil Sanderson (pers. comm.) notes that it certainly has a '*Danthonia decumbens-Agrostis capillaris*' lowland sub-community here, versus a '*Vaccinium myrtillus*' sub-community in the south-west 'uplands'. NVC floristic table: average 15 species per sample; range 7–22.

Unless very well grazed, Bristle Bent characteristically grows as discrete tussocks, giving a distinctive appearance to the vegetation and allowing a moderately species rich assemblage of typical heathland plants to occupy the gaps between. Other constant species in the community are Heath Grass, Tormentil, Heath Bedstraw and Heather. Occasional to frequent species include Common Bent, Purple Moor-grass, Mat-grass *Nardus stricta*, Pill Sedge, Heath Milkwort and Cat's-ear. The floristic table also lists a number of other grasses, together with most of the heathy shrubs and dwarf shrubs, Bracken, various mosses and two Cladonias. However, only 18 samples were used to compile the data and there are a large number of other common heathland vascular plants, bryophytes and lichens that can sometimes occur, such as Umbellate Hawkweed *Hieracium umbellatum*, Sand Spurrey and Heath Groundsel *Senecio sylvaticus*.

Where stands are clearly dominated by Bristle Bent the community is straightforward to distinguish, but it often forms transitions to other types of heathy acid grassland. After burning it can become co-dominant with Purple Moor-grass, which Rodwell suggests should be considered a grassy form of **M25** *Molinia caerulea-Potentilla erecta mire*. It also forms mosaics with the dwarf shrub heath communities with which it is associated, especially where heathers and gorse are regenerating after past burning.

U4 *Festuca ovina-Agrostis capillaris-Galium saxatile* grassland

Distribution and general characteristics

U4 is primarily a community of upland or semi-upland acid grassland in areas of high rainfall and accounts for the majority of species poor *Festuca-Agrostis* grassland in western and northern Britain. Unsurprisingly, therefore, it was much better sampled in the NVC dataset than were other acid grassland types. The constant species are Common Bent, Sweet Vernal-grass, Sheep's Fescue (s. lat.), Tormentil and Heath Bedstraw. Most of the other typical grasses and herbs of heathy habitats mentioned in the Introduction can also occur, but one of the sub-communities is distinctive of semi-improved situations and may support a range of mesotrophic grasses and herbs. The community is mostly associated with heathland and moorland, and may therefore also include heathers, gorse and Bracken. Mosses are usually sparse but may be locally abundant, with *Rhytidiadelphus squarrosus* and *Pseudoscleropodium purum* being the most common. Typically the vegetation is short and well grazed, with little bare ground.

Five sub-communities are described in the NVC chapter, of which two: **U4d** *Luzula multiflora-Rhytidiadelphus loreus* sub-community and **U4e** *Vaccinium myrtillus-Deschampsia flexuosa* sub-community are confined to the uplands and not dealt with here. The other three occur in the damper south-west but are probably absent from Hampshire and other parts of the south-east, except maybe in the New Forest. Suspected examples of U4 in the county are more likely to be U1e (see comments above) or a variant of **U20a**, described below. Brief notes on three of the five sub-communities are given below.

Sub-communities

U4a *Typical sub-community* is a species poor sward composed of the constant species, sometimes with Red Fescue replacing Sheep's Fescue, and occasionally Velvet Bent *Agrostis canina* and Yorkshire-fog present. Heath Grass may be conspicuous, but occurs at low cover. Other slightly preferential graminoids include Field Woodrush and Pill Sedge. The NVC account mentions Common Dog-violet, Ribwort Plantain, Heath Speedwell and Yarrow as being fairly frequent, with Common Bird's-foot-trefoil, Lady's Bedstraw, White Clover and Common Mouse-ear occasional as scattered individuals. NVC floristic table: average 22 species per sample; range 7–62.

This type can probably be considered the northern counterpart of U1b. It is interesting to note that the average of 22 species per sample compares with only 13 for U1b, but the figure for U1b is probably a little too low, due to under-sampling of annual species, as noted above. The maximum 62 species per sample for U4a is clearly anomalous.

U4b *Holcus lanatus*-*Trifolium repens* sub-community is the most mesotrophic of the three sub-communities described here and distinctive of semi-improved examples. Sheep's Fescue is replaced by Red Fescue and in addition to co-dominant Common Bent occurs with Yorkshire-fog, Cock's-foot *Dactylis glomerata*, Crested Dog's-tail *Cynosurus cristatus* and Smooth Meadow-grass *Poa pratensis*. Perennial Rye-grass *Lolium perenne* can also occur. The heathy grasses are scarce or absent. Tormentil and Heath Bedstraw are much less common, whilst Yarrow, White Clover and Common Mouse-ear are much more frequent than in U4a. Other occasional herbs include Ribwort Plantain, Common Sorrel, Common Dog-violet, Lady's Bedstraw, Common Bird's-foot-trefoil, Selfheal, Dandelion and Daisy. NVC floristic table: average 20 species per sample; range 11–39.

U4c *Lathyrus montanus* [*Lathyrus linifolius*]-*Stachys betonica* [*Betonica officinalis*] sub-community is described as being dominated by Sheep's Fescue (occasionally with some Red Fescue) and Common Bent, with very common Sweet Vernal-grass. The other pasture grasses are no more than occasional, but species of calcareous grassland, such as Meadow Oat-grass *Avenula pratensis*, Crested Hair-grass and Quaking-grass *Briza media* are fairly frequent. Heath Grass and Field Woodrush are also locally frequent, with Spring Sedge being preferential at low frequencies. Strongly preferential herbs are Bitter-vetch *Lathyrus linifolius*, Betony *Betonica officinalis* and Devil's-bit Scabious *Succisa pratensis*, whilst the community constants, Tormentil and Heath Bedstraw may be patchy or scattered in occurrence. Others mentioned in the NVC account include Common Dog-violet, Common Sorrel, Ribwort Plantain, Yarrow and Meadow Buttercup *Ranunculus acris*. NVC floristic table: average 28 species per sample; range 18–42. This is the most species rich of all the U4 sub-communities.

U20 *Pteridium aquilinum*-*Galium saxatile* community

Distribution and general characteristics

This community provides a useful means of classifying stands of grassy vegetation that have become invaded by and often dominated by Bracken *Pteridium aquilinum*. The NVC account states that the cover of Bracken is more than 25% and notes that the fronds may reach 2 metres or more in height, so that stands often become impenetrable later in the season (as any vegetation surveyor is well aware of!). The ecology and management of Bracken is well studied, due to the economic impact it can have on hill farming in the north and west. Rodwell provides a thorough review in the NVC chapter (though some of the information may be out of date now), and he also describes the various relationships with other types of vegetation.

Two of the sub-communities are not relevant here; they are **U20b *Vaccinium myrtillus*-*Dicranum scoparium* sub-community**, which is mainly a type found on heathlands and **U20c Species poor sub-community**

which is the type strongly dominated by Bracken, particularly in woodland settings. The remaining type (U20a, see below) is found in more open, grassy situations within heathlands or in areas of recently clear-felled woodland on acid soils, and forms mosaics and transitions with other types of acid grassland. It is widespread over Britain generally.

In addition to Bracken, the community constants are Sheep's Fescue (s. lat.), Heath Bedstraw and Tormentil, with Common Bent and Sweet Vernal-grass also very frequent, and Creeping Soft-grass *Holcus mollis* often characteristic. Most of the other heathy acid grassland herbs are also represented, as well as some mesotrophic grassland species. Bluebell *Hyacinthoides non-scripta* and other vernal woodland field layer species which are characteristic of **W25 *Pteridium aquilinum*-*Rubus fruticosus* scrub** may be present, but usually not prominent in the vegetation, except for Common Dog-violet. Mosses may be varied, with *Hylocomium splendens*, *Pleurozium schreberi*, *Dicranum scoparium* and *Hypnum cupressiforme* agg. being the most common and widespread, though mainly associated with the U20b sub-community.



Species rich U20 acid grassland (perhaps transitional to U4c) on private land at Blendworth Common, Horndean, June 2018. The orange colour is mostly formed by abundant stems and flowers of Slender St John's-wort *Hypericum pulchrum*. Tormentil *Potentilla erecta* formed a creeping ground layer.

Sub-communities

U20a *Pteridium aquilinum-Galium saxatile* community. *Anthoxanthum odoratum* sub-community is a species poor to moderately species rich community composed of Sheep's Fescue s.lat. (probably largely *F. filiformis*), Common Bent, Sweet Vernal-grass and occasional Yorkshire-fog. A variety of other grasses may occur more sporadically, including Wavy Hair-grass, Heath Grass and Bristle Bent. Pill Sedge and Field Woodrush are occasional and slightly preferential to this sub-community. Locally frequent to occasional herbs include Common Dog-violet, Common Sorrel and Germander Speedwell *Veronica chamaedrys*. Others recorded for this sub-community include Sheep's Sorrel, Wood Sage *Teucrium scorodonia*, Common Bird's-foot-trefoil, Pignut *Conopodium majus*, Selfheal and Eyebright *Euphrasia* agg. The NVC account also notes that Harebell is frequent and Lady's Bedstraw occasional, but these two species may be more distinctive of the sub-community in the north (where Lady's Bedstraw is less restricted to calcareous grassland as it is in the south). On more mesotrophic soils there are records for White Clover, Yarrow, Meadow Buttercup, Creeping Buttercup *Ranunculus repens* and Ribwort Plantain. NVC floristic table: average 19 species per sample; range 5–65.

