Flora News

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

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Hampshire & Isle of Wight Wildlife Trust

Dear Flora Group member

Our Annual General Meeting (AGM) this year will be held on Sunday 5 June in East Hampshire when we will be visiting Shortheath Pond and Bog and Kingsley Common.

As usual we are always keen to receive your suggestions for Flora Group events or activities. Please raise them at the AGM or pass your ideas to any of the Committee members: Sarah Ball (Chairman), Catherine Chatters, Clive Chatters, Ginnie Copsey, Andy Cross, Gareth Knass, Tony Mundell, John Norton, Martin Rand or Neil Sanderson.

Martin Rand will be leading *Euphorbia* and *Chenopodium/Atriplex* workshops this season to help us get to grips with identification. Other events are well spread throughout the county including visits to Southampton, Ampfield Woods, Pitt Down and Longmoor/Woolmer Forest. Hampshire & Isle of Wight Wildlife Trust (HIWWT) has asked the Flora Group to undertake a baseline survey of Hook Common to inform HIWWT's future monitoring of the grazing that has been reinstated here.

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

Catherine Chatters — Flora Group Secretary

John Norton — Editor

In This Issue

Forthcoming Events

There is normally no need to book a place on Hampshire Flora Group events beforehand, unless the text specifically requests it. A contact telephone number is only given in case you wish to know more about the event. The leader can be expected to turn up whatever the weather (although it may then be mutually agreed to cancel the event)! Bring a packed lunch and suitable footwear to all meetings.

Sunday 3 April 2016, 10.30am–4pm
Winter annuals and spring urban flora, Southampton
Leaders: John Norton and Phil Budd

A walk jointly with Southampton Natural History Society to look for winter annuals (species that develop leaves in late autumn and winter, then flower in early spring). We will hope to see a selection of species of typical urban habitats, such as mown road verges, kerbsides, railway fences, scrub and parkland. A good opportunity to see increasing species such as Musk Stork's-bill *Erodium moschatum* and Water Bent *Polypogon viridis*.

Meet at Saxon Road, Freemantle, Southampton (SU407121).

Contact: John Norton, **john1@jnecology.com**.

Saturday 21 May 2016, 10am–4pm
Ampfield Woods
Leaders: Jay Doyle and Martin Rand

Ampfield Woods form a large (nearly 4km x 2km) block of ancient semi-natural woodland stretching from Braishfield to Hursley south-west of Winchester. Like so many lowland woods, its wildlife interest was much reduced by extensive coniferisation in the 20th century, but it still retains good stands of native Small-leaved Lime *Tilia cordata* and pockets of many ancient woodland indicators. There is a programme under way to replant extensive areas with hardwood species. Sadly, one of the jewels of these woods, Bastard Balm *Melittis melissophyllum*, seems to have been lost – but perhaps this meeting can prove me wrong on that!

Arrangements for access and parking are still being finalised at the time of going to press, so for further details please contact: Martin Rand (see back page for details); tel: 07531 461442.

Sunday 5 June 2016, 10.30am–4.30pm
Visit to Shortheath Pond and Bog, plus AGM and visit to Kingsley Common
Leaders: Tony Mundell and Steve Povey

In 2014 Natural England finally started to take an interest in the dreadful condition of Shortheath Pond and as a result, in August 2014, Tony Mundell and Steve Povey did an extensive survey for NE of the aquatic plants on the banks or in the water, logging all the plants in each 100m square. We found that 22 relatively uncommon species that used to occur there had been lost. In fact, the use of a grapnel showed that no totally submerged aquatic plants could be found as the water is so opaque. That included the Narrow-leaved Arrowhead *Sagittaria subulata* that used to be the dominant plant in Shortheath Pond. Admittedly it was an alien but as stated in Stace (2010), Shortheath Pond was its only British site.

Nevertheless, the site is still worth a visit and we should see marginal plants like Bottle Sedge *Carex rostrata*, Marsh Cinquefoil *Comarum palustre*, Narrow Buckler-Fern *Dryopteris carthusiana*, Marsh Willowherb *Epilobium palustre* and Marsh St John's-wort *Hypericum elodes*. The adjacent bog is still in good condition and just a few yards from the pond we should see plenty of Round-leaved Sundew *Drosera rotundifolia* and Cranberry *Vaccinium oxycoccos*. Hopefully the latter will have started to flower. We will also visit the heathland across the road from Shortheath Pond (where there is a colony of Field Crickets) to see plants of sandy soils like Sand Sedge *Carex arenaria*.

Meet at the Shortheath Pond car park at SU 7750 3690, bringing a packed lunch. After our brief AGM held around lunch-time, we will then move to Kingsley Pond car park at SU 7881 3817 to see what we can find on the Kingsley Common heaths. We will aim to finish by 4.30pm.

Contact: Tony Mundell (see back page for details). No need to book.

Reference: Stace, C.A. (2010). *New flora of the British Isles. Third Edition.* Cambridge University Press, Cambridge.

Pitt Down, Farley Mount
Saturday 18 June 2016, 10am–4pm
Leader: Martin Rand

Pitt Down is the most extensive stretch of chalk grassland within the Farley Mount Country Park, with a distinguished list of downland plants in the past. In the last 40 years it has suffered from scrubbing up, inadequate grazing and heavy visitor pressure; but scrub clearance and a more stable grazing regime over the last few years has ensured that much has survived. Recently recorded species of interest include Chalk Milkwort *Polygala calcarea*, Bastard-toadflax *Thesium humifusum*, Greater Butterfly-orchid *Platanthera chlorantha*, Frog Orchid *Coeloglossum viride* and its hybrid with Fragrant Orchid, three species of Eyebright *Euphrasia* spp. (and, inevitably, their hybrids!) and a scattering of Juniper bushes. Many other characteristic chalk grassland and scrub species occur in abundance, and this is a good chance for relative beginners to get to know a range of chalkland plants. Time and weather permitting, we may also explore some of the neighbouring woodland margins and other downland areas where there is a chance of seeing additional species such as Fly Orchid *Ophrys insectifera*, Bee Orchid *Ophrys apifera* and Yellow Bird's-nest *Hypopitys monotropa*.

Meet at the Hawthorns car park on the minor road from Winchester or Hursley to Ashley and Kings Somborne,

SU 414 292. (If this car park is full, there is another within a short walking distance to the east.) Booking is not required but if you have further questions, contact: Martin Rand (see back page for details) or tel: 07531 461442.

***Euphorbia* (Spurge) Workshop (at Testwood Lakes Centre, Totton)**
Sunday 10 July 2016, 10am–3pm
Leader: Martin Rand

Euphorbia is a genus with bizarre inflorescences that can puzzle an inexperienced observer. About 30 species have been recorded in Britain, but this tally includes many exotics that are not covered in the popular field guides, some of which now seem to be appearing more frequently in the wild. Throw into the mix a critical group (the Leafy Spurges, *Euphorbia esula* agg.) and several hybrids and subspecies, and there is good reason to feel challenged!

This workshop will look at flower and fruit features of the genus and introduce participants to as many taxa as possible. We shall be entirely lab-based, as it is hard to select a tract of countryside where one can guarantee to see an adequate selection. *Euphorbia* plants contain a latex sap which causes skin irritation in some people: please be prepared to wear surgical gloves if you are one of those people, or are unsure.

Numbers will be limited so booking is essential and is needed by 26 June. Course fee: £6. Refreshments will be available for a small donation, but bring your own lunch. Contact: Martin Rand by post or e-mail (see back page for details; note change of address); tel: 07531 461442 for questions and follow-up.

Sunday 31 July, 12.30pm–5.00pm
Visit to Longmoor Airstrip from Woolmer Pond
Leaders: Tony Mundell and Steve Povey

Note the unusual starting time. This is because we want to meet in the car park off the A325 close to Woolmer Pond at SU 7852 3194 which has a limited number of spaces. The choice of meeting time is to minimize the number of dog-walkers using the car park spaces. The plan is to eat our packed lunches starting at 12.30pm and then aim to set off walking to Longmoor Airstrip at 1pm. Please try to share cars as parking is limited (I can give lifts to anyone who can come via my house). If the Woolmer Pond car park is full when you arrive, there is an alternative small car park 300m further south beside the A325 roundabout at SU 7834 3160 and from there, after crossing the roundabout, there is an obvious path going north to our meeting place.

Once we set off walking we will aim at getting to Longmoor Airstrip (about 2km away) as quickly as possible. So we will not pause to record everything, instead only stopping to search known spots for real rarities like Smooth Cat's-ear *Hypochaeris glabra* and Bearded Fescue *Vulpia ciliata*. The airstrip area is very rich botanically and well worth the hike. We will see Brookweed *Samolus valerandi* in its only VC12 site, lots of Coral Necklace *Illecebrum verticillatum*, and lots of Wintergreen *Pyrola minor*. We should also find Allseed *Radiola linoides*, Chaffweed *Centunculus minimus*, Heath Cudweed *Gnaphalium sylvaticum* and Yellow Bartsia *Parentucellia viscosa*. Yellow Bird's-nest *Hypopitys monotropa* used to be plentiful in one spot but has been decreasing and only a few could be found when I last visited in 2007. If we have time before walking back to the cars we could detour to see if the alien Ternate-leaved Cinquefoil *Potentilla norvegica* is still present – it was doing well in 2007.

Contact: Tony Mundell (see back page for details). No need to book.

Sunday 14 Aug 2016, 10.30am–4pm
Survey of Hook Common
Leader: Tony Mundell

HIWWT has fenced Hook Common in order to graze it and the Hampshire Flora Group has been asked to do a baseline survey to help with monitoring the effects of grazing. Meet at 10.30am at SU 7203 5317 beside the minor road going south from the A287 dual carriageway signed 'Highways Agency Depot, Hampshire County Council, Hampshire Highways', stopping in one of the lay-bys only a few yards down this cul-de-sac road.

We will record the heaths north and south of the road separately (and the 1km squares separately), assessing the abundance of each species on the DAFOR scale. This will involve some rough walking across areas currently dominated by large tussocks of Purple Moor-grass *Molinia caerulea*. We will be concentrating on recording (often on rather unexciting ground botanically) rather than seeking rarities, but we may turn up some surprises.

Of course Marsh Gentian *Gentiana pneumonanthe* used to grow on Hook Common (which is not far from Bartley Heath where it still thrives). I recorded it there as 'abundant' in 1973 but as the habitat deteriorated and the Purple Moor-grass became ranker, the last single plant was recorded in 1998. Hopefully it may still survive in the seed bank awaiting more suitable conditions.

Contact: Tony Mundell (see back page for details). No need to book.

Marsh Gentian Count at Bartley Heath
Sunday 28 August 2016, 10am–1pm
Leader: Peter Vaughan

Help take part in the annual survey of this beautiful and rare plant at its last remaining site in the north of Hampshire, with an opportunity to see other humid heathland flora and fauna. Please note that the event will involve walking approximately 3km over ground which is uneven in places. No experience required! Bring a picnic for lunch after the count. No dogs please. Meet at the entrance to the reserve off the B3349, SU 726 533. For further details, contact Peter Vaughan on 01256 764225.

***Chenopodium* and *Atriplex* Workshop (at Testwood Lakes Centre, Totton)**
Sunday 11 September 2016, 10am–4.30pm
Leader: Martin Rand

If one took a poll of crowd-pleasing British wildflowers, then it's a reasonable bet that the Goosefoot family Amaranthaceae would feature pretty low in the popularity ranking. But one needs to get to know them to earn 'real botanist' credentials, and – who knows? – perhaps after some time together with a microscope or hand lens, you will fall for their subtle charms.

This workshop will look at the genera *Chenopodium* (goosefoots), *Atriplex* (oraches), and perhaps the odd *Amaranthus* (pigweeds). It will examine the differences in flowering, fruiting and vegetative characters between genera, and introduce you to characteristic species in each genus. The day will start with an introductory lab session, then we spend the latter part of the afternoon in and around the Lower Test Marshes.

Numbers will be limited so booking is essential and is needed by 20 August. Course fee: £6. Refreshments will be available for a small donation, but bring your own lunch, waterproof footwear and appropriate clothing. Contact: Martin Rand (see back page for details; please note change of address); tel: 07531 461442 for questions and follow-up.

Reports of Recent Events

Apiaceae (Umbellifers) Workshop at Testwood Lakes Centre on Saturday 18 July 2015

A report by Sarah Ball

Fifteen people gathered in the classroom at Testwood for the day's workshop under Martin Rand's guidance. He and others had collected an impressive array of specimens from a variety of habitats, so much so that we did not feel the need to go out into the field but continued to study and key out specimens until it was time to go home. Martin had prepared a simplified key for Hampshire umbellifers and a useful glossary of terms 'Umbelspeak' available on the Hants Plants website.

We discussed the pennyworts, *Hydrocotyle*, now split into a separate family – the Hydrocotylaceae but we focused on the Apiaceae proper for the rest of the day. Umbellifers do not hybridise too much in UK which means that the differences between species are distinct and relatively stable. Exceptions include a few infraspecific taxa to look out for such as Fool's Parsley *Aethusa cynapium*, Wild Parsnip *Pastinaca sativa* and Hogweed *Heracleum sphondylium* although the latter is highly variable in degree of leaf dissection and breadth of leaf segments.

For ID we learned to look first at the lower stem leaves (if still present), then the structure of the flowering umbels and most importantly fruit structure if the plants were ripe enough. So we worked our way through the key with common, and some less common, species such as Ground-elder *Aegopodium podagraria*, Wild Angelica *Angelica sylvestris*, Celery *Apium* species, Lesser Water-parsnip *Berula erecta*, Slender hare's-ear *Bupleurum tenuissimum*, Hemlock *Conium maculatum* and *S*weet Cicely *Myrrhis odorata*.

The day was valuable for voluntary surveyors, consultants and other interested botanists. The objective of the workshops is to better equip more people to make a good job of plant recording for the county in future. Mission accomplished!

Visit to Fleet Pond on Saturday 25 July 2015

A report by Tony Mundell

Only six people attended this meeting, but we saw plenty of interesting plants and made a huge number of plant records. I had arranged for access permission into the fenced and grazed margins of the pond where all the scarce plants are concentrated. On a trial walk a few days beforehand I had decided on a route, but in the intervening days it really poured with rain, bringing the pond level well up. This meant that wellies were needed to reach some of the plants.

As is traditional for many Hampshire Flora Group meetings we spent quite a while in the car park listing everything, including a few plants of Fragrant Agrimony *Agrimonia procera*. Crossing the dry heath en-route to the pond itself we found a white-flowered form of the alien Japanese Rose *Rosa rugosa* as well as a couple of bushes of *Rosa canina x micrantha*. The heath also gave us the grasses Fine-leaved Sheep's-fescue *Festuca filiformis*, Brown Bent *Agrostis vinealis* and Mat-grass *Nardus stricta* (the latter now Near Threatened in the 2014 English Red Data List).

Sadly, the pond itself is still devoid of all its former submerged aquatic rarities. In spite of huge quantities of money being spent on the 'Clear Water Campaign' the water is still opaque. We spent most of our time in the grazed pond margins. All the Royal Ferns *Osmunda regalis* previously here had been bulldozed away to make a temporary stream bed for diverting flood water out of the Gelvert Stream, but we did find Marsh Speedwell *Veronica scutellata*, Marsh Cinquefoil *Comarum palustre*, Pillwort *Pilularia globulifera*, Floating Club-rush *Eleogiton fluitans*, Bog Myrtle *Myrica gale*, Lesser Water-plantain *Baldellia ranunculoides*, Marsh St John's-wort *Hypericum elodes*, Grey Club-rush *Schoenoplectus tabernaemontani*, Shoreweed *Littorella uniflora*, Bottle Sedge *Carex rostrata*, Bladder-sedge *Carex vesicaria* and plentiful Small-fruited Yellow-sedge *Carex oederi*. I collected some fruits from an *Alisma* that had narrow leaves, and under the microscope at home confirmed that they were the much scarcer Narrow-leaved Water-plantain *Alisma lanceolatum*.

At botanist's pace there was not time to do a walk around the whole pond perimeter track but we tried

(unsuccessfully) searching for Ivy-leaved Bellflower *Wahlenbergia hederacea* where it once grew and also failed to re-find either of the two Bladderwort species formerly recorded on the marshes west of Sandy Bay. I was also surprised that we could only find a few plants of White Sedge *Carex canescens* where it used to be dominant. The most exciting plant for me was Orange Foxtail *Alopecurus aequalis*, though it had been recorded at Fleet Pond before. This is apparently its last surviving site in Hampshire, though it could easily be overlooked or even mistaken for the relatively common Marsh Foxtail *Alopecurus geniculatus*. We found that both Bristle Club-rush *Isolepis setacea* and Needle Spike-rush *Eleocharis acicularis* are still hanging on in Sandy Bay, the latter grazed hard by the Canada Geese, making it very difficult to recognise.

David Buckler showed us some plants of Water-violet *Hottonia palustris* in a new spot. This has disappeared from all its numerous other former locations around Fleet Pond so I am delighted that it is still present. Under the microscope at home a *Potamogeton* collected from the brick overflow culvert on the north side of the pond was not a re-find of Lesser Pondweed *Potamogeton pusillus* as I had first hoped, but was the much commoner Small Pondweed *Potamogeton berchtoldii*. We finished with a visit the north-east corner of the pond, mainly to see the large patches of Bogbean *Menyanthes trifoliata*.

Orange Foxtail *(Tony Mundell)*

Visit to Biddenfield near Shedfield on Sunday 9 August 2015

A report by Clive Chatters

At the invitation of the Pigshed Trust Flora Group members met up at Biddenfield on 9 August. The Biddenfield Estate is a rare survivor of the ancient countryside on the edge of the historic Forest of Bere. The group were privileged with access into this private estate.

There was an abundance of Sneezewort on the permanent pastures together with more exacting meadow species including Devil's-bit Scabious, Dyer's Greenweed, Pepper-saxifrage and Betony. The flowery grasslands were very sheltered and so provided excellent foraging habitats for the many butterflies including Silver-washed Fritillaries.

The extensive arable fields had not been cultivated for a couple of seasons and so abounded in 'weeds'. The Common Cudweed is something of a misnomer for a species now very rare in South Hampshire outside the New Forest. The plants at Biddenfield were large, robust and many stemmed. Other specialist species of bare ground were Sharp-leaved Fluellen and Lesser Quaking-grass together with a good stand of Corn mint along the woodland edge.

The final part of the estate we visited was a wet valley of secondary woodland by the farmhouse. This appears to be the Biddenfield Bog recorded by the Rev'd Townsend in the late nineteenth century. The bog has become overgrown but still supports a field layer of *Sphagnum* bog mosses as well as huge Royal Ferns, patches of Bog Pondweed and Lesser Skullcap, together with stands of Bog-myrtle and Alder Buckthorn. There was some excitement amongst the bramble enthusiasts and the naming of those species is eagerly awaited.

A day's survey can only touch on the richness of this large and exceptionally rich area of countryside. Further surveys are being undertaken to help advise on the future management of the estate.

Meadow with Sneezewort at Biddenfield *(John Norton)*

Asteraceae: Tribe Cichorieae (Dandelion-flowered Composites) Workshop at Kingsclere on 15 and 16 August 2015

A report by Sarah Ball

In September 2009 Martin Rand ran a workshop about the family Asteraceae (Compositae); it included the anatomy, morphology and particular terminology to describe them, a brief gallop through the tribes into which the huge family is subdivided and some practical ID using the keys. As a follow-up the two-day workshop in 2015 focused exclusively on the Cichoriaceae (*aka* Lactuceae). [NB *Taraxacum* (over 200 microspecies in Britain) and *Hieracium* (at least 412 microspecies in Britain although mercifully only about 24 in Hampshire!) were mentioned but given their huge variability we did not cover them except to note that it is acceptable to identify to section rather than species.]

About 10 keen participants came to the Village Club in Kingsclere for morning workshop sessions that included microscopic examinations of some features of specimens collected from across the county. On Saturday, while having lunch in the sunshine, we found seven common species in the garden of the hall. In the afternoon we found more as we enjoyed a short walk up to nearby chalk downland habitat passing some ruderal habitats en route. On Sunday afternoon we drove a couple of miles to Ashford Hill Meadows and environs to see examples in acid grassland and wetland habitats. So, by the end of the weekend, we had ticked off just about all the common species we had hoped to see.

The members of the Cichoriaceae are distinguished from the other tribes in the Asteraceae by:

- milky sap albeit not always abundant;
- all florets are ligulate (strap-shaped) with 5-lobed tips;
- filaments are always attached part-way up the back of the anthers;
- styles usually with long slender branches and hairy (worth checking the colour of them too).

Once we started looking at specimens in the 'laboratory' we were guided by comprehensive notes, a glossary of terms, keys to the genera and species, and illustrated descriptions with distribution maps for the main Hampshire species. The key most usefully included vegetative characters where possible rather than relying entirely on fruiting plants and of course reference to John Poland and Eric Clement's *Vegetative Key to British Flora* comes in very handy. Things to consider in identifying members of this tribe include: size; leafiness; shape and colouration of basal leaves; hair type (eglandular, simple; glandular, dark; stellate); numbers of ranks, shape and hairiness of involucral bracts; presence of receptacular pits fringed with hairs; fruit characteristics such as shape, ribbing, colour, whether beaked or unbeaked, presence or absence of pappus, if pappus present whether ring, scales or hairs of which hairs can be simple, variable sized, branched-feathery.