Rodwell notes that thistles *Cirsium arvense* and *C. vulgare* can become abundant in disturbed stands and Rosebay Willowherb *Chamerion angustifolium* is sometimes prominent after fires. Other species of disturbed examples will presumably include Ragwort and Foxglove *Digitalis purpurea*.

Mosses mentioned for the community above are occasional, but more distinctive of this sub-community are *Pseudoscleropodium purum* and *Rhytidiadelphus squarrosus*.

Acknowledgments

I would like to thank Andy Cross and Neil Sanderson for their very helpful comments on an earlier draft of this article.

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Recording

Bryophytes report for October to December 2021

An article by John Norton

This article follows hot on the heels of the report in the last issue of *Flora News* and brings things up to date to the end of 2021. Since the last report there have been some more exciting additions to the Hampshire bryophyte list, plus other records of interest to mention and some meetings and field surveys to report on.

Recent records and surveys

Whilst trying to confirm which taxa needed to be bracketed or unbracketed due to the change in date periods (see *Flora News* No. 61, p. 29) I received some recent records of *Plasteurhynchium striatulum* for the Isle of Wight from George Greiff, which I didn't have time to mention in the last report. This species is a creeping pleurocarp of limestone rocks and walls, and is also found on the roots and lower trunks of basic-barked trees. The only previous Isle of Wight record was at Niton in 1964 during the British Bryological Society meeting. It would therefore have become newly bracketed, but George confirmed he had found it at five localities on the Island since around 2017, including Greatwood Copse quarry on Beech root plates, Bonchurch landslip on a wall (with *Cololejeunea rossettiana* and *Lejeunea lamacerina*) and St Olave's church at Gatcombe on a gravestone. In VC11 the last record was in 1958, so it remains bracketed here, but in VC12 Jonathan Sleath recorded it at Old Burghclere Lime Quarry in March 2020. In Britain it is Nationally Scarce, recorded from 81 10 km squares in all date classes.

Near the end of 2021 a paper was published in the *Journal of Bryology* by Des Callaghan on a survey of the Isle of Wight speciality *Philonotis marchica* (Callaghan 2021). He confirmed that it no longer occurs at its only other recorded British site in Yorkshire but is still present at the two Island localities at Shanklin Chine (albeit in 'extremely small quantity') and Lake Cliffs between Shanklin and Sandown. He also cleared up some confusion that George Greiff and I had when we looked at plants at the latter site a few years ago. We thought that these might have been *P. rigida* due to the abundant production of bulbils (small shootlets) in the leaf axils of the sterile shoots, a feature mentioned as being distinctive in this species in Smith's moss Flora, but not noted as occurring in *P. marchica*. However, Callaghan uncovered an old literature reference which also described bulbils in *P. marchica* and described other differences between the two species – so this is clearly what we saw. Sporophytes have apparently never been found in British colonies of *P. marchica*.

Rare and Notable Bryophytes Register for Hampshire

Further to my last report, I am pleased to say I completed work on updating my Rare and Notable Bryophytes Register for Hampshire, co-authored with Fred Rumsey. It was sent to HBIC in November 2021, along with an updated set of Hampshire bryophyte records. The register will be available to download from the Hampshire & Isle of Wight Bryophytes website soon, or please contact me (email: john@jnecology.uk) if you would like a copy. As of the date of writing this report (December 2021) the promised new vice-county census catalogue, which will incorporate the updated nomenclature (see *Flora News* No. 61, p. 31), has not been published.

Hincheslea meeting, October 2021

We held our traditional joint meeting of the BBS Southern Group and the Wessex Bryology Group at the end of October at Hincheslea Bog (SU2700), an under-recorded part of the New Forest. A storm had just blown over when we arrived (and I was surprised to see a Grey Phalarope feeding on a roadside verge near our meeting point), but we ended up with quite a reasonable day weather-wise and bryophyte-wise, with 92 taxa recorded. I haven't had a chance to add a meeting report on the website, but I've compiled a list of records and a species list which I can send to anyone interested. Although we recorded first hectad records for *Dicranella howei*, *Didymodon fallax*, *Pulvigerella lyellii* and *Ulota crispula*, the main highlights were a rich selection of *Sphagnum*-dwelling liverworts, including *Calypogeia sphagnicola*, *Cephalozia connivens* and *Odontoschisma fluitans*, plus 11 *Sphagna* in all, including *Sphagnum teres* and uncommon species such as *Riccardia incurvata*, *Sarmentypnum exannulatum*, *Campylopus brevipilus* and *Thuidium delicatulum*.

A rare liverwort at Black Bush

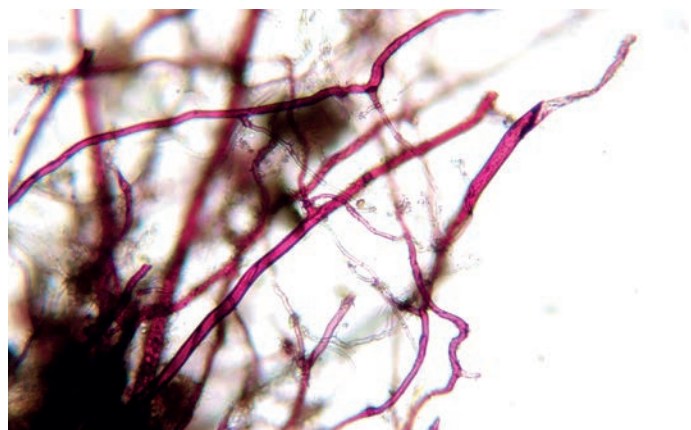
Shortly after the Hincheslea meeting Andrew Branson contacted me to say he had looked for and managed to re-find *Harpalejeunea molleri* at Black Bush in the north-west of the New Forest (SU 252 159). Neil Sanderson had originally found it there in 2008, and it appears that Andrew may have located the same tree (a Pedunculate Oak) that Neil recorded it from. The only other Hampshire record is by Francis Rose in 1978 from Stricknage Wood (SU2612). During a day's walking in the Forest I briefly looked at the Black Bush colony and also noticed that it was also present on an adjacent tree. Although predominantly an oceanic species of rocky habitats in western Ireland, NW Wales and western Scotland, it has also been recorded from a variety of tree species. It is reported to favour mildly basic substrates and can grow in drier and less shaded situations than other similar small liverworts. Potentially, therefore, it could be more widespread in the New Forest and would be worthy of some targeted survey work (it is a very small species and easily overlooked).

In search of *Fissidens*

Last October, whilst compiling the Hampshire records for the updated register and hectad maps, I happened to notice an interesting record of *Fissidens osmundoides* in the recent VC11 data obtained from BRC. This was by Martin Godfrey during the Bryophyte Ecology Group (BRECOCG) meeting in the New Forest in March 2017. Martin had noted it from two of five quadrats he had sampled along the stretch of Dockens Water on the north side of Anses Wood, near Cadman's Pool (SU2212). This was only the second record of the species since Francis Rose recorded it from Wood Crates in 1973. It is mainly a species of ravines and gullies in Wales, northern England and Scotland, so the New Forest record(s) are intriguing. I did some of the recording with Martin during that meeting, but unfortunately I wasn't with him when he looked at Dockens Water. When I contacted him for further details of the record he said he had checked his notebook and assumed the record was correct, but hadn't retained a specimen.

I subsequently visited the location, together with Graeme Smith, on 18 November 2021. We couldn't find *F. osmundoides*, but did notice patches of a dark green *Fissidens* growing in patches just above the water line. These had a distinct pale border to the leaves, so seemed to be *Fissidens bryoides*, a common species. However, this species usually occurs on much drier woodland banks, so I collected a specimen and it was only when looking at this later that the penny dropped that it was *Fissidens bryoides* var. *caespitans*, a distinct taxon, previously known as *F. curnovii*. The water-line habitat is characteristic. I'd only seen this once before in Wales. It is easily recognised by the presence of intensely coloured reddish-violet rhizoids (though rarely brown, like those of var. *bryoides*). This was new to VC11 and Hampshire and has also never been recorded from the Isle of Wight before.

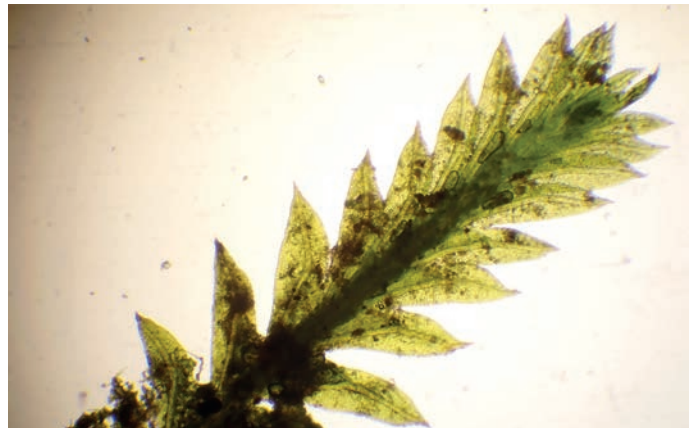
Like *F. osmundoides*, *F. bryoides* var. *caespitans* is largely confined to the west and north of Britain, especially more upland habitats, and apart from an isolated record in North Somerset (VC6) the other nearest records are about 120km away in Devon. It is interesting that the New Forest supports quite a few such 'disjunct' species associated with colder and wetter parts of Britain, and like *F. osmundoides*, some of these have only ever been recorded from a single locality or very few localities, so could potentially be more widespread. Another good example is *Porella cordaeana*, also a species primarily of upland streams, recorded about four times in the Forest. However, there are



Leaves and rhizoids of *Fissidens bryoides* var. *caespitans*, Dockens Water, November 2021. John Norton

a few disjunct upland species that are more widely distributed in the New Forest – two examples being *Bryum alpinum* and *Pohlia drummondii*, which occur on gravel tracks and paths.