We started with blue-flowered examples. Peter Billinghurst had acquired some Blue Sow-thistle *Cicerbita macrophylla* (lots of glandular hairs, much larger terminal lobe to the leaves) to compare with specimens of Chicory *Cichorium intybus* (no or few glands, narrow and more regularly lobed leaves). Then all those yellow dandelion-like species! Variable and challenging even to experienced field botanists. We picked up some useful 'jizz' characters. *Scorzoneroides* has scales to the top and feels bumpy if you run your fingers up the stems. *Crepis* has leafy, branching stems and the leaves tend to clasp the stems. *Leontodon* has stellate hairs. Rough Hawkbit *L. hispidus* tends to have erect leaves, hairs up the flowering stem and softer, velvetier leaves than Lesser Hawkbit *L. saxatilis*, although the latter can be erect in very lush conditions. In the course of the workshop in the hall, the field, or both, we also looked at Cat's-ear *Hypochaeris,* Lettuce *Lactuca,* Nipplewort *Lapsana communis,* Oxtongue *Picris,* Mouse-ear Hawkweed *Pilosella,* Sow-thistle *Sonchus* and Goat's-beard *Tragopogon*.

As always the immensely helpful notes and keys can be found on the Hants Plants website. This was a great confidence-building weekend for this tricky group of plants.

Bartley Heath Marsh Gentian annual count on 30 August 2015

A Report by Peter Vaughan

Marsh Gentian at Bartley Heath *(Peter Vaughan)*

The annual count of the Marsh Gentian *Gentiana pneumonanthe* population at Bartley Heath, the last remaining site for this species in VC12 (north Hampshire) was undertaken on 30 August 2015, during its peak flowering period. The grand total of plants found was **931**, up from 279 the previous year, and the third highest annual count since the current survey method started in 2006. Not only were there very many more plants than in 2014 but my impression was there was a higher proportion of large, multi-flowered specimens. So the population did well in 2015. We found the most individuals in areas were the grass was relatively short, but a few tall specimens were growing up through

Molinia tussocks. Although there was no indication of widespread grazing of the gentians by the horses and cattle on the site, a few flowers appeared to have been partly eaten.

The survey area was as in previous years, i.e. the main open area on Bartley Heath, contained within the 300m x 300m (nine hectare) square, the boundaries of which were SU 727 533, 730 533, 727 536 and 730 536.

The survey was carried out between 10.00 and 13.10 hrs, in mostly cloudy conditions, with the temperature rising from 17 to 20°C, humidity of 60-70% and no more than a gentle breeze, by a group of twelve volunteers, most of whom had taken part in previous years. Frequent checks of the weather forecast had been made in the preceding few days, and the rain radar map early on the morning of the day itself, as it had been very wet and there was even a Met Office 'yellow' warning of severe rain, but we were fortunate to have a dry window for the period of the count, before the wet weather returned later in the day. The heath appeared to be in relatively good condition, with the site-management having kept on top of limiting the growth of birch. We followed our standard method of doing a total enumeration of the plants in flower, by walking in a line of people spaced 2m apart, in a succession of fourteen sweeps covering the entire survey area. With the good conditions we were able to make rapid progress, allowing for some uneven ground with large tussocks, and occasional small gravel pits, trees and bushes, and completed the survey in good time.

During the count we all enjoyed seeing Heather *Calluna vulgaris* and Bell Heather *Erica cinerea* in flower, and found numerous Sneezewort *Achillea ptarmica* plants. Other plant species noted were Betony *Betonica officinalis*, Devil's-bit Scabious *Succisa pratensis* and white and blue forms of Heath Milkwort *Polygala serpyllifolia*. We also saw numerous Common Lizards, including small dark individuals which would have been that year's young, a stunning Wasp Spider *Argiope bruennichi* and web and a busy Hornet *Vespa crabro* nest.

We now have a record of how the Bartley Heath Marsh Gentian population has fluctuated over a ten-year period:

2015 – 931 plants
2014 – 279 plants
2013 – 418 plants
2012 – 276 plants
2011 – 974 plants
2010 – 654 plants
2009 – 335 plants
2008 – no count done (poor weather)
2007 – 1,236 plants
2006 – 794 plants

I discussed likely/possible causes of the fluctuations between years in the Spring 2015 edition of *Flora News*. This year's results would seem to reinforce conclusions that (i) the 2014 Marsh Gentian numbers were adversely impacted by the very wet conditions the previous winter, and (ii) the management of the reserve has maintained the site in a favourable condition to allow a recovery of the species this season.

Within living memory, the Marsh Gentian was more widespread around the Heathland to the south of Hook. It was nearly lost following the construction of the M3 motorway and the resultant cessation of grazing and spread of scrub within the area. The reintroduction of grazing on Bartley Heath, together with a vast amount of effort in scrub management by volunteers and HIWWT staff, has enabled the preservation of a viable population on the site (together with some other notable plant species). The recent re-introduction of cattle conservation grazing by the Wildlife Trust on the neighbouring Hook Common might, in future years, enable the Marsh Gentians to re-occupy more of their historical local range.

Alien plants at Eastney and Milton Common on Sunday 4 October 2015

A report by John Norton

This outing was arranged to to look mainly at alien and coastal plants at two sites on Portsea Island: Eastney and Milton Common. Fourteen people in total turned up and after sorting out parking arrangements at Eastney (disrupted by a running event taking place) we enjoyed a pleasant walk around the beachside car park there, with highlights being Toothed Medick *Medicago polymorpha* (confirmed by the pods still present), Grass Vetchling *Lathyrus nissolia* (one plant with a single flower) and Sea Rocket *Cakile maritima* still in full flower. The latter is a plant mainly of sandy shores and not particularly common around the more shingly coastline of Hampshire. Toothed Medick is a nationally scarce species in Britain and relatively rare in Hants.

Toothed Medick *(Tony Mundell)*

In the afternoon we moved to Milton Common where we saw a number of unusual aliens including Bermuda-grass *Cynodon dactylon*, Common Fig *Ficus carica* (a large tree-sized individual), Yellow Vetchling *Lathyrus aphaca* (not in flower) and Chinese Mugwort *Artemisia*

verlotiorum. This is one of only two permanent colonies of Bermuda Grass in Hampshire and a species which is doubtfully native in Britain, though some people, including Eric Clement, think it may well be. I am more used to seeing it in irrigated lawns and desert wadis in the Arabian Gulf. The Chinese Mugwort was only just coming into flower and looked very distinctive with long, dense conical inflorescences. We also saw a large colony of fruiting Slender Hare's-ear *Bupleurum tenuissimum* along the track below the sea wall just south of Great Salterns Quay.

Bermuda-grass *(Tony Mundell)*

Chinese Mugwort *(Nick Montegriffo)*

Another highlight of the walk was a single thallus of the Golden-eye lichen *Teloschistes chrysophthalmus* on a small apple tree (about 3-4cm across in the photo). This specially protected species was almost extinct in Britain until very recently, but has made a dramatic comeback, almost certainly due to climate change (it is a warmth-loving Mediterranean species). It grows on moderately nutrient-rich bark of trees such as Hawthorn, Blackthorn and Apple. I have also found it over the last few years in Gosport and during a Wessex Lichen Group meeting a couple of years ago we found several plants along the Ancient Highway at Keyhaven. The photo shows the whitish thallus and the deep orange long-stalked cups of the fruiting bodies, which are fringed like eyelashes. The other yellow lichen is *Xanthoria parietina*.

Golden-eye lichen *(John Norton)*

Conifer Workshop at Alice Holt on Saturday 31 October 2015

A report by Tony Mundell

Eleven people booked for this though one had to drop out a few days beforehand. Alice Holt proved to be an excellent location for learning about conifers as the adjacent arboretum and nearby Forestry Commission woodlands had provided a rich source of specimens from which Matt Parratt had collected samples prior to our meeting. Matt started with a handout listing useful online sources and books for identifying conifers. He also recommended Martin Rand's own course notes (available for download from the Hants Plants website) and suggested various arboretums with well-labelled trees that are worth visiting.

Matt then handed out fresh foliage specimens of the most likely species to be found in the countryside, and he described their distinguishing features as well as pointing out some characters in books that can be misleading. Conifers do not make good herbarium specimens as their leaves fall off, so Matt recommended scanning or photographing fresh specimens. I took his advice and with the aid of labels tied on to each specimen brought home I was able to avoid getting the specimens muddled prior to scanning them at home. If you would like to see many images and brief descriptions of conifer species

visit this link **https://goo.gl/QJ9I8Z** to Peter Billinghurst's Flickr site.

The course covered numerous species of pines *Pinus*, silver-firs *Abies*, spruces *Picea*, larches *Larix*, cedars *Cedrus* and one or two examples of *Tsuga, Pseudotsuga, Chamaecyparis* and *Thuja*. After munching our packed lunches Matt led us around the grounds of the Alice Holt Research Station and also through the Alice Holt arboretum and nearby woodland for additional conifer species and to see typical tree shapes (see photo, back page). I was amazed at the massive size of some trees of the infamous Leyland Cypress *x Cuprocyparis leylandii* and there was also an impressive grove of huge Coast Redwoods *Sequoiadendron sempervirens* that had produced many seedling plants.

Conifers are still woefully under-recorded in Hampshire, especially in VC12, so hopefully this course may lead to a few more records reaching me.

Exhibition meeting at Testwood Lakes Centre on Saturday 5 December 2015

A report by Catherine Chatters

The annual Flora Group/BSBI Exhibition Meeting at Testwood Lakes on Saturday 5 December 2015 attracted 33 people who appreciated the opportunity to get together socially at the end of the year to discuss botanical matters and view the interesting exhibits.

Rosemary Webb and Nigel Johnson once again delighted us with a display of their stunning close-up photographs of orchids, some from Hampshire and others photographed further afield in Scotland.

Andrew Powling brought along pressed specimens of the leaves of various Elms and sought people's views on their identity. Personally, I was caught out by the conifer branch that Felicity Woodhead had found whilst visiting a Site of Special Scientific Interest in the New Forest area; I had to take a second, closer look before realising that it was plastic! Felicity's request for help in identifying the species resulted in a list of appropriately amusing Latin names.

Martin Rand brought along a selection of recently published books for people to peruse and hand lenses for people to purchase.

In the afternoon Dominika Murienova gave a presentation describing the research she had undertaken with Rebecca Wilson during 2015 on behalf of the New Forest Non-Native Plants Project whilst at Southampton University. Dominika and Rebecca surveyed invasive non-native plants at selected sites in the New Forest area, to provide a baseline against which the effectiveness of future control work can be monitored. Their research related to Himalayan Balsam, Giant Hogweed, Japanese Knotweed and American Skunk Cabbage and resulted in Dominika and Rebecca being joint recipients of the HIWWT 2015 Peter Brough Award which aims to acknowledge and encourage the work of amateur naturalists.

Clive Chatters and Tony Mundell showed a varied selection of photographs of recent Flora Group events and botanical discoveries. Highlights included the large populations of Sword-Leaved Helleborine *Cephalanthera longifolia* at Shoulder of Mutton Hill and Chappett's Copse and Herb Paris *Paris quadrifolia* at Bentley Wood and Cobden's Copse. Tony was pleased that Green Hound's Tongue *Cynoglossum germanicum* has been recorded growing near the towpath along the Basingstoke Canal.

Paul Stanley's discovery of Field Eryngo *Eryngium campestre* at Sutton Scotney Service Station had caused great excitement and Tony showed Brian Laney's photograph of this plant from which seed was collected, under licence, for the Kew Millennium Seed Bank and from which Tony has made a herbarium specimen.