I returned to Anses Wood and Dockens Water again in early December, joined this time by Jonathan Sleath and Alan Lewis to search again for *Fissidens osmundoides* and to get a better idea of the distribution of *F. bryoides* var. *caespitans*. There was still no sign of the former, though the stream eastwards of the 2017 record still needs to be looked at. *Fissidens bryoides* var. *caespitans* proved to be present in several spots along a 250 m long section of the stream on the north side of Anses Wood, so is definitely well established there. Not long after we had started hunting, Jonathan was looking intently at a small patch of the stream bank near the north-eastern end of the stream, then announced that he thought he had found *Fissidens celticus*. He showed me a few tiny leaves (barely 4 mm long) on a lump of wet mud taken from the stream bank, and these clearly had the visible kink in the nerve and the sharply pointed leaves characteristic of this species. This was therefore another discovery of a taxon new to VC11 and Hampshire, though one that was not entirely unexpected. This species has a very similar distribution to *Fissidens bryoides* var. *caespitans*, being largely restricted to the western edge of Britain, though also occurs in the gill woodlands of Sussex and Surrey. On the Isle of Wight it is known from Parkhurst Forest and Briddlesford Copse.



Fissidens celticus specimen from Dockens Water, December 2021. Alan Lewis

My plans for the rest of the winter and probably also for next winter are to further explore the New Forest watercourses, which I suspect have been neglected by previous bryologists and which could support further colonies of the above mentioned *Fissidens* species, or other interesting species of predominantly western and northern upland habitats.

Other records

During the November 2021 Dockens Water visit Graeme Smith and I also checked out some rich bryophyte habitat along the gravel track in Anses Wood, where George Greiff and I had recorded probable *Campylopus subulatus* during the 2017 BRECOG meeting. This was a Hampshire debracketer with only one other Jean Paton record (Appleslade Inclosure, SU10, 1958), but on this previous occasion I had collected only a few small shoots and had not submitted it. Graeme and I managed to find a few small patches, enough for me to confirm the identity through leaf sections and to submit as a VC11 voucher, which was accepted.

Jonathan Sleath made a very interesting and exciting discovery in November 2021 during a trip to Chawton Park Wood at Four Marks. Here he found *Antitrichia curtispindula* on a birch log, though only realised what it was when he checked the specimen under the microscope (it is a robust species with characteristic tothing on the hair points). There is only one other historical record in our area for the Isle of Wight (VC10) at Boniface Down, SZ57, by C.J.F. Bunbury in 1853. It is exceedingly rare in the south of England; commoner in NW Wales and the Scottish highlands, but a recent smattering of records in lowland England suggest that it may be starting to recolonise areas where it was probably lost due to historical sulphur pollution.



Antitrichia curtispindula, Chawton Park Wood, November 2021. Jonathan Sleath

I was pleased to find *Leucodon sciuroides* (Squirrel-tail Moss) during a return foray to Bramshaw Wood on 12 December last year. It was growing on twigs of a mossy young Beech tree in the open, which

was overhanging a small watercourse at the edge of a boggy flush. Other associates included *Ulota crispa* s.str., *Pulviger a lyellii*, *Cryphaea heteromalla*, *Frullania dilatata*, *Metzgeria* spp. and a *Hypnum* sp. *Leucodon sciuroides* was last seen in both VC11 and VC12 in 2011. In Britain it is a species of base rich trees, especially Ash, and growing over hard calcareous rocks, mainly in churchyards here in the south. It has declined historically but may be on the increase again. It was recorded fairly widely in Hampshire in the past and may simply be overlooked in places like the New Forest. Another one to keep a look-out for.

The mystery of *Plagiochila spinulosa* in Hampshire

I've been looking into the curious case of *Plagiochila spinulosa* in Hampshire. This species was split into two species by Jean Paton (1977) as *Plagiochila spinulosa* s.str. and *P. killarniensis*, later renamed *P. bifaria*. On the basis of the BRC records I have listed both in the notables register, but Rod Stern only included *P. bifaria* in his VC11 atlas and I wondered whether both entities have definitely been recorded in the county. The records marked as *P. spinulosa* s.str. in the BRC data are by R. Bulley and D. Guym (as separate records but probably relating to same occasion) for SU20 in October 1925, marked as determined M.F.V. Corley, but no other details given. It would be useful to know when Corley looked at them, but unless this happened after Jean Paton's paper there must be a strong possibility that the assignment of the *P. spinulosa* s.str. code is in error, and that the records should have been transferred to '*P. spinulosa* s.lat.' at the time the BRC database was updated to include the new taxon codes. There are two records in the BRC data assigned to *B. bifaria*; the first of these was by Miss C. Lyell from Rufus Stone (SU21) in 1812, confirmed by Jean Paton and listed in her paper. The only other record was by Jeff Bates during a bryophyte meeting at Rufus Stone in 1992, so quite likely from the same area.

In her paper Paton makes no specific mention of the 1925 record of *P. spinulosa*. However, she says '*The records of P. spinulosa from Anglesey (52) and the Channel Islands must be regarded as doubtful. I have checked material of this species from vice-counties 2, 48,64, 70, 97,98, H. 1, 2, 16,20,27,29,35 and 39, but its confirmation from 1,11,74,101–103, H.3 and H.9 would be desirable.*' This seems to infer that she hadn't checked the VC11 specimen of *P. spinulosa*, so had not been able to confirm that it was *P. bifaria*, and thus excluded it from the list of records of the newly described taxon in her paper. However, in her earlier 1962 Flora, reproduced in Stern's atlas, she does list both the 1812 and 1925 records of *P. spinulosa* (i.e. prior to it being split) and gives more information on the 1925 Bulley record. She lists this as being by Pearson in 1902, and the specimen being held at the Kew herbarium, but at the end of the entry she has '(BRIST!)' which I think means she did personally check the specimen, but at Bristol not Kew. Confusingly, the entry in her Flora only gives the location as Rufus Stone, i.e. for both records, whereas on the BRC database the Bulley record is down for SU20 (an adjacent square) with no site given. More research to clarify the records would be useful, though may not ever resolve the issue, since the two species are rather difficult to tell apart in any case. Part of the reason for mentioning this was simply to encourage people to look for *P. spinulosa* agg. in the New Forest so that we can hopefully get some more recent records!

List of new and debracketed records

***Antitrichia curtispindula*, VC12:** On a birch log, Chawton Park Wood, Four Marks, SU 6727 3613, 17 November 2021. J. Sleath, conf. S.L. Pilkington. New to VC12 and Hampshire.

***Campylopus subulatus*, VC11:** In damp acid grassland along north side of gravel track; Anses Wood, New Forest, 18 November 2021. J.A. Norton & G. Smith, conf. S.L. Pilkington. Main associates: *Archidium alternifolium*, *Bryum alpinum*, *Cephalozia* sp. and an unidentified *Lophozia*.

***Fissidens bryoides* var. *caespitans*, VC11:** a few large, horizontal, dark green (wet) patches on vertical sides of stream bank just above water line in moderate shade, Dockens Water, New Forest, between c.SU 2281 1267 and 2287 1270 at NE corner of Anses Wood, 18 November 2021. J.A. Norton & G. Smith, conf. S.L. Pilkington. Also recorded on 4 December 2021 up to 250 m west along the stream to SU 2263 1261. New to VC11 and Hampshire.

***Fissidens celticus*, VC11:** near the top of a shaded stream bank, thinly vegetated with other mosses, Dockens Water, New Forest, SU 2284 1267, 4 December 2021. A. Lewis, J. Norton & J. Sleath, conf. S.L. Pilkington.

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VC11 notes and records

Compiled by Phil Collier and Martin Rand

Owing to a couple of bouts of illness and some technical challenges with records extracted from the BSBI database, we are sorry to say we are running late with the South Hampshire records report this year (Martin would like to emphasise that this is entirely down to him, and thanks Phil for his hard work in getting as far as we have at the time of writing!). In the next month or so the work will have been completed, and the 2021 records will be published in the next issue of *Flora News*. Until then, they will be temporarily available for download from the Hants Plants website <https://hantsplants.uk> as a special document under 'Documents/ Other papers'.

VC12 records

Compiled by Tony Mundell (Records mainly for 10 July 2021 to 2 November 2021)

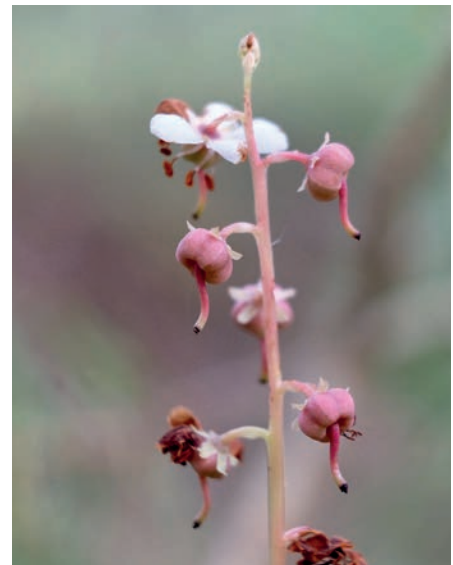
Please remember that if you would like to see your records published in *Flora News*, they must be on my database within 6 months of the record date. If you send me records made, say, a year ago then those records are still very welcome but will not get considered for *Flora News*. My thanks to all of you who contribute records, including those of you not mentioned here. As always, I very much value all records, but especially re-finds of rarities. Of course, a good way to find previous records for plants that you would like to see for yourself is the previous editions of *Flora News* on our Hants Plants website, but it is best to choose sites with public access.

For any uncommon plant the value of the record can be increased enormously by adding a comment with extra information like the estimated number of plants, whether in flower or not, and details about the precise location. If you are using Living Record please include all that information in the 'Notes'. I am far more likely to select records with such extra information for inclusion in *Flora News* as it makes the record more interesting.

Note that this list uses the latest Latin names in the 4th edition (2019) of Clive Stace's *New Flora of the British Isles*, so you may find your record under a different name. Unfortunately, BSBI HQ have given up on updating the taxa list available on MapMate (the database that many other VC Recorders and I use) so I must manually check all names when I extract them for inclusion here.

In the previous *Flora News* issue, I celebrated the remarkable discovery of an apparently native colony of *Lythrum hyssopifolia* Grass-poly, by Caroline Reid. That rarity had only been recorded before in North Hampshire in 1969–71 as a casual plant introduced with shoddy (soiled wool formerly imported and used as a fertiliser at Blackmoor Apple Farm). Caroline returned to the Grass-poly site at the army high-speed test track at Bourley and nearby she found an even more exciting native plant in good numbers, *Pyrola rotundifolia* Round-leaved Wintergreen. Although there are several sites for *Pyrola minor* Common Wintergreen (that is no longer Common!) on the eastern edge of North Hampshire, *P. rotundifolia* is a very rare plant nationally and it is new for Hampshire.

Elsewhere, Caroline also found and correctly identified another national rarity *Cynoglossum germanicum* Green Hound's-tongue, in a couple of places and her records were useful as later I found that part of the site is scheduled for development. I hear that there are now plans (with



Round-leaved Wintergreen *Pyrola rotundifolia* in fruit, Aldershot, August 2021. Caroline Reid



Green Hound's-tongue *Cynoglossum germanicum*, near Farnborough, May 2021. Caroline Reid

Natural England involved as it is such a rarity) to rescue and transplant some plants of it. Caroline also found a vegetative plant of *Sanguisorba officinalis* Great Burnet in the same general area where I had first found it myself way back in 1978. I am delighted that it is still hanging on. As a result of these and other good finds I managed to persuade Caroline to join the Hampshire Flora Group.

Tristan Norton has contributed many of the records shown below, especially of plants in arable habitats. His records for *Fumaria capreolata* White Ramping-fumitory and *Lepidium latifolium* Dittander are both new for VC12, although there are a few records of both within South Hampshire. Fred Rumsey has been trying to re-find particular rarities. At a known colony of *Epipactis phyllanthes* Green-flowered Helleborine, as noted below, Fred thought that two plants might be the hybrid between *E. phyllanthes* and *E. helleborine* which would be a new hybrid for Britain. Other plants have been suspected of being this hybrid earlier in VC12, but I expect that it will require DNA analysis to prove that the hybrid does exist.

I was pleased to see that *Wahlenbergia hederacea* Ivy-leaved Bellflower is still present in one spot though Fred does say that it is threatened by competing *Molinia caerulea* Purple Moor-grass. Sadly, it has already disappeared from virtually all its former VC12 sites just in the last few years.

Another apparently decreasing plant listed below is *Potamogeton pusillus* Lesser Pondweed. I have 69 claimed records for it in VC12 since the first in 1921, but it has been found and confirmed at only two sites in the last 20 years. Possibly many of the earlier records were really mistakes for the very similar looking *P. berchtoldii* Small Pondweed that I think is reasonably common in ponds or ditches on the acidic heathland soils of north-east Hampshire. The problem is that it really needs a microscope to separate these two species, though armed with a microscope for examining the stipules it is not difficult.

Turning to the alien plants listed below both *Acer pensylvanicum* Moosewood and *Crocus kotschyanus* Kotschy's Crocus are new for all Hampshire. In fact, the former is not even on the taxa list for my MapMate database so I cannot record it there and had to put the record directly onto the BSBI DDb (The Distribution Database). I see that Peter Billingham's record for Moosewood is the 11th record for Britain.

Amsinckia micrantha Common Fiddleneck is a good example of a plant named 'Common' that is certainly not common now, at least in Hampshire. There are only 8 records ever for all Hampshire, though it is reasonably frequent in East Anglia. The record for *Gunnera tinctoria* Giant-rhubarb shown below is the 5th for VC12 but was definitely very unwelcome on the Fleet Pond SSSI as it is such an invasive alien. I pleaded for its destruction which was done. Incidentally, Fleet Pond is infested with large numbers of another nasty plant *Lysichiton americanus* American Skunk-cabbage, but great strides have been made by the Fleet Pond Society recently in trying to control it.



White Ramping-fumitory *Fumaria capreolata*, Kings Worthy, October 2021. Tristan Norton



Ivy-leaved Bellflower *Wahlenbergia hederacea*, Gelvert Stream, Brocks Hill, September 2021. Fred Rumsey

***Acanthus mollis* (Bear's-breech)** Winnall SU495299, large plant with a number of flower spikes from last summer, Anna Stewart 6 Oct 2021.

***Acer pensylvanicum* (Moosewood)** Hurstbourne Tarrant SU3916 5629, on verge of minor road through Faccombe Wood, Peter Billingham 20 Oct 2021, photos of leaves and striped tree bark identified by Cameron Crook, BSBI *Acer* Referee.

***Adonis annua* (Pheasant's-eye)** Plantlife/RSPB's 'Colour in the margins' project where seed was introduced in 2019: Jack's Bush SU2636, 26 plants, Chattis Hill SU3236, 12 plants, and Suddern Hill SU2637, 12 plants, all Cath Shellswell & Tristan Norton 17 May 2021. Whitchurch SU47044716, a large plant, now in seed, in a garden adjacent to an arable field, where first noted and photographed in flower by Sophie Smart. The same garden has many rosettes of Corn Parsley and a single *Fumaria densiflora*, with *Stachys arvensis* nearby, Brian Laney 2 Nov 2021.

***Agrimonia procera* (Fragrant Agrimony)** Aldershot, Bourley SU84375103, several plants beside main track, Tony Mundell, Cathy Wilson, Helen Boyce et al 15 Aug 2021.

***Agrostis curtisii* (Bristle Bent)** Hazeley Heath SU76535797, many plants scattered along 5m x 0.5m, just off the path, Tony Mundell, John Collman & Helen Boyce 4 Aug 2021. Bourley, Aldershot, locally abundant at SU840511, SU842512 and SU842513, Tony Mundell, Cathy Wilson, Helen Boyce et al 15 Aug 2021.

***Agrostis vinealis* (Brown Bent)** Hazeley Heath SU76385819, locally frequent, Tony Mundell, John Collman & Helen Boyce 4 Aug 2021.

***Amsinckia micrantha* (Common Fiddleneck)** Forge Lane / Malta Barracks SU85805253, Caroline Reid 12 Jul 2021, photos confirmed by Tony Mundell.

***Anacamptis pyramidalis* (Pyramidal Orchid)** Meadow Mound, Morn Hill SU518292, Anna Stewart 23 Jul 2021.

***Anemone* × *hybrida* (Japanese Anemone)** Itchen Down Farm SU543343, garden throw-out on waste dump. Leaves with up to 5 lobes, large showy pink flower with yellow centre, photo taken, Dave Pearson 16 Aug 2021.

***Anthemis cotula* (Stinking Chamomile)** South Wonston SU47103785, several flowering plants noted at east edge of yard. Receptacle scales checked within disc florets. Wonston Manor Farm, Tristan Norton 9 Oct 2021. Chilbolton Down Farm SU41913609, frequent flowering plants along entire east edge of arable field, Tristan Norton 12 Oct 2021.

***Aphanes australis* (Slender Parsley-piert)** Rowledge Churchyard SU820431, Tony Mundell, Phil Collier & Robin Garnett 12 Jul 2021.

***Arctium lappa* (Greater Burdock)** Fleet, Edenbrook Country Park, noted in several places, SU78845416, SU78895453, SU79135462, SU78855422 and SU79165472, Tony Mundell & Cathy Wilson 15 Jul 2021.

***Arctium minus* subsp. *pubens* (Lesser Burdock)** Fleet, Edenbrook Country Park SU78575472, a single plant beside



Moosewood *Acer pensylvanicum*, Hurstbourne Tarrant. Peter Billingham



Japanese Anemone *Anemone* × *hybrida*, Itchen Stoke. Dave Pearson

the path, identified by Martin Rand, growing within a couple of metres of the much commoner *Arctium minus* subsp. *minus*, HFG 7 Aug 2021.

***Bidens cernua* (Nodding Bur-marigold)** River Whitewater SU73385218, abundant flowering plants along SE side of river, Tristan Norton 30 Aug 2021.

***Bidens tripartita* (Trifid Bur-marigold)** Fleet, Edenbrook Country Park SU78925475, about ten plants beside a ditch, Tony Mundell & Cathy Wilson 15 Jul 2021.