Tony showed a photograph of the hybrid between *Erigeron acris* and *Conyza floribunda* and encouraged Flora Group members to keep an eye open for this purple-flowered plant. For further details about this hybrid and the Field Eryngo please see his articles in the 'News and Views' section of this edition of *Flora News*.

The Exhibition Meeting was a most enjoyable way to end the Flora Group's activities in 2015.

Many thanks to Tony Mundell and Martin Rand for organising the event and to Clare and Pat for looking after us all with refreshments throughout the day.

Members looking at exhibits at the Flora Group exhibition meeting *(Catherine Chatters)*

Features

A Field Guide to the NVC – Part 2: Introduction to grasslands and classification of Dry Neutral Grassland

An article by John Norton

INTRODUCTION

Foreword

This article follows on from my general introduction to the National Vegetation Classification (NVC) in the last newsletter (No. 49, September 2015), where general concepts and some of the terminology of the NVC were explained. These articles are aimed at botanists who have never used the NVC before, but also to vegetation surveyors of all levels of experience. They do not cover the vegetation of upland habitats or rare types, and focus mainly on those that occur in Hampshire or southern England generally. The present article, though long, is only a preliminary draft which I may revise and publish in a different form in the future. Lack of time and space in these pages precluded going into too much detail or providing a comprehensive set of illustrative photographs.

In the present article I thought it useful to firstly define what is meant by 'grassland' and explore some of the difficulties inherent in classifying and surveying neutral grassland, particularly with regard to estimation of grass-to-herb ratio and herb richness. I have also provided an overview of all types of grassland in Britain and how they fit into the NVC. The final part covers the identification and classification of what I term simply 'neutral grassland' or 'dry neutral grassland' (which under the NVC is mainly divided between MG1, MG5, MG6 and MG7). Future articles will cover seasonally wet grassland, acid grassland and calcareous grassland.

Definition of grassland and some basic grassland ecology

My own simple definition of (dry) grassland, which would apply to Britain and probably most of Europe, is *'permanent vegetation that is composed of grasses and herbs under a metre in height growing in dry to damp soils'*. In this sense 'grasses' includes other 'graminoids' such as wood-rushes *Luzula* spp. and sedges *Carex* spp. The true rushes *Juncus* spp. only rarely occur in dry grasslands. The term 'herbs' is used by vegetation surveyors as shorthand for 'herbaceous plants', i.e. non-woody vascular plants. The alternative term 'forb' is often used in scientific journals, but I think best avoided for survey reports aimed at non-specialists. In this sense 'herbs' includes ferns and horsetails. The definition purposely does not say anything about the relative proportions or relative dominance of grasses and herbs in grasslands. This is because some types of grassland are composed entirely of grasses but others can appear almost completely dominated by herbs (at least above ground under certain conditions). Typically, however, grasses form the dominant component of the grassland sward. Dry grasslands are largely composed of perennial or biennial species, many of which can reproduce vegetatively for long periods without the need to flower and set seed.

Grassland, like any other habitat, is maintained through the interaction of edaphic (soil), biotic (faunal) and climatic influences. One of the most important factors which serves to maintain grasslands is that they are repeatedly cropped, either by grazing or cutting, which prevents succession to scrub and woodland. Grazing can be by domesticated livestock or wild herbivores, and also birds, such as Brent Geese and other wildfowl. Rarely, grassland on the driest, most exposed nutrient-poor soils may be self-maintaining without significant cropping.

The use of the term 'permanent' in the definition is to exclude ruderal vegetation and arable cereal crops on highly disturbed or regularly cultivated soils (grassland normally has less than 5% bare ground cover). The definition does, however, include short-term grass leys, which are sown but then left uncultivated for several years at a time. Grasslands are characterised by generally low levels of soil disturbance, though some types are resistant to other physical effects such as compaction through trampling. Acid grassland can withstand higher levels of soil disturbance and compaction and therefore has a much higher proportion of annual species, many of which behave as ruderals.

The requirement of dry to damp soils and the 1 metre height cut-off serves to exclude tall herb fen and swamp vegetation which tends to grow on permanently wet soils (or even in shallow water) where the wetness and better availability of nutrients favours species that have taller, more robust growth. Although it seems obvious that *Phragmites* reedbed would not be thought of as a grassland in the commonly accepted sense, other grasses such as Reed Canary-grass *Phalaris arundinacea* do grow in both tall herb fen and shorter 'grassy' swards. Furthermore, tall herb fen can also merge confusingly into grassy tall herb communities, where species such as False Oat-grass *Arrhenatherum elatius* and Common Couch *Elytrigia repens* occur side by side with *Phragmites* and *Phalaris*.

PROBLEMS WITH CLASSIFICATION AND IDENTIFICATION OF NEUTRAL GRASSLANDS

Predominance of generalist species

I dealt with some aspects of carrying out quadrat surveys to help with identification and diagnosis of NVC types in the previous article, but the first stage for any NVC survey will be to visually assess the species composition of a stand of vegetation in order to work out which species are the main dominants and associates. Once this is done the NVC diagnosis will be straightforward for many types of vegetation. Swamp and tall herb vegetation in particular tends to be characterised by only one or two principal dominants, so the NVC classification is relatively simple. However, with grasslands in general and especially dry neutral grasslands, the vegetation frequently consists of a species rich mixture of grasses and herbs without any particular dominants (though there are exceptions). Many grass species of neutral

grasslands are very catholic in their habitat requirements ('generalists') and indeed several are also found in acidic and calcareous grasslands (Yorkshire-fog is a good example). With regard to the NVC this means that these common 'pasture grasses' are of relatively little use in differentiating between different NVC communities. The emphasis is therefore more on the herb component, though the same applies to many herbs as well.

The dry neutral grassland NVC types are described in the last section below. To a large extent the arrangement devised by Rodwell and his colleagues is a workable one that has stood the test of time, though there are some gaps, caused by under-sampling, as mentioned in the previous article. However, an important consequence of the tendency of neutral grassland species to be generalists is that this type of vegetation, more than any other, shows continuous variation between the nodes represented by the named NVC types. This needs to be borne in mind by anyone who is surveying neutral grassland. Transitional (intermediate) stands are met with very frequently.

Difficulties of estimating grass-to-herb ratio and herb richness of grasslands

Given that it is often difficult to characterise neutral grasslands by their dominant species, there are two qualitative measures that are probably more useful in the initial visual assessment stage of NVC types: grass-to-herb ratio and herb richness. However, these are far from easy to assess and are greatly affected by seasonality and other factors.

Definitions

The grass-to-herb ratio is used as a 'primary attribute' in the Common Standards Monitoring (CSM) methodology developed by the national conservation agencies for monitoring SSSIs (e.g. JNCC 2004). It uses the percentage cover of herbs as the actual measure, so a 40% herb ratio implies 40% herb cover and 60% grass cover (if bare ground is zero). This method of estimating cover (which is not explained in any further detail in the CSM documents) appears to be different to the NVC method, which uses 'projected cover', so that where species overlap, the combined cover will amount to more than 100%. I find it easier to estimate grass-to-herb ratio by visualising above-ground biomass.

Herb richness and species richness are two related terms that are widely used in vegetation survey and assessment, but it is important to define them here. In fact, the terms can be applied in two different senses. Firstly, either term can be used simply as an empirical measure of the actual number of herbs or species present within a defined area of grassland. A meadow with 80 species may be said to be 'species rich', whereas one with only 10 herbs will be 'herb poor'. Although the number of species varies with the size of the grassland being considered, it would theoretically be possible to assign terms such as 'species poor', 'moderately species rich' and 'species rich' to a defined scale based on the numbers of species present. However, 'herb richness' is also used in a much broader sense to refer both to number of herbs in an area of grassland and also to some extent their relative abundance. Thus, a meadow with only 20 herbs could be herb poor in the first sense, but herb rich in the second sense if most of these species are also frequent over the site. It should also be noted that when assessing the herb richness of sites, tree seedlings or agricultural weed species, such as thistles, may or may not be included; for example, the CSM guidance considers herb richness to exclude agricultural weeds such as thistles. Species richness can apply only to vascular plants or may also include bryophytes. In the remainder of this article I use herb rich in the second sense and consider the term to be broadly equivalent to saying that a grassland has a high herb ratio.

Practical application

Whilst the assessment of grass-to-herb ratio, herb cover, herb richness and overall species richness of grasslands is useful and probably essential in the process of identifying NVC types, there are numerous problems and pitfalls to be aware of. The most important ones are summarised in **Box 1**. Consequently, the main advice for surveying dry neutral grasslands would be to undertake at least two visits a month apart, with the first taking place at peak flowering time of grasses, in about mid-June. For damper grasslands (to be covered in the next article) the first visit should take place 2-3 weeks earlier, to catch conservation-worthy species such as Ragged-robin *Silene flos-cuculi* and Southern Marsh-orchid *Dactylorhiza praetermissa* before they die back. Some types of acid grassland (notably U1 parched acid grasslands) are particularly problematic to survey because they usually support a succession of short-lived annual species from March to early June and then some later developing species only detectable in late summer or early autumn.

The grass-to-herb ratio and herb richness need only be estimated visually, but useful data can be obtained by recording sample quadrats and a species list. Even if not recording quadrats it is useful to get on one's hands and knees and 'rummage' through the sward to get a feel for the relative frequency of herbs amongst the grasses and to look for herb species hiding in the sward. Even seedlings can often be identifiable and may add species to the overall list.

OVERVIEW OF TYPES OF GRASSLAND VEGETATION

Grassland vegetation falling under the definition given above is spread across nine different chapters of the NVC, although the majority comes under the three principal chapters of mesotrophic grasslands (MG), calcicolous grasslands (CG) and calcifugous grassland and montane communities (U) of Volume 3 (Rodwell 1992). At least eight communities fall under the maritime cliff (MC) and the sand dunes and shingle (SD) chapters of Volume 5, whilst others are included under saltmarshes (SM) (Volume 5), swamps and tall herb fens (S) (Volume 4), mires (M) (Volume 2) and vegetation of open habitats (OV) (Volume 5). A summary of the main floristic and habitat characteristics of these is given in **Table 1** arranged according to eight different habitat categories (my own classification system). The lists of species in

Box 1: Pitfalls in the assessment of grass-to-herb ratio and herb richness in dry neutral grasslands

- The growth form (i.e. foliage) of grasses and other monocots is very different to most herbaceous dicots, making comparative measures of cover, abundance and frequency difficult or impossible to assess.
- Recently mown or grazed swards can pose serious difficulties in detecting, identifying and estimating the relative abundance and cover of species and will usually bias any estimates of grass-to-herb ratio in favour of grasses, except where there is a high proportion of hemicryptophyte (rosette-leaved) or low-creeping species in the sward.
- Grassland vegetation undergoes seasonal physiological changes as species come into flower, set seed, brown off and die back. This can change the appearance of the grassland through the growing season and may bias assessments of grass-to-herb ratio and herb richness in favour of visually prominent species. For example, Yorkshire-fog is much more obvious when flowering, as are herbs with broad, expanding leaves. Avoid undertaking surveys in early spring before many herbs have come into flower or even developed fully above ground.
- Whilst the grass species in some types of grasslands may be constantly present or dominant in the sward, certain species also undergo seasonal growth cycles and may therefore affect estimates of grass-to-herb ratios as well as causing problems with NVC diagnosis. For example, Rough Meadow-grass is the earliest developing grass of neutral, often damp, pasture and can dominate some swards by late April to May during its flowering period; after that it dies down somewhat and may disappear completely above ground in drier swards. Common Bent does the reverse; it can be difficult to detect in swards until mid-summer but by July or August it often becomes the dominant species.
- Grasslands often comprise two or more layers composed of different groups of species or single species (for example there will often be two layers of grasses and sometimes a layer of bryophytes at ground level). When assessing grass-to-herb ratio and herb richness it is important to look at each layer. Herbs can be hidden by taller growing grasses!
- Weather conditions have a direct effect on the relative proportions of grasses to herbs and may further complicate the effects of seasonal changes of growth patterns and succession mentioned above. The most important effect is the tendency for grasses to grow relatively better after periods of wet weather and poorly in very dry weather. Herbs also tend to flower more profusely in dry weather, so grasslands surveyed after a dry summer may appear to have a higher proportion of herbs than is really the case.

bold text in Table 1 are those that I consider to be most useful in distinguishing the particular type of grassland from the other types, but as noted above many species are generalists that occur in more than one grassland type or NVC community. The relationships of British grasslands to European grasslands are reviewed by Rodwell *et al.* (2007).