***Blackstonia perfoliata* (Yellow-wort)** Hatch Warren, St Marks Meadow SU607488, a few plants, Paul Beevers 31 Jul 2021. Long Valley SU834524, patch of c. 30 flowering plants, Sarah Smith 31 Jul 2021.

***Bromus secalinus* (Rye Brome)** Noar Hill area SU737321, Nick Aston 10 Jul 2021. Barton Meadows, reseeded area SU48573141, large patches beside perimeter track but just inside the reseeded area, evidently a survivor from the former arable field, also two or three plants at SU482314, HFG 10 Jul 2021. Fleet, Edenbrook Country Park SU78855422, several plants, Tony Mundell & Cathy Wilson 15 Jul 2021. Worting SU603528, SU598527 and SU599527, Nick Aston 3 Aug 2021, photos confirmed by Tony Mundell.

***Buglossoides arvensis* (Field Gromwell)** Cholderton SU251423, Charles Whitworth 7 Aug 2021.

***Cabomba caroliniana* (Carolina Water-shield)** Basingstoke Canal, Eelmoor, rooted in canal bed at SU83765296 and a detached floating plant at Eelmoor Flash SU84255284, Fred Rumsey 26 Jul 2021.

***Campanula glomerata* (Clustered Bellflower)** Magdalen Hill Down SU50542914, Anna Stewart 8 Aug 2021.

***Campanula rotundifolia* (Harebell)** Rowledge Churchyard SU820431, Tony Mundell, Phil Collier & Robin Garnett 12 Jul 2021. Meadow Mound, Morn Hill SU518292, Anna Stewart 23 Jul 2021. Hatch Warren, St Marks Meadow SU607488, Paul Beevers 31 Jul 2021. Magdalen Hill Down SU50542914, Anna Stewart 8 Aug 2021.

***Campanula trachelium* (Nettle-leaved Bellflower)** Littleton Churchyard SU45343293, one flowering plant beside path, Tristan Norton 3 Sep 2021.

***Carex caryophyllea* (Spring-sedge)** Rowledge Churchyard SU820431, Tony Mundell, Phil Collier & Robin Garnett 12 Jul 2021.

***Carex echinata* (Star Sedge)** Hazeley Heath SU76405802, in the still splendid, boggy area, Tony Mundell, John Collman & Helen Boyce 4 Aug 2021.

***Carex muricata* subsp. *pairae* (Prickly Sedge)** Rowledge Churchyard SU82054316, several plants, Tony Mundell, Phil Collier & Robin Garnett 12 Jul 2021.

***Centaurea cyanus* (Cornflower)** Worthy Down SU47023487, large patch of flowering plants on W edge of path. Includes whitish forms so presumably remnant of former cornfield annual sowings, Tristan Norton 28 Aug 2021.

***Centaureum pulchellum* (Lesser Centaury)** Fleet, Edenbrook Country Park SU78565474, beside sandy path south of fence for planned allotments. Growing near the commoner *C. erythraea*, Tony Mundell & Cathy Wilson 26 Jul 2021.

***Chaenorhinum minus* (Small Toadflax)** Cholderton SU251423, Charles Whitworth 7 Aug 2021. Westover Farm, Chalk Pit field SU369405, Dave Pearson & Anna Stewart 13 Aug 2021. Upper Cranbourne Farm, Micheldever Station SU504438, Tristan Norton 17 Aug 2021. Sutton Down Farm SU449361, frequent flowering plants, Tristan Norton 10 Sep 2021. Crawley SU431344, Tristan Norton 16 Sep 2021. South Wonston SU473382, frequent flowering plants within weedy margin, Wonston Manor Farm, Tristan Norton 10 Oct 2021.

***Chenopodium hybridum* (Maple-leaved Goosefoot)** Cholderton SU251423, Charles Whitworth 7 Aug 2021.

***Cirsium acaule* (Dwarf Thistle)** Meadow Mound, Morn Hill SU518292, Anna Stewart 23 Jul 2021.

***Cirsium dissectum* (Meadow Thistle)** Hazeley Heath SU76365808, locally frequent in the bog, Tony Mundell, John Collman & Helen Boyce 4 Aug 2021.

***Clinopodium acinos* (Basil Thyme)** Kings Worthy Rail Path SU479351, largish patch of flowering plants to E of footpath. First time noted on this side of path, Tristan Norton 28 Aug 2021.

***Clinopodium ascendens* (Common Calamint)** South Wonston SU46013565, several large clumps noted at W edge of layby and more clumps within woodland edge. Flowering, Tristan Norton 27 Aug 2021.

***Coeloglossum viride* (Frog Orchid)** Ladle Hill SU47855674, an additional ten plants on old spoil heaps inside the rampart, Simon & Sue Melville 11 Jul 2021.

***Cotoneaster lacteus* (Late Cotoneaster)** Headbourne Worthy SU482320, a distinctive bush among thorn shrubs, probably bird-sown. Large broad leaves with indented veins, downy beneath, bright red berries, Dave Pearson 6 Nov 2021.

***Crassula tillaea* (Mossy Stonecrop)** Bordon, Slab Common, local on bare sand at and around SU781358, Steve Povey & Laura Gravestock 31 Aug 2021.

***Crocus kotschyanus* (Kotschy's Crocus)** Portland Drive, Church Crookham SU81005199, many hundreds of plants in flower over a large area c.20m × 20m on a grassy triangle beneath Sweet Chestnut trees beside the road. They must have been planted, perhaps by the local council. Anthers white (not yellow as in *C. speciosus*), corolla throat whitish with neat yellow blotches, filaments glabrous, Tony Mundell 12 Oct 2021.

***Cuscuta epithymum* (Dodder)** Tweseldown, 5 patches at SU8274 5192 (one of them over 1m² in area) and 3 patches at SU8273 5192, Dave Dimmock 2 Aug 2021 (plus many other splendid, detailed records for Dodder at Tweseldown for 2–6 Aug 2021). Hazeley Heath SU76535798, parasitising *Ulex minor*, but with haustoria also penetrating *Galium saxatile*, Tony Mundell, John Collman & Helen Boyce 4 Aug 2021.

***Cynoglossum germanicum* (Green Hound's-tongue)** Near Forge Lane SU85925258, about 20 plants in flower on the edge of the woodland where it meets an abandoned concrete hard-standing area (a new site), Caroline Reid 19 May 2021, photos confirmed by Tony Mundell. Farnborough, many hundreds of plants in woodland between Shoe Lane and Forge Lane centred approximately on SU8607 5269, Caroline Reid 27 Oct 2021, photos of vegetative plants confirmed by Tony Mundell. [Clearly the population has greatly increased since the survey in 2015 though part of the area is now threatened by a housing development].

***Cyperus eragrostis* (Pale Galingale)** Bordon, A326 verge SU789354, single flowering plant noted, Tristan Norton 4 Sep 2021.

***Datura stramonium* var. *chalybaea* (Thorn-apple – purple-flowered variety)** A325 Templars Way, Bordon SU787357, four large specimens growing with *Nicandra physalodes* on sandy waste ground by new A325 route, Nick Aston 4 Aug 2021.

***Digitaria ischaemum* (Smooth Finger-grass)** Liss Forest, Longmoor, over 20 young vegetative plants at SU79291 29771 on a very wet sandy track, Tony Mundell, Dave Pearson & Helen Boyce 30 Jul 2021. Bordon, Slab Common, in plenty on bare sand at SU781 358, and elsewhere, Steve Povey & Laura Gravestock 31 Aug 2021.

***Drosera intermedia* (Oblong-leaved Sundew)** Hazeley Heath SU76455760, outnumbered by *Drosera rotundifolia* in a former scraped area, but vegetation now closing in, Tony Mundell, John Collman & Helen Boyce 4 Aug 2021. Brock's Hill SU82845245, good quantity growing with the *Lycopodiella inundata*, Fred Rumsey 23 Sep 2021. Crookham Common SU82795280 and SU82795283, some *Drosera intermedia* found, but the *Lycopodiella inundata* that used to be here at could not be re-found.

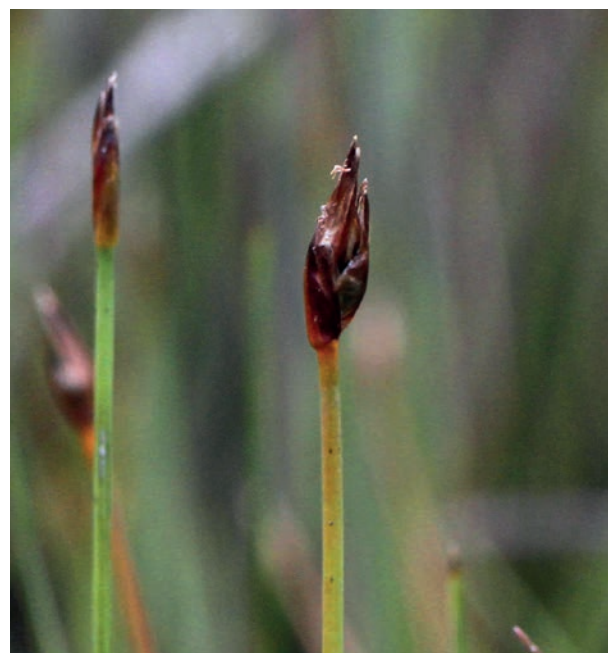
***Drosera rotundifolia* (Round-leaved Sundew)** Liss Forest, Longmoor SU79432987, hundreds of flowering plants on a very wet minor sandy track, growing with much *Radiola linoides*, Tony Mundell, Dave Pearson & Helen Boyce 30 Jul 2021. Hazeley Heath SU76455760, many plants in former scraped area, but vegetation now closing in, Tony Mundell, John Collman & Helen Boyce 4 Aug 2021.

***Echinochloa crus-galli* (Cockspur)** Crawley, Peach Hill Lane SU42703481, several plants growing at base of wall outside the White House, Tristan Norton 2 Sep 2021. Bordon, A325 verge SU789353, frequent along entire verge, Tristan Norton 4 Sep 2021.

***Eleocharis multicaulis* (Many-stalked Spike-rush)** Hazeley Heath SU76455760, still plentiful in a former scraped area, but vegetation now closing in, Tony Mundell, John Collman & Helen Boyce 4 Aug 2021.



Thorn-apple, purple form *Datura stramonium* var. *chalybaea*, Bordon, August 2021. Nick Aston



Few-flowered Spike-rush *Eleocharis quinqueflora*, Eelmoor Flash, July 2021. Fred Rumsey

***Eleocharis quinqueflora* (Few-flowered Spike-rush)**

Eelmoor Flash SU84255281, still present but could not re-find *Baldellia* or *Utricularia australis*, Fred Rumsey 26 Jul 2021.

***Eleogiton fluitans* (Floating Club-rush)** Hazeley Heath SU75525809, abundant with *Juncus bulbosus* in the nearly dried-up pond bed, Tony Mundell & Helen Boyce 4 Aug 2021.

***Epipactis phyllanthes* (Green-flowered Helleborine)**

QinetiQ, Cody Gate car park SU84425422, several flowering plants under the canopy of an oak tree. Two plants seem to be hybrids with *E. helleborine*, photos sent to Mike Waller for his view, Fred Rumsey 26 Jul 2021. Great Pen Wood, A343 verge, 223 plants on east verge and 96 on west verge between SU440619 and SU444625, also only five plants found on the road verge at Penwood Drove SU452622, Simon & Sue Melville 3 Aug 2021.

***Epipactis purpurata* (Violet Helleborine)**

Noar Hill SU74523186, Eric Janke 13 Jul 2021. Penwood Drove SU45276227, only five or six flower spikes this year, Simon & Sue Melville 3 Aug 2021. NE of Lower Froyle, on verges either side of lane. 15 spikes between SU7415 4516 and SU7415 4514, 3 spikes at SU7413 4516, 5 spikes at SU7414 4513, Cathy Wilson 11 Aug 2021.

***Euphrasia officinalis* subsp. *anglica* (English Eyebright)**

Longmoor, Liss Forest SU78732973, on grassy firebreak growing with *E. nemorosa*. At least some appear to be the hybrid between these two, Tony Mundell 20 Aug 2021.

***Euphrasia* × *areschougii* (*E. nemorosa* × *micrantha*)**

Longmoor, Liss Forest, voucher specimen in Hb. ARGM and various photos taken. One patch of plants at SU79049 29848 2.5m from a Scots Pine and another patch at SU79049 29854. Corollas typically 6.5–6.6mm, plants very spindly and upright, varying 15–29 cm tall, lowest flowers at nodes 12–16. Using the multi-access key in Metherell & Rumsey it keys to DFJKORUW, so all characters agree with *E. micrantha* except flower colour which is not wholly purple on the lip, Tony Mundell 20 Aug 2021.

***Euphrasia* × *glanduligera* (*Euphrasia officinalis* subsp. *anglica* × *E. nemorosa*)**

Longmoor, Liss Forest SU78732973, on a grassy firebreak growing with both parents. Voucher specimens and close-up photos taken. Identified using keys in Metherell & Rumsey. Many long glandular hairs, plant heights to 20cm, corollas measure 7.8–8.5mm so too long for pure *E. anglica*, Tony Mundell 20 Aug 2021.

***Filago lutescens* (Red-tipped Cudweed)**

Broomhurst Farm, road verge SU81255636, 37 plants, but area now very vegetated with grasses so no *Scleranthus annuus* found, Fred Rumsey 26 Jul 2021. Broomhurst Farm, road verge SU81255636, three large plants noted in a non-exhaustive visit, plants adjacent to concrete water-main post, Tristan Norton 16 Oct 2021.

***Fumaria capreolata* (White Ramping-fumitory)**

Lower Broadview, Kings Worthy SU49223341, Tristan Norton 3 Sep 2021, identity confirmed by Tim Rich who added likely to be ssp. *babingtonii*.

***Fumaria densiflora* (Dense-flowered Fumitory)**

Upper Cranbourne Farm, Micheldever Station SU504438, frequent flowering plants along this field margin, Tristan Norton 17 Aug 2021. Sutton Down Farm SU449361, single plant noted, Tristan Norton 10 Sep 2021. Stockbridge SU377355, occasional flowering plants noted on W



***Euphrasia* × *areschougii* (*E. micrantha* × *nemorosa*), Longmoor, August 2021. Tony Mundell**



***Euphrasia* × *glanduligera*, *E. officinalis* subsp. *anglica* × *E. nemorosa*, Longmoor, August 2021. Tony Mundell**

edge of grassy margin, Tristan Norton 16 Sep 2021. Sutton Down Farm SU449364, occasional flowering plants along margin S of footpath. Field margins adjacent to footpath, Tristan Norton 3 Oct 2021. Chilbolton Down Farm SU41943617, single large plant, flowering, Tristan Norton 12 Oct 2021. Whitchurch SU47014712, a single plant on the fence-line of a garden vegetable patch that borders an arable field, Brian Laney 2 Nov 2021.

***Fumaria parviflora* (Fine-leaved Fumitory)** Cholderton SU251423, Charles Whitworth 7 Aug 2021.

***Fumaria vaillantii* (Few-flowered Fumitory)** Litchfield Estate SU4654, amongst many *F. officinalis*, sepals measured at 0.7 mm long by 0.42 mm wide. The land owner does not want the precise grid reference recorded, Alison Cross 12 Jul 2021.

***Galeopsis angustifolia* (Red Hemp-nettle)** Colour in the margins Project Plantlife/RSPB, Reintroduced as seed in 2020. SU4251 now 1,960 plants, SU4154 now 11 plants, SU4355 now 54 plants, SU4756 now 3,125 plants, SU4240 now 1,20 plants, and SU4957 now 683 plants, Cath Shellswell & Alison Cross 21 Jul & 10 Aug 2021.

***Galinsoga parviflora* (Gallant Soldier)** Winchester SU48402953, 1 clump noted in non-exhaustive search but suspect more widespread. Receptacle scales clearly tri-lobed, no terminal projection on pappus scales, petals tiny, Tristan Norton 19 Aug 2021. Bordon, A325 verge SU79043523, single flowering plant noted, Tristan Norton 4 Sep 2021.

***Galinsoga quadriradiata* (Shaggy Soldier)** Friarsgate, Winchester SU48442951, Tristan Norton 19 Aug 2021. Lower Brook St, Winchester SU484295, seems to have spread and increased since 2020, Tristan Norton 19 Aug 2021. Hacks Lane, Crawley SU42503495, several flowering plants on kerbs around entrance to Cricket Close, Tristan Norton 2 Sep 2021.

***Genista anglica* (Petty Whin)** Hazeley Heath SU76385821, two plants close together, north of the boardwalk, shown to me by John Collman. I detached at least ten of last year's brown seed pods from each plant but found them full of insect frass with a tiny hole bored in each pod. From c. 20 pods a total of only two seeds were found (which were sown a metre or two away). This insect damage may explain why Petty whin is in steep decline. I was surprised that this year's seed pods are still green, Tony Mundell, John Collman & Helen Boyce 4 Aug 2021.

***Glebionis segetum* (Corn Marigold)** Hartley Wintney SU764559, flowering in same field as seen in 2020, Fred Rumsey 8 Sep 2021.

***Gunnera tinctoria* (Giant-rhubarb)** Fleet Pond SU8182 5419, Evelyn Auld 29 Oct 2021, photos identified by Tony Mundell (leaves palmately but not pedately lobed, ruling out *G. manicata*). Later, on 8 Nov 2021, the main plant and three small, attached ones were removed from the SSSI. It was growing in the company of the rare native fern *Thelypteris palustris*, Marsh Fern.

***Hieracium sabaudum* f. *sabaudum* (Autumn Hawkweed)** Fleet Pond, dry heath, whilst searching unsuccessfully for *Hieracium rigens* found *H. sabaudum* at SU8239 5532, SU8239 5533, SU8236 5532, SU8235 5533, SU8235 5531, SU8243 5532, SU8242 5532, SU8241 5531, SU8243 5536, SU8243 5535 and SU8225 5534, Tony Mundell 17 Sep 2021.

***Hippocrepis comosa* (Horseshoe Vetch)** Magdalen Hill Down SU50552913, SU50292921, SU50442914, SU49982928 and SU50552914, Anna Stewart 8 Aug 2021 to 15 Sep 2021.

***Hyoscyamus niger* (Henbane)** Barton Stacey SU4240, Colour in the margins Project Plantlife/RSPB, Cath Shellswell & Alison Cross 10 Aug 2021.

***Hypericum hircinum* (Stinking Tutsan)** Avington SU531319, grass verge outside house, probably garden escapees. Stamens longer than petals, sepals shorter than petals, photo taken, Dave Pearson 14 Sep 2021.

***Hypericum humifusum* (Trailing St John's-wort)** Edenbrook Country Park SINC SU79225489, single flowering plant, Tony Mundell & Cathy Wilson 15 Jul 2021.