It can be seen from the first two rows of **Table 1** that 11 of the 13 communities of the mesotrophic grasslands chapter correspond to my categories of Neutral Grassland (i.e. dry neutral grassland, considered in more detail below) and Wet Grassland and Rush Pasture (to be covered in the next article). One further sub-community falls under 'Saltmarsh and Wet Brackish Grassland'. Neutral grassland thus covers MG1, MG5 and MG6, whilst wet grassland and rush pasture covers MG4 and MG8 to MG13, with MG7 being split between the two. The other two mesotrophic grassland communities, MG2 and MG3, are found in semi-upland hay meadows with a limited distribution in northern England, so are not dealt with here.

NEUTRAL GRASSLAND

Introduction

Neutral grassland is one of the most familiar vegetation types in our towns and countryside, making up much of our permanent grazed pastures, road verges, churchyards, lawns, playing fields and other amenity grasslands. It also readily develops on abandoned agricultural and brownfield land. As noted above and in **Table 1** it comprises NVC types MG1, MG5, MG6 and four of the six MG7 sub-communities. Also included is OV23, which although placed in the open vegetation chapter as a weed community, is essentially a type of grassland found in urban habitats. The full list of sub-communities is given in **Table 2**. Variants of sub-communities will not be discussed here (several are described for MG1 and MG6) but at the end of each community account I have briefly commented on other unnamed types of grassland that may be encountered.

MG1 *Arrhenatherum elatius* grassland

General characteristics

MG1 comprises most types of rough, dry grassland on neutral soils. It develops on under-managed sites where the relatively low frequency of cropping allows taller-growing tussocky grasses to thrive, but is sufficient enough to prevent succession to scrub. It can be predominant even on sites that are mown twice a year - especially when the second cut is delayed until late summer (after July), as often happens in so-called 'conservation' mowing regimes. Herb richness varies greatly according the different sub-communities, so is a useful pointer towards identification of these.

MG1 is normally co-dominated by False Oat-grass and Cock's-foot *Dactylis glomerata*, but although the latter species is given as a constant in the NVC tables it can sometimes be occasional or rare in the sward. Other tall grasses such as Common Couch and Tall Fescue *Schedonorus arundinaceus* may be locally dominant and examples that are intermediate to calcareous grassland may have a little Upright Brome *Bromopsis erecta* or Downy Oat-grass *Avenula pubescens*. These taller grasses are more obvious in mid to late summer and form an upper layer up averaging about 80cm in height. There is usually also an underlayer dominated by

common pasture grasses, such as Red Fescue *Festuca rubra*, Yorkshire-fog and bents *Agrostis* spp. If there is frequent Tufted Hair-grass *Deschampsia cespitosa* in the sward the vegetation may be referable to **MG9** *Holcus lanatus-Deschampsia cespitosa* grassland (a wet grassland type).

The community is also characterised by the presence of medium to tall biennial and perennials herbs, especially umbellifers, and sprawlers, both of which have life cycles and habits that can allow them to co-exist with the tussock-forming grasses. The most frequent tall herbs are Hogweed *Heracleum sphondylium* and Creeping Thistle *Cirsium arvense*, and sometimes Teasel *Dipsacus fullonum* or Mugwort *Artemisia vulgaris*. Characteristic medium-sized species include Common Knapweed *Centaurea nigra*, Common Agrimony *Agrimonia eupatoria*, Perforate St John's-wort *Hypericum perforatum* and Hoary Ragwort *Senecio erucifolius* (this last species inexplicably missing from the published floristic table). Also abundant are shorter herbs associated with the 'pasture' component, particularly Ribwort Plantain *Plantago lanceolata* and Yarrow *Achillea millefolium*. The sprawlers range from the delicate tares and vetches *Vicia* spp., to medium-sized species such as Meadow Vetchling *Lathyrus pratensis* and Field Bindweed *Convolvulus arvensis* and the larger bindweeds *Calystegia* spp. and Traveller's-joy *Clematis vitalba*.

Although listed near the bottom of the floristic table by Rodwell (1992), Wild Carrot *Daucus carota* can be a distinctive component of the community and probably replaces Hogweed in warmer and drier situations (it can occur in both species poor and species rich types of MG1). However, it develops above ground late in the year and does not flower in July so is easily missed during surveys. It also occurs in transitions from MG1 to MG5.

It can be difficult to decide whether an area of MG6 or MG7 grassland that has been left unmanaged for a time has developed to MG1 or is transitional. Rodwell simply states that the coarse-leaved tussock grasses are 'usually conspicuous and generally dominant in the community'. In practice, any grassland with more than about 25% cover of tall grasses these should be considered as falling under MG1.

Due to the presence of the finer-leaved pasture grasses in MG1 swards, after mowing the vegetation can strongly resemble grazed or mown MG6 or MG7. However, it can still be distinguished by the presence of the distinctive basal leaves of Hogweed, basal leaf rosettes of thistles and other biennials and the glaucous green flattened shoots of Cock's-foot. The cut sward will also usually have a slightly less dense, coarser appearance.

Sub-communities

MG1a *Festuca rubra* sub-community is strongly grass-dominated and noticeably herb poor. Although Rodwell chose to define it by the associated underlayer of Red Fescue, in some cases this species is replaced by mixtures of other common pasture grasses, such as Yorkshire-fog, bents and Rough Meadow-grass *Poa trivialis* (on damp clay, for example, Creeping Bent *Agrostis stolonifera* can be the predominant species). Typical herbs include Ribwort Plantain, Yarrow and sprawlers such as *Vicia* spp. and Meadow Vetchling.

MG1b *Urtica dioica* sub-community occurs on moister and more enriched soils where Common Nettle *Urtica dioica* is usually very apparent in clumps or patches, often also with other tall weedy species, such as thistles, docks *Rumex* spp. and occasionally Teasel or Mugwort. Apart from these species it is very herb poor. Hogweed is often very abundant and the main sprawler is Cleavers *Galium aparine*. MG1b is very common in intensively managed farmland next to hedgerows and in abandoned field corners.

MG1c *Filipendula ulmaria* sub-community is a less common type of river floodplains (perhaps better placed under wet grassland and rush pasture). It is characterised by the presence of Meadowsweet *Filipendula ulmaria* in addition to Hogweed. Most of the typical grasses of damper meadows can occur in the underlayer, especially Yorkshire-fog and Rough Meadow-grass, together with herbs such as Creeping Buttercup *Ranunculus repens*. Hedge Bindweed *Calystegia sepium* can form large sprawls in late summer, causing the vegetation to collapse. MG1c is slightly more species rich on average than MG1a and MG1b.

MG1d *Pastinaca sativa* sub-community is associated with calcareous soils in south-east England. Rodwell (1992) states that Sheep's Fescue *Festuca ovina* replaces Red Fescue in the underlayer, but in my experience MG1d only occurs on moister soils where Sheep's Fescue is never present. It is always characterised by the presence of Wild Parsnip *Pastinaca sativa*, which often replaces Hogweed, making it quite distinctive. Other characteristic species include Crosswort *Cruciata laevipes*, Hedge Bedstraw *Galium album*, Lady's Bedstraw *G. verum*, Wild Marjoram *Origanum vulgare*, Field Scabious *Knautia arvensis* and rarely Greater Knapweed *Centaurea scabiosa*. Smaller growing chalk grassland species may also be present, such as Pyramidal Orchid *Anacamptis pyramidalis*. Many of these are also found in MG1e. The usual sprawler is Traveller's-joy, which like Hedge Bindweed can reach high cover, sometimes completely dominating large patches of vegetation.

MG1d can be relatively herb poor or moderately herb rich. Herb poor examples resemble MG1b and include some Common Nettle and often abundant Creeping Thistle. Herb rich examples can be close to MG1e, but are best distinguished by the relatively low frequency of Common Knapweed.

MG1e *Centaurea nigra* sub-community is the most species rich type, with an average of 21 species and maximum of 30 in the NVC floristic table. It is easily recognised by the high herb richness and the usual abundance of Common Knapweed. Other preferential species are Red Fescue, Yellow Oat-grass *Trisetum flavescens*, Common Bird's-foot-trefoil, Germander Speedwell *Veronica chamaedrys* and Sweet Vernal-grass *Anthoxanthum odoratum*. It occurs on all soil types but is commonest on the chalk

Table 1. Types of grassland vegetation in lowland Britain and relationship to the NVC

Habitat category	NVC grassland types	General floristic and habitat characteristics
Neutral Grassland	MG1, MG5, MG6, MG7a/b/e/f OV23	Grassland usually on fertile dry to moist soils, which are not strongly acidic or calcareous ('circumneutral'); usually grazed or mown at least intermittently. The **OV23** *Lolium perenne-Dactylis glomerata* community is a type of weedy grassland of urban habitats (with four sub-communities). Main grasses are *Agrostis capillaris*, *Anthoxanthum odoratum*, *Arrhenatherum elatius*, *Cynosurus cristatus*, *Dactylis glomerata*, *Festuca rubra*, *Lolium perenne*, *Holcus lanatus*, *Phleum pratense*, *Poa pratensis* and *P. trivialis*, but some of these are also common in other types of grassland. **Herb species occurring widely include *Achillea millefolium*, *Bellis perennis*, *Cerastium fontanum*, *Hypochaeris radicata*, *Plantago lanceolata*, *Ranunculus acris*, *R. bulbosus*, *Rumex acetosa*, *Trifolium repens* and *T. pratense*. Others that are more distinctive of particular types include *Centaurea nigra*, *Leucanthemum vulgare* and *Lotus corniculatus*.** In some sub-communities there may be occasional plants of calcareous species, such as *Galium verum* and *Poterium sanguisorba*. Neutral grassland on sites grazed by livestock often has patches of nutrient-demanding weedy herbs, especially *Cirsium arvense*, *Rumex obtusifolius* and *Urtica dioica*, together with *Senecio jacobaea*.
Wet Grassland and Rush Pasture	MG4, MG7c/d, MG8-MG13 (except MG12b)	Vegetation of non-saline, damp, seasonally waterlogged or flooded circumneutral soils, including traditionally managed water meadows and hay meadows on floodplains. **Typically composed of mixtures of *Agrostis stolonifera*, *Alopecurus pratensis*, *A. geniculatus*, *Carex hirta*, *Deschampsia cespitosa*, *Holcus lanatus*, *Juncus effusus* and *J. inflexus*. Other characteristic species of certain types include *Carex divisa*, *C. disticha* and *Hordeum secalinum*. If any of these are present in quantity it is likely that the grassland belongs in this category. Typical herbs include *Caltha palustris*, *Cardamine pratensis*, *Potentilla anserina*, *Pulicaria dysenterica*, *Ranunculus repens* (in quantity), *Senecio aquaticus* and *Silene flos-cuculi*, though many types of wet grassland are naturally very herb poor. Away from Hampshire, species such as *Sanguisorba officinalis* are characteristic of certain types.**
Calcareous Grassland	CG1-CG7	Grassland on chalk and limestone, usually well drained and often grazed by livestock. Supports a large number of characteristic grasses and herbs, though several species thought of as calcicoles also occur on dry sandy soils. **Examples include *Avenula pratensis*, *A. pubescens*, *Briza media*, *Bromopsis erecta*, *Carex flacca*, *Festuca ovina*, *Koeleria macrantha*, *Anthyllis vulneraria*, *Asperula cynanchica*, *Carlina vulgaris*, *Centaurea scabiosa*, *Cirsium acaule*, *Leontodon hispidus*, *Helianthemum nummularium*, *Pilosella officinarum*, *Polygala vulgaris*, *Poterium sanguisorba*, *Scabiosa columbaria*, *Thymus praecox* and *Viola hirta*.**
Acid Grassland	U1-U4, U20	Grassland and herb-dominated communities, often with abundant lichens and bryophytes, of nutrient-poor, acidic to neutral, often thin and freely draining soils (often prone to summer parching) and frequently trampled or rabbit-grazed. Grasslands invaded by Bracken, Gorse and Broom are usually acidic. There are a large number of distinctive species of acid grasslands which if present will normally enable easy differentiation from neutral and calcareous grassland. A knowledge of bryophytes and lichens will also help. However, impoverished or tightly grazed stands can be difficult to distinguish from neutral grassland. Because many associated vascular plant species are annuals flowering in spring and early summer, acid grasslands may be difficult to assess later in the year. **Typical species which may be visible for longer periods include *Aphanes australis*, *Erodium cicutarium*, *Festuca filiformis*, *Jasione montana*, *Leontodon saxatilis*, *Ornithopus perpusillus* and *Rumex acetosella*. Acid grasslands on heathy, very nutrient poor sites are characterised by species such as *Carex pilulifera*, *Galium saxatile* and *Molinia caerulea*.** Beware species that also occur on calcareous and sand dune grasslands, e.g. *Carex caryophyllea*, *Cirsium acaule*, *Echium vulgare*, *Pilosella officinarum*, *Veronica officinalis* and *Thymus* spp. Grassland supporting *Chamaemelum nobile* is probably best regarded as a type of damp, acid grassland. It is not covered by the NVC, though is common in the New Forest and some coastal areas of Hampshire.
Sand Dune Vegetation and Maritime Grassland	MC5, MC8-MC11, SD10-SD12	This category includes a wide variety of grassland types, though in Hampshire, due to the absence of rocky cliffs and extensive sand dunes, the types present are more limited and do not fit well into the NVC framework. As a rule, any coastal mesic grassland containing *Armeria maritima* is likely to fall under the maritime cliff chapter (MC), whilst acid grassland with frequent *Carex arenaria* will be classified under sand dune grassland within the shingle, strandline and sand-dune chapter (SD). **Much of our coastal grassland, however, has a higher affinity to U1 parched acid grassland (see above) and supports similar species to that, along with predominantly coastal species such as *Cerastium diffusum*, *Plantago coronopus*, *Sedum anglicum*, *Trifolium ornithopodioides*, *T. scabrum*, *T. subterraneum* and *T. suffocatum* (these are widespread over the New Forest and some occur on the north-east heaths).**

Table 1 (cont). Types of grassland vegetation in lowland Britain and relationship to the NVC

Habitat category	NVC grassland types	General floristic and habitat characteristics
Wet Brackish Grassland	MG12b, S21, SM16, SM20	Grassland inundated by saline water, placed within the salt-marsh communities (SM) and swamps and tall-herb fens (S) chapters of the NVC. **MG12b** *Festuca arundinacea* [*Schedonorus arundinaceus*] grassland, *Oenanthe lachenalii* sub-community is also best placed here. In Hampshire, wet brackish grassland is only found locally on soils inundated by saline or brackish water, e.g. on upper saltmarsh and parts of coastal grazing marshes. Some interesting areas occur at Titchfield Haven NNR. **Wet brackish grassland is often dominated by *Agrostis stolonifera*, and has a strong affinity with MG11 (two sub-communities of which are also associated with saline soils), but it can be distinguished by the greater abundance of species such as *Bolboschoenus maritimus*, *Eleocharis uniglumis*, *Glaux maritima*, *Juncus gerardii*, *Triglochin maritimum* and *Trifolium fragiferum*. SM16 is usually dominated by *Festuca rubra*. Drier stands often support abundant *Carex divisa*, though this species also occurs in some coastal stands of neutral grassland.**
Reedbed and Tall Herb Fen	S28	Due to its height this type of vegetation usually falls outside the definition of grasslands, but one exception is **S28** *Phalaris arundinacea* tall-herb fen, which can occasionally develop as low-growing stands on flood pasture grazed by livestock or wildfowl.
Rush and Sedge Vegetation	M22-M25	Vegetation on peaty or organic, weakly acid to moderately base rich soils characterised by the abundance of certain species of rushes and sedges, and sometimes *Molinia caerulea*. Corresponds to the Purple Moor Grass and Rush Pastures Priority Habitat and included in the NVC mires chapter, but usually referred to by vegetation ecologists as 'poor fen' or 'fen meadow'. **Drier, grassier forms occur which are distinguishable from neutral grassland by the presence of *Molinia caerulea* and usually one or both of the grey-leaved sedges *Carex flacca* and *C. panicea*.**

Table 2: Neutral Grassland NVC types

NVC community	NVC sub-community
MG1 *Arrhenatherum elatius* grassland	**MG1a** *Festuca rubra* sub-community
	MG1b *Urtica dioica* sub-community
	MG1c *Filipendula ulmaria* sub-community
	MG1d *Pastinaca sativa* sub-community
	MG1e *Centaurea nigra* sub-community
MG5 *Cynosurus cristatus-Centaurea nigra* grassland	**MG5a** *Lathyrus pratensis* sub-community
	MG5b *Galium verum* sub-community
	MG5c *Danthonia decumbens* sub-community
MG6 *Lolium perenne-Cynosurus cristatus* grassland	**MG6a** Typical sub-community
	MG6b *Anthoxanthum odoratum* sub-community
	MG6c *Trisetum flavescens* sub-community
MG7 *Lolium perenne* leys and related grasslands	**MG7a** *Lolium perenne-Trifolium repens* leys
	MG7b *Lolium perenne-Poa trivialis* leys
	MG7e *Lolium perenne-Plantago lanceolata* grassland
	MG7f *Lolium perenne-Poa pratensis* grassland
OV23 *Lolium perenne-Dactylis glomerata* community	**OV23a** Typical sub-community
	OV23b *Crepis vesicaria-Rumex obtusifolius* sub-community
	OV23c *Plantago major-Trifolium repens* sub-community
	OV23d *Arrhenatherum elatius-Medicago lupulina* sub-community

and can occur side by side with MG1d, where most of the associates of that sub-community can also be present.

Unnamed sub-communities

Other examples of 'rough grassland' are sometimes encountered that do not fit into the five published sub-communities. Rodwell (1992) treats some of these as variants of MG1a, but did acknowledge that further work was needed to fully understand their relationships. However, he did not list any new types in Rodwell *et al.* (2000).

One type of *Arrhenatherum* grassland that does not fit into the current NVC framework is typical of clay soils, especially on restored gravel pits and quarries. It is a short-lived type of grassland that is initially dominated by Bristly Oxtongue *Helminthotheca echioides* and later by mixtures of this with False Oat-grass and Wild Carrot; sometimes also with Hoary Ragwort. Tall Fescue

Schedonorus arundinaceus may also be present and can be locally dominant on damper ground. An important feature is the diversity and abundance of legumes, especially Grass Vetchling *Lathyrus nissolia*, Narrow-leaved Bird's-foot-trefoil *Lotus tenuis*, Strawberry Clover *T. fragiferum* and sometimes Alsike Clover *Trifolium hybridum*. Common Vetch *Vicia sativa* and other *Vicia* species may also be frequent. I would probably name this as *Arrhenatherum elatius-Helminthotheca echioides-Daucus carota* grassland, though it does need to be properly sampled and studied. It sometimes becomes more species rich with age, with species such as Common Knapweed and Perforate St John's-wort moving in, when it would then be classifiable as MG1e. However, some stands become almost completely dominated by Tall Fescue (usually also with some cover of False Oat-grass and bents) and belong to a further unnamed sub-community, which is clearly different to the MG12 *Festuca arundinacea* [*Schedonorus arundinaceus*] grassland of Rodwell (1992) (a type of damp, brackish grassland in coastal areas).

MG5 *Cynosurus cristatus-Centaurea nigra* grassland

General characteristics

This is often referred to as the classic 'hay meadow' vegetation of lowland Britain and is the main category of grassland falling under the Lowland Meadows Priority Habitat. MG5 grasslands are generally herb rich and species rich with relatively high herb cover (typically 40% or more herb cover as judged by the CSM methodology). Species richness is maintained by frequent mowing or grazing and generally low input of nutrients, so MG5 grasslands are often referred to as being 'unimproved'. However, due to a long history of use of artificial fertilisers and herbicides on grasslands it is rare nowadays to find good examples of MG5 on land managed for hay or pasture; most examples will be intermediate to some extent to MG6 where enrichment has occurred, or MG1 when regular management is lacking. Most of the existing stands have developed almost by accident on road verges, garden lawns and disused gravel or chalk quarries, rather than through a long history of management. The best examples probably survive on managed nature reserves; in Hampshire especially on deeper soils within chalk downland sites. One of the richest and most important sites in Hampshire, at Denmead, is totally unprotected.

In view of the importance of MG5 in lowland Britain it is rather surprising that Rodwell (1992) only devotes four pages of text to describing the community, as opposed to 17 pages for CG2, the richest type of chalk grassland! This, however, may partly be a reflection of the lack of past research on neutral grassland in Britain prior to the publication of the NVC.

As noted by Rodwell (1992) the community can be variable in appearance and vary from a short tight sward to lush vegetation up to about 60cm in height. MG5 swards are typically made up of a species rich mixture of common pasture grasses, but most species are also shared with MG6 and MG1e, so it is difficult to define MG5 in terms of grasses alone. However, the combination of abundant Red Fescue, Common Bent and Sweet Vernal-grass is an indication of MG5 or MG6b. A few other species are especially distinctive of particular sub-communities as described below. Although Rodwell's data places Crested Dog's-tail *Cynosurus cristatus* as one of the constants in the community and it was included in the community name, in southern England this is clearly not the case, and in fact this species can be missing from many stands (however, it is extremely difficult to detect except when in flower). I suspect that this species does better in sheep-grazed swards which due to their prevalence in northern and western Britain would have been better-sampled by the NVC fieldwork and data gathering exercise (see previous article). It should be borne in mind that Perennial Rye-grass *Lolium perenne* can often be present in this community, but usually in smaller amounts than in MG6 and MG7.

In terms of herbs the community is characterised by five very characteristic species: Common Knapweed, Oxeye Daisy *Leucanthemum vulgare*, Common Bird's-foot-trefoil *Lotus corniculatus*, Bulbous Buttercup *Ranunculus bulbosus* and Red Clover *Trifolium pratense*, in addition to Ribwort Plantain and Yarrow which are often both abundant. All of these are constant species apart from Oxeye Daisy, Bulbous Buttercup and Yarrow. White Clover *Trifolium repens* is also a constant species, but is far more abundant in MG6 and MG7. Other preferential species include Common Cat's-ear, Rough Hawkbit *Leontodon hispidus*, Corky-fruited Water-dropwort *Oenanthe pimpinelloides*, Self-heal *Prunella vulgaris* and Common Sorrel *Rumex acetosa*. Corky-fruited Water-dropwort was not mentioned in Rodwell's grasslands volume and may not have even been recorded during the NVC fieldwork. It has increased dramatically in southern England since about 1960. In southern England especially, the community is the main habitat of Green-winged Orchid *Anacamptis morio* (which elsewhere also occurs on sand dunes and cliffs). Other uncommon plants occurring in this community include Dyer's Greenweed *Genista tinctoria*, Adder's-tongue *Ophioglossum vulgatum*, Pepper-saxifrage *Silaum silaus* and also Pignut *Conopodium majus*, which is perhaps more familiar as a grassland species away from Hampshire. Adder's tongue also occurs in wet grassland.

The community can also be distinguished by the relative lack of nutrient-demanding species, such as Common Nettle, Creeping Thistle and docks, which tend to characterise MG6 and some types of MG7.

MG5 often has high cover of the pleurocarp mosses *Rhytidiadelphus squarrosus* and *Pseudoscleropodium purum*.

Sub-communities

MG5a *Lathyrus pratensis* sub-community is the least distinctive of the three sub-communities and the most difficult to distinguish from MG6. The grass cover may generally appear quite high and the growth quite lush or tall, and patchy; Perennial Rye-grass is more common in this sub-community. MG5a is, however, characterised

by the relatively high frequency of legumes, particularly Red Clover, Common Bird's-foot-trefoil and Meadow Vetchling and also the presence of other sprawlers such as Common Vetch early in the season and Tufted Vetch *Vicia cracca* in late summer. Rougher swards can exhibit transitions to MG1. Most of the community constants and preferentials mentioned above occur commonly, but Ox-eye Daisy is more frequent here than in the other two sub-communities. Wild Carrot may be frequent in some examples (especially near the coast in Hampshire), though is not listed in the NVC floristic table. Most herb rich grasslands that do not clearly fall into MG5b or MG5c will almost certainly belong to MG5a.

MG5b *Galium verum* sub-community is found mainly on deeper soils on the chalk in Hampshire or anywhere where there is a base rich influence. It is characterised by the presence, usually at low frequency, of chalk grassland grasses and herb species, especially Quaking-grass *Briza media*, Yellow Oat-grass, Downy Oat-grass, Glaucous Sedge *Carex flacca*, Lady's Bedstraw, Hoary Plantain *Plantago media* and Salad-burnet *Poterium sanguisorba*. It is the most species rich type of MG5, with an average of 26 species and maximum of 38 given in the NVC floristic table. Rodwell (1992) notes that Sheep's Fescue can partly replace Red Fescue in MG5b, but I believe that the former species is almost entirely restricted to core chalk grassland types such as CG2, certainly in southern England. Similarly, although the sub-community is named after Lady's Bedstraw, this species is surprisingly uncommon in this type of vegetation in southern England but is much more frequent and distinctive of base rich grassland in northern Britain. Of the community constants and preferentials, Yarrow, Ribwort Plantain and Common Bird's-foot-trefoil are especially frequent in this sub-community.

MG5c *Danthonia decumbens* sub-community is typical of the most nutrient poor and often driest situations, so tends to support some species of acid grassland, of which Heath Grass *Danthonia decumbens* is one of the most characteristic. Rodwell (1992) notes that grasses are more prominent in this sub-community generally. Sweet Vernal-grass and Field Woodrush *Luzula campestris* are usually both abundant, but can be easily missed due to their early summer flowering period. Herbs which may help indicate MG5c include Tormentil *Potentilla erecta*, Devil's-bit Scabious *Succisa pratensis* and Betony *Betonica officinalis*, though these tend to occur only in the best examples. Autumn Hawkbit *Leontodon autumnalis* is preferential to this sub-community. Typical examples will often have plentiful Common Bird's-foot-trefoil, Self-heal and Bulbous Buttercup, in addition to most of the other community constants. This sub-community is quite close to one of the parched acid grassland sub-communities (U1d).

MG6 *Lolium perenne-Cynosurus cristatus* grassland

General characteristics

MG6 is the typical grassland of grazed pastures, lawns, urban road verges and other regularly mown amenity grasslands on freely-draining soils. It therefore usually has a short, tight sward and can develop from previously sown grasslands within a few decades. MG6 can vary widely in appearance from site to site or seasonally on any particular site depending on the intensity of grazing or mowing. Most of what is loosely termed 'semi-improved grassland' falls into MG6, reflecting its relatively high nutrient status. Like MG5 it is composed of varying mixtures of all the common pasture grasses, but the two named constants tend to be more obvious. They may co-dominate in sheep-grazed pasture but Perennial Rye-grass is more usually much the dominant species. The other most frequent species are Rough Meadow-grass, Common Bent, Red Fescue, Yorkshire-fog and Smooth Meadow-grass *Poa pratensis*.

Most of the more typical examples of MG6 are therefore straightforward to distinguish from MG5 due to the high grass cover and correspondingly low herb cover. Herb diversity varies from very poor (maybe only 10 species in a typical sized meadow) to moderately rich. The main five characteristic MG5 herbs are rare or absent, except for Red Clover which can be occasional to locally frequent. MG6 includes the familiar cattle and pony grazed pastures where Meadow Buttercup *Ranunculus acris* is the most distinctive species in early summer. Other characteristic species are White Clover, which can be abundant, and Common Mouse-ear *Cerastium arvense*, the presence of which is a particularly good indicator of MG6. The humble Daisy *Bellis perennis* is also more common in this community. Other typical species present in all the sub-communities include Dandelion *Taraxacum* and Ribwort Plantain. Yarrow is often obvious in dry spots, where it can occur amongst an otherwise grass-dominated sward. Creeping Buttercup prefers damper soils than Meadow Buttercup, and although it can be co-dominant with Meadow Buttercup in some examples of MG6, it is more characteristic of MG7d, a closely related wet grassland type (to be covered in the next article). Many pastures will support mosaics of MG6a and MG7d and some stands may be intermediate between the two.

A distinctive feature of MG6 is the presence of mostly tall-growing nitrophilous weeds, particularly Common Nettle, Creeping Thistle, Spear Thistle and Broad-leaved Dock, in addition to Ragwort *Senecio jacobaea*. In pony grazed pastures these tend to predominate on the latrine areas, where they often grow in company with taller grasses such as Cock's-foot. The presence of Ragwort and Creeping Thistle in particular usually distinguishes MG6 from seasonally wet improved grassland (MG7c and MG7d). Sites supporting MG6 are sometimes also characterised by species of trampled or poached ground, though larger stands of such species will usually fall into open vegetation (OV) types.

Sub-communities

MG6a Typical sub-community is the most abundant and widespread sub-community, generally occurring on the more strongly improved sites. It generally has a high grass cover and low herb diversity. This is a 'catch-all' category for the majority of semi-improved grasslands in lowland Britain and will include most types

of grass-dominated grassland where the principal species are not Perennial Rye-grass and Rough Meadow-grass (although Perennial Rye-grass is constant in MG6 it is rarely dominant).

MG6b *Anthoxanthum odoratum* sub-community is a moderately grass-rich and herb rich sub-community, some examples of which approach MG5a in terms of species composition and herb cover. It can be recognised by the often abundant Sweet Vernal-grass and frequent Common Sorrel, usually also with frequent buttercups and other the other characteristic herbs of the community. The main tall weedy species are probably less frequent. Rare examples of meadows that are still managed for hay tend to fall into MG6b rather than MG5, and the sub-community in general can support many of the MG5 hay meadow species, though usually at low frequency, such as include Red Clover, Common Knapweed, Rough Hawkbit and Common Cat's-ear. Common Bird's-foot-trefoil is usually absent. Such examples are also often rich in grass species; I have sometimes found Meadow Brome *Bromus racemosus/commutatus* in this type of vegetation.

MG6c *Trisetum flavescens* sub-community is the counterpart of MG5b, being associated with more base rich soils, particularly on improved chalk downland. Rodwell (1992) notes that Yellow Oat-grass and Small Cat's-tail *Phleum bertolonii* are constant preferentials. Other chalk grassland species can occur at very low frequency, such as Burnet-saxifrage *Pimpinella saxifraga*, Salad Burnet and Lady's Bedstraw. Glaucous Sedge could probably be added to this list.

Unnamed sub-communities

In the previous introductory article I mentioned that Rodwell *et al.* (2000) noted the omission of at least one type of grassland with an affinity to MG6 found in 'inland clay pastures and reclaimed coastal marshes', supporting species such as Hairy Buttercup *Ranunculus sardous*, Meadow Barley *Hordeum secalinum* and Strawberry Clover. In fact, this type of grassland is probably more closely related to two different types of seasonally wet grassland, so I will cover these in the next article.

MG7 *Lolium perenne* leys and related grasslands

General characteristics

This community brings together various types of sown and strongly improved grasslands, which tend to be dominated by one of the most palatable and also trample-resistant grasses: Perennial Rye-grass. Here I have chosen to cover four of the six sub-communities (MG7a, MG7b, MG7e and MG7f) which tend to occur on damp to dry ground; the other two (MG7c and MG7d) are rather different types of vegetation, closely similar to each other and characteristic of seasonally wet flood pasture and water meadows.

These four sub-communities of MG7 are usually strongly dominated by Perennial Rye-grass, but this may be replaced by mixtures of Rough Meadow-grass and Yorkshire-fog in damper situations. Crested Dog's-tail is usually absent. Cock's-foot, Common Bent and Creeping Bent may be locally frequent. Herb cover is usually very low and herb richness very poor, except that the tall nitrophilous weeds mentioned under MG6 may also occur. The main constant is White Clover, though this can be absent from some grass leys and abundant in others, depending on the seed mixture used.

Sub-communities

MG7a *Lolium perenne-Trifolium repens* leys are generally sown grasslands composed of Perennial Rye-grass (or sometimes Italian Rye-grass *Lolium multiflorum*), usually with White Clover. Older leys may have some scattered Dandelion or a patch or two of Creeping Buttercup. Bare ground cover may be relatively high, so there is a tendency for Annual Meadow-grass *Poa annua* or various small arable weeds to be present (such as Shepherd's-purse *Capsella bursa-pastoris*).

MG7b *Lolium perenne-Poa trivialis* leys are usually longer established than MG7a and a little richer with a more diverse mixture of grasses, including species such as Yorkshire-fog, Cock's-foot and Timothy *Phleum pratense* in addition to the two named co-dominants. This type of grassland can also be distinguished from MG7a by the much greater abundance of Dandelion, and sometimes by more frequent buttercups. Better examples are closely similar to MG6a, and Rodwell (1992) notes that the only clear difference is the lack of Crested Dog's-tail.

MG7e *Lolium perenne-Plantago lanceolata* grassland is associated with the more strongly improved amenity grassland sites and urban road verges that are regularly mown or trampled. As such, it is also quite similar to MG6a and transitions are commonplace. It can also develop from sown and reseeded grasslands. Typically, Perennial Rye-grass occurs at only low frequency and can be rare in some examples; the dominant grasses being the usual range of pasture species (Red Fescue, Common Bent, Rough Meadow-grass, Yorkshire-fog and Cock's-foot). Ribwort Plantain is often abundant, whilst Greater Plantain and Dandelion may also be frequent. A number of species are listed as being occasional, including Common Mouse-ear, Daisy, Common Sorrel, Red Clover and Lesser Trefoil *Trifolium dubium*.

MG7f *Lolium perenne-Poa pratensis* grassland is similar to MG7e but characteristic of more strongly trampled sites. Rodwell (1992) notes that Perennial Rye-grass, Smooth Meadow-grass and Cock's-foot usually co-dominate, occurring with rosette herbs resistant to heavy trampling, such as Greater Plantain and Daisy. He mentions that with severe trampling and poaching the sub-community can become quite weedy, with species such as Annual Meadow-grass becoming frequent. He also notes the presence of Wall Barely *Hordeum murinum* in places where dogs urinate, a type of grassland which was later treated more comprehensively under OV23 (see below).

OV23 *Lolium perenne-Dactylis glomerata* community

General characteristics

This community is contained within the 'vegetation of open habitats' chapter of the NVC (Rodwell 2000) but is included here because it is composed largely of

perennial rather than annual grasses (particularly the two constants in the community name) and can form a closed grass-dominated sward. Rodwell (2000) states that it is characteristic of resown amenity grasslands 'where there is only occasional summer mowing, continuing disturbance or a measure of neglect'. Ribwort Plantain and Dandelion are the only herbs listed as community constants. The less regular management enables Cock's-foot to gain prominence is some stands, whilst the disturbance allows weedy species to feature (helping to distinguish this from the similar MG7e and MG7f).

The floristic table lists quite a large number of herb species in the community, most of which would feature amongst any list of common species recorded from urban habitats. Some of the more frequent and characteristic include Lesser Trefoil, Beaked Hawk's-beard *Crepis vesicaria*, Groundsel *Senecio vulgaris*, Oxford Ragwort *S. squalidus*, Curled Dock *Rumex crispus* and Yarrow. In addition, Musk Stork's-bill *Erodium moschatum* has shown rapid expansion across southern and south-east England since the NVC account was published and can now be considered a key associate of the community, along with Spotted Medick *Medicago arabica* which has enjoyed a similar increase over a slightly longer time period (Preston *et al.* 2002). In my home town of Gosport Musk Stork's-bill forms large patches on mown road verges, especially along the warmer sections nearer the kerb. It is not entirely clear to which sub-community this vegetation is best placed and perhaps it ought to be put into a newly described one. In fact, the sub-communities are not especially well circumscribed in the published account of OV23 and their descriptions read more as random examples of how the vegetation can appear rather than clearly-defined types of vegetation. This may be explained by the under-sampling of this type of vegetation during the NVC fieldwork, the lack of any research and published data into vegetation of urban habitats in Britain and by the recent changes in species composition as noted above, which has almost certainly been caused by climate change. For this reason, I have only described the sub-communities briefly, based largely on the published accounts.

Sub-communities

OV23a Typical sub-community contains all the community constants, with frequent Wall Barley and Lesser Trefoil and occasionally the presence of Oxford Ragwort and Common Vetch. This is the typical sub-community occurring around the bases of lamp-posts and street trees where dogs urinate.

OV23b *Crepis vesicaria-Rumex obtusifolius* sub-community has Annual Meadow-grass in addition to the community constants. The two named preferential herb species are Beaked Hawk's-beard and Broad-leaved Dock; others comprise Rough Meadow-grass, Groundsel and Creeping Thistle, sometimes with seedlings of Buddleia *Buddleja davidii*. It is characteristic of more highly disturbed sites such as 'churned-up verges and waste ground'.

OV23c *Plantago major-Trifolium repens* sub-community is distinguished by greater abundance of Greater Plantain and White Clover, the frequent presence of Annual Meadow-grass and Yorkshire-fog, and occasional Creeping Buttercup and Curled Dock. This sub-community is most common along trampled paths through sown grasslands.

OV23d *Arrhenatherum elatius-Medicago lupulina* sub-community is characterised by the addition of other perennial grasses, especially False Oat-grass, Yorkshire-fog and Common Bent. Frequent herbs comprise Yarrow, Black Medick *Medicago lupulina* and occasional Common Mouse-ear and Common Vetch, together with taller species such as Mugwort, Wild Carrot, Hogweed, Ragwort and Common Knapweed. It is found on verges and amenity grassland where summer mowing is less frequent.

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Herb rich MG5a grassland at Denmead *(John Norton)*

Vicia orobus (Wood Bitter-vetch) in Hampshire: where was it found?

A note by Martin Rand

Wood Bitter-vetch in flower and fruit *(Marie Portas)*

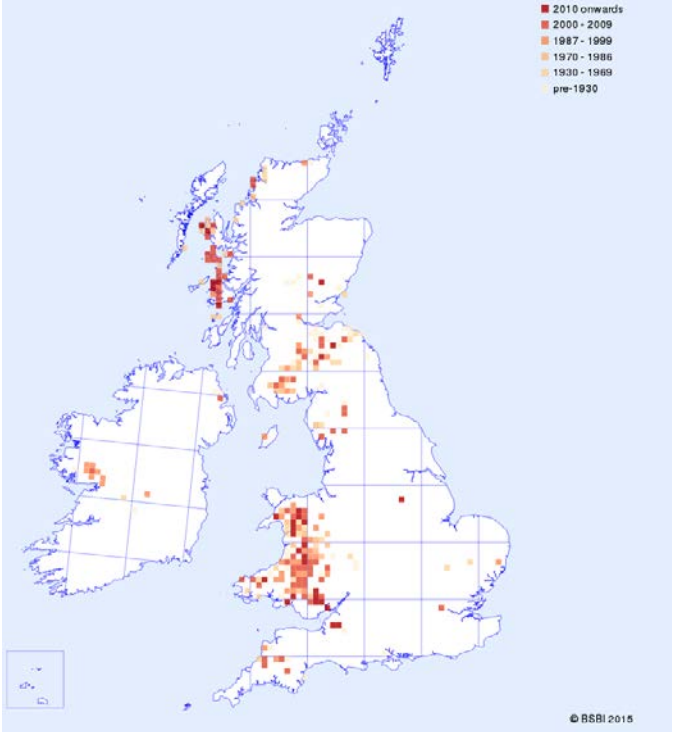
Vicia orobus (Wood Bitter-vetch) is a handsome member of the Pea family that is a component of the Atlantic flora of Europe, with a broad range that extends from Portugal and central Spain to the northern Alps and Jura. In the British Isles it has a more strictly Atlantic distribution (see map above). The English name is rather inappropriate, as it is typically a plant of rough grassland, scrub and road verges in Britain. It is in serious decline in many of its main stations through changes in land use and intensified farming.

In Hampshire there has only ever been one recorded site, which was first noted by Henry and James Groves, as recorded in the *Journal of Botany* vol. 13 in 1875.

> Vicia Orobus, *DC.*, in South Hants.—Last summer while my brother and myself were botanising in the New Forest, we found *Vicia Orobus* sparingly by the side of an enclosure between Lyndhurst and Brockenhurst, nearer the latter place, with every appearance of being indigenous. I have thought it well to record this, as I do not think it has been found so far south before. Near this spot we also noticed *Rhynchospora fusca* and *Pinguicula lusitanica* in the greatest profusion. —James Groves.

There is a supporting specimen in the British Museum herbarium, documented '*In considerable plenty, though limited to a confined area, between Lyndhurst Station and Brockenhurst, 1875-6-9*'. This is tantalising. Assuming that Groves meant Lyndhurst Road station (Ashurst) and not Beaulieu Road, this yields about 25 square kilometres of terrain, of which perhaps 15 held some suitable habitat at the time. Subsequent records have localised this to SU30, which is a reasonable assumption from the information given at the time. One record on the BSBI's Distribution Database places it at SU3008, which appears to be an arbitrary allocation on the eastern side of Lyndhurst town and, even allowing for changes over the last 140 years, unlikely to sustain in profusion the two other species mentioned by Groves.

However, this plant was evidently known to others in the following years. A couple of years ago Geoff Toone furnished me with the scanned images of a copy of

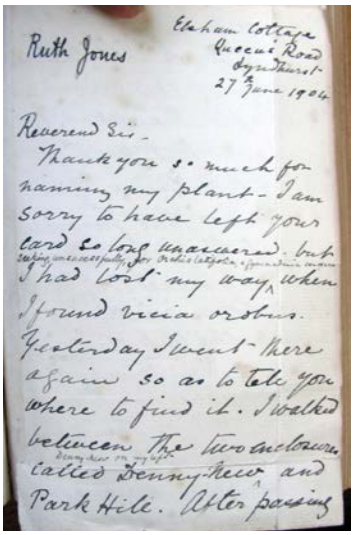


Distribution map for Britain and Ireland

Townsend's *Flora of Hampshire* (1st edition) belonging to the Rev. John Kelsall, a noted ornithologist with an informed interest in botany. This is in a binding, popular at the time, with interleaved blank sheets for the owner's notes. Amongst the pages was a letter from a Ruth Jones of Lyndhurst, the relevant parts of which are below. So far I have found no other details of her life and interests.

These directions are not hard to follow. The Richardson, King and Driver map of the New Forest (2nd edition, 1814) makes clear