***Hypericum pulchrum* (Slender St John's-wort)** Hazeley Heath SU76375820, several plants north of the boardwalk. Tony Mundell, John Collman & Helen Boyce 4 Aug 2021.



Giant-rhubarb *Gunnera tinctoria* being removed from Fleet Pond SSSI by Evelyn Auld, November 2021. John Sutton

***Jasione montana* (Sheep's-bit)** Church Crookham churchyard SU80745183, many flowering plants to right of path from lychgate, Sarah Smith 24 Jul 2021.

***Juncus foliosus* (Leafy Rush)** Hazeley Heath, still present in four separate 'ponds' (large muddy puddles) in the track at SU7502 5838, SU7501 5839, SU7500 5841 and SU7500 5842, growing with the far commoner *Juncus bufonius* and *Juncus bulbosus*, Tony Mundell & Helen Boyce 4 Aug 2021.

***Juncus subnodulosus* (Blunt-flowered Rush)** Eelmoor Flash SU842527, locally frequent, Dave Pearson & Helen Boyce 1 Sep 2021.

***Lamium hybridum* (Cut-leaved Dead-nettle)** Cowdown Lane, Goodworth Clatford SU38124330, several flowering plants noted at S corner of triangular margin, Tristan Norton 28 Aug 2021.

***Laphangium luteoalbum* (Jersey Cudweed)** St Giles Hill Winchester SU49272928, one plant on gravel drive, dead, herbicide, Anna Stewart 10 Aug 2021. Photo confirmed by Tony Mundell.

***Legousia hybrida* (Venus's-looking-glass)** Westover Farm – Chalk Pit field SU36934027 and SU36994029, Dave Pearson & Anna Stewart 13 Aug 2021.

***Lepidium latifolium* (Dittander)** Winnall, Winchester SU49803043, fresh leaves showing after recent mowing. Estimate a dozen plants over c. 5 m², Tristan Norton 18 Aug 2021. Earlier photos confirmed by Tony Mundell.

***Linaria maroccana* (Annual Toadflax)** A325 Templars Way, SU787357, three plants including one very robust specimen with plenty of flowers, Nick Aston 4 Aug 2021. Bordon, A325 verge SU787355, occasional flowering plants noted, Tristan Norton 4 Sep 2021.

***Linaria repens* (Pale Toadflax)** Kings Worthy Rail Path SU47963520, large swathes within species rich herbage to W of platform, plus some plants on platform and on stonework on platform edge, Tristan Norton 13 Aug 2021.

***Linum radiola* (Allseed)** Liss Forest, Longmoor SU79432987, hundreds of very small plants on a very wet minor sandy track, growing with much *Drosera rotundifolia*, Tony Mundell, Dave Pearson & Helen Boyce 30 Jul 2021. Longmoor, Liss Forest, on a damp grassy firebreak at SU78732973 and SU78672974, Tony Mundell 20 Aug 2021.

***Lotus tenuis* (Narrow-leaved Bird's-foot-trefoil)** Carpenter's Down Wood SU64425540, voucher specimen in Hb. ARGM. Several plants in one area on the north side of the grass public footpath through the wood, Tony Mundell 22 Sep 2021.

***Lycopodiella inundata* (Marsh Clubmoss)** Eelmoor Marsh, a few plants at SU83926 53286 on an area scraped a few years ago, Tony Mundell 29 Jul 2021. Brock's Hill c. 30–40 plants at SU8286 5248 in a couple of spots, with another 3 at SU8286 5249, also present but only a single coning plant at SU82842 52455, Fred Rumsey 23 Sep 2021.

***Lycopsis arvensis* (Bugloss)** Laffans Road SU857524, 2 plants located on a sandy soil heap dumped onto concrete, Caroline Reid 17 Aug 2021.

***Lysimachia arvensis* subsp. *arvensis* f. *azurea* (Scarlet Pimpernel azure form)** South Wonston SU46113554, microscopic inspection of glandular petal edge hairs = 3 cells. Single flowering plant, Tristan Norton 27 Aug 2021.

***Lysimachia arvensis* subsp. *arvensis* f. *carnea* (Scarlet Pimpernel pink form)** Sutton Down Farm SU451358, occasional examples of salmon pink form, Tristan Norton 10 Sep 2021.

***Lythrum hyssopifolia* (Grass-poly)** Bourley, Aldershot, confirmed where first found recently on 17 July 2021 by Caroline Reid. Her colony of about 35 flowering plants are at SU84012 51463 on the south edge of the damp sandy track (used to test high speed military vehicles). There is another colony of about 40 flowering plants nearby in a damp grassy strip in the middle of the same track mostly at SU84009 51465 but scattered from SU84002 51463 to SU84011 51466, Tony Mundell 26 Jul 2021. A collected specimen examined under a microscope has flowers with four stamens that do not reach the apex of the sepals, and four detached petals measured from 2.7 mm to 2.9 mm long. So, it is not the very similar *Lythrum junceum*. One or two outlier plants at SU83975146 away from the main colonies in a grassy strip by a puddle in middle of a sandy track, Tony Mundell, Cathy Wilson, Helen Boyce et al 15 Aug 2021.



Blunt-flowered Rush *Juncus subnodulosus*
Eelmoor Flash, September 2021. Dave Pearson

***Mentha pulegium* (Pennyroyal)** Longmoor, three small flower spikes about 3 inches tall re-found at SU79055 29825, where first found by Dave Pearson in 2020, but no additional sites for it could be found. This is the native plant, not the more robust variety that is being imported from abroad as a contaminant in grass seed, Tony Mundell, Dave Pearson & Helen Boyce 30 Jul 2021.

***Nardus stricta* (Mat-grass)** Bourley, Aldershot SU83615157, a single clump, Fred Rumsey 29 Aug 2021. Brock's Hill, by pathside at SU82791 52500, Fred Rumsey 23 Sep 2021.

***Neotinea ustulata* (Burnt Orchid)** Ladle Hill SU478567, returned to make a thorough count of 259 flowering plants for the whole site, Simon & Sue Melville 11 Jul 2021.

***Omalotheca sylvatica* (Heath Cudweed)** Liss Forest, Longmoor, 50 plants counted, just starting to flower, in two main colonies spread from SU7952 2996 to SU7951 2995, Tony Mundell, Dave Pearson & Helen Boyce 30 Jul 2021.

***Papaver lecoqii* (Yellow-juiced Poppy)** Hannington SU54445637, just inside crop, Alison Cross 12 Aug 2021.

***Papaver setiferum* (Oriental Poppy)** Westover Farm SU36374071, Anna Stewart & Dave Pearson 13 Aug 2021.

***Plantago major* subsp. *intermedia* (Greater Plantain)** Alton, in an arable field at SU72643892, SU72873930, SU72773918 and SU72833921, Helen Boyce 7 Aug 2021, photos confirmed by Tony Mundell.

***Poa nemoralis* (Wood Meadow-grass)** Rowledge Churchyard SU820431, Tony Mundell, Phil Collier & Robin Garnett 12 Jul 2021.

***Polypogon monspeliensis* (Annual Beard-grass)** Fleet, Edenbrook Country Park SU78625474, beside sandy path south of fence for planned allotments, Tony Mundell & Cathy Wilson 26 Jul 2021. NW of Bordon, in quantity beside Bordon Bypass at and around SU790363, Steve Povey & Laura Gravestock 19 Sep 2021. Whitchurch SU47024711, beside a new footpath to a new playing field, Brian Laney 2 Nov 2021.

***Potamogeton berchtoldii* (Small Pondweed)** Bourley, Aldershot SU83985148, on the army high-speed vehicle test track, in a deep pond on a sandy track. The stipules are open, Tony Mundell 26 Jul 2021.

***Potamogeton crispus* (Curled Pondweed)** Fleet, Edenbrook Country Park SU78865415, in large pond, Tony Mundell & Cathy Wilson 15 Jul 2021.

***Potamogeton obtusifolius* (Blunt-leaved Pondweed)** Fleet, Edenbrook Country Park SU78915462, specimen obtained using a grapnel from the bridge between two ponds, Tony Mundell & Cathy Wilson 15 Jul 2021.

***Potamogeton pusillus* (Lesser Pondweed)** Fleet, Edenbrook Country Park SU78915462, specimen in Hb. ARGM obtained with a grapnel from bridge between two ponds and another specimen from the large pond at SU78865415, stipules closed and tubular so not the commoner *P. berchtoldii*. Both specimens confirmed by Chris Preston 9 Nov 2021, BSBI Potamogeton Referee.

***Pyrola minor* (Common Wintergreen)** Liss Forest, Longmoor SU79512996, quite a small colony in deep shade by a minor track, only a few had flowered, Tony Mundell, Dave Pearson & Helen Boyce 30 Jul 2021. Crookham Common, near Foresters Pub, just hanging on at c.SU8274 5275 in copse beside the car park, but much reduced in area and numbers. Rather sad, Fred Rumsey 23 Sep 2021.

***Pyrola rotundifolia* (Round-leaved Wintergreen)** Bourley, Aldershot SU84355170, a dozen or so flower spikes along an area 10–15 metres under trees between two tracks, Caroline Reid 8 Aug 2021. Bourley, Aldershot, voucher specimen in Hb. ARGM, confirmed where recently found by Caroline Reid. The colony extends 15 metres with 49 spikes still in flower, but many hundreds of non-flowering rosettes. From SU84356 51716 to SU84353 51701 in a ditch in a strip of mixed *Pinus sylvestris*, Birch and Sallow, between two sandy tracks. Many measurements were taken to determine the subspecies and the best match seems to be subsp. *rotundifolia* though Stace (2019) indicates that the



Round-leaved Wintergreen *Pyrola rotundifolia*, August 2021. Tony Mundell

distinction between them is of doubtful value. The sepals were triangular-lanceolate with an acute tip. The range and mean values that we measured were Pedicels 5–7 mm, mean 5.6 mm, Styles 6.5–8.5 mm, mean 7.4 mm. Those characters agree with subsp. *rotundifolia* but our count of scales up the stem was 3–7, mean 4.7, and using a microscope the anthers were 1.9–2.1 mm, mean 2.0 mm which is closer to subsp. *maritima*. So, it seems best to just record it at species level omitting the subspecies, Tony Mundell, Cathy Wilson, Helen Boyce et al 15 Aug 2021. Aldershot Military Training Area SU83925145, 79 flower spikes counted in a new site, growing just south of the track in coniferous woodland, Dave Pearson & Helen Boyce 22 Aug 2021 (remarkably, this extra site was found independently by Caroline Reid on 29 Aug 2021 and by Fred Rumsey on that same day).

Roemeria argemone (Prickly Poppy) Hannington SU54335630, Alison Cross 12 Aug 2021. Chilbolton Down Farm SU41913609, several plants noted along c. 30 m stretch of margin. Occasional flowers just persisting. Distinctive seed heads. Weedy margin on E side of field, Tristan Norton 12 Oct 2021.

Roemeria hispida (Rough Poppy) Cholderton SU251423, Charles Whitworth 7 Aug 2021. Ashley Warren SU49815503, Alison Cross 12 Aug 2021. Westover Farm – Chalk Pit field SU36594058, Dave Pearson & Anna Stewart 13 Aug 2021. South Wonston, single plants at SU47193803, SU47453811, SU47353834 and SU47373828, Tristan Norton 25 Sep 2021.

Rosa ‘Hollandica’ (Dutch Rose) Penwood Road, Wash Water SU45400 63043. Originally recorded in flower on 30 Jun 2021. Returned to see maturing hips. Just across the lane from the *Rosa agrestis* which is still present, Gareth Knass 4 Aug 2021.

Rosa rubiginosa (Sweet-briar) Hazeley Heath SU76405771, a single bush, Tony Mundell, John Collman & Helen Boyce 4 Aug 2021. Penwood Road, Wash Water SU45316308, two mature bushes on either side of the lane. Originally seen in flower on 30 Jun 2021, returned to see maturing hips, Gareth Knass 4 Aug 2021.

Sanguisorba officinalis (Great Burnet) Forge Lane / Malta Barracks SU85845254, a vegetative plant, Caroline Reid 15 Sep 2021, photo confirmed by Tony Mundell.

Scandix pecten-veneris (Shepherd’s-needle) Worting SU605527 and SU606526, Nick Aston 3 Aug 2021, well over 100 plants along entire length of field margin, photos confirmed by Tony Mundell.

Schoenoplectus tabernaemontani (Grey Club-rush) Fleet, Edenbrook Country Park SU78905438, SU78945439 and SU78955446, large patches in balancing ponds, Tony Mundell & Cathy Wilson 15 Jul 2021.

Scutellaria minor (Lesser Skullcap) Bourley Bottom, beside ditch, scattered from SU828502 to SU825501, Fred Rumsey 26 Sep 2021.

Serratula tinctoria (Saw-wort) Hazeley Heath SU76505802, a few flowering plants hanging on in a small area of open grassland, Tony Mundell, John Collman & Helen Boyce 4 Aug 2021. [Many years ago, I (Tony) remember a hillside here was coloured pink with hundreds of thousands of its flowers, but that area is now lost under dense young Birch trees – tragic!]

Silene dichotoma (Forked Catchfly) Crawley SU432347, second flush of flowering plants within sown margin in arable field to NE of village, Tristan Norton 13 Sep 2021.

Silene gallica (Small-flowered Catchfly) Accidentally reintroduced with *Galeopsis angustifolia* seed in September 2020 during Plantlife/RSPB’s ‘Colour in the margins Project’, at Binley, Woodcote SU4154, at least one plant found, Cold Harbour SU4251, 3 plants found, and Litchfield SU4756, 1 plant found, all Cath Shellswell & Alison Cross 21 Jul 2021. Bordon, Conde Way SU796347, many hundreds of plants noted, several flowering but most in seed, plus a single plant



Shepherd’s-needle *Scandix pecten-veneris*, Worting, August 2021. Nick Aston

at SU796346, c. 20 m distant from main population, Tristan Norton 4 Sep 2021.

***Silene gallica* var. *quinquevulnera* (Small-flowered Catchfly)** Hogmoor, Bordon SU78373504, found in slightly different location to grid ref on DDb, c. 10 m to east. Estimated at least 5 plants, Tristan Norton 30 Aug 2021.

***Silene noctiflora* (Night-flowering Catchfly)** Hannington SU54545686, Alison Cross 12 Aug 2021.

***Sison segetum* (Corn Parsley)** Three Maids Hill SU46243365, many dozens of flowering plants, Tristan Norton 10 Aug 2021. Whitchurch SU47034715, many rosettes in a garden bordering an arable field, including several in the vegetable patch. Remarkably this garden also has a single large plant of *Adonis annua* (now in seed) and one *Fumaria densiflora*, Brian Laney 2 Nov 2021.

***Spiranthes spiralis* (Autumn Lady's-tresses)** Magdalen Hill Down SU50002930, five Plants shown to me by Linda and Andy Barker, Anna Stewart 26 Aug 2021. Eelmoor Marsh SU83795365, 29 spikes between X100 building perimeter fence and the dry heath, growing amidst the Calluna in an area 4 × 15 m. Also 28 spikes at SU84826361 with two principal groups in 3 × 2 m and 3 × 1 m, plus a few others in wider area of 10 × 10 m, Richard Bullock 2 Sep 2021. Blackbushe SU80595936, well over 70 flowering plants on the old aerodrome adjacent to the car auction site, Fred Rumsey 8 Sep 2021.

***Stachys arvensis* (Field Woundwort)** Cowdown Lane, Goodworth Clatford SU38124330, scattered small flowering plants noted throughout. Habitat recently cultivated and planted with Flax. Weed species much reduced overall, Tristan Norton 28 Aug 2021. Whitchurch SU46974712, a single plant between the new large playing field and a fence, on disturbed open ground, Brian Laney 2 Nov 2021.

***Teucrium botrys* (Cut-leaved Germander)** Augurs Hill Copse SU3842, Cath Shellswell 22 Jul 2021. Red Post, Andover SU328451, probably 1,000+ plants, most in seed but many flowering, Tristan Norton 26 Aug 2021.

***Thesium humifusum* (Bastard-toadflax)** Magdalen Hill Down SU49892925, two plants, Anna Stewart 26 Aug 2021.

***Tragopogon porrifolius* (Salsify)** Winchester, St Giles Hill graveyard SU490293, Anna Stewart 17 Jul 2021.

***Trifolium ornithopodioides* (Bird's-foot Clover)** Hazeley Heath SU76495754, two plants near a puddle in the main track, Tony Mundell, John Collman & Helen Boyce 4 Aug 2021.

***Veronica polita* (Grey Field-speedwell)** Crawley SU431344, Tristan Norton 16 Sep 2021.

***Vicia villosa* (Fodder Vetch)** Aldershot SU85855078, scrambling on the bank by the underpass through to Tesco supermarket in almost the same place as recorded by Tony Mundell in 1990 although the surroundings and terrain have changed a lot, Fred Rumsey 16 Aug 2021. [When found in 1990 this was a large area of sandy waste ground rich in plants but has since been built over].

***Viola canina* (Heath Dog-violet)** Edenbrook Country Park SINC, several plants at SU79190 54873. Leaves 2.3mm wide, 4.0mm long, ratio 1.7 to 1, so not *V. riviniana*. Also, at SU79235490 in seed, but the leaf shape (and the open heathland habitat in full sun) indicates this species rather than *V. riviniana*, Tony Mundell & Cathy Wilson 15 Jul 2021.

***Wahlenbergia hederacea* (Ivy-leaved Bellflower)** Gelvert Stream, Brock's Hill, still present in flower at SU8295 5252 and SU8296 5252, mostly on east side of ditch, but getting overgrown by *Molinia*, Fred Rumsey 23 Sep 2021.



Small-flowered Catchfly *Silene gallica* var. *quinquevulnera*, Bordon, September 2021. Tristan Norton



Bastard-toadflax *Thesium humifusum*, Magdalen Hill Down, September 2021. Anna Stewart

The Hampshire and Isle of Wight Wildlife Trust's 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 an article for inclusion in a future issue please contact:

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When submitting photographs or illustrations for articles please include a small (reduced) version of the image in the article above its caption and send larger versions (no more than 5MB) directly to John Norton (john@jnecology.uk). Please include details of each image in its filename.

The Hants Plants website provides news and resources for anyone with an interest in Hampshire botany and acts as a hub for all plant recording activities in the two Hampshire vice-counties. If you would like to send in your plant records, please see the Hants Plants website for further information, including a downloadable form for rare plants and a link to Living Record for bulk recording, or contact your relevant BSBI Vice-county Recorder:

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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. Flora Group members are welcome to join the Hampshire Flora Group Facebook group. Search for *Hampshire Flora Group* and click the Join button.



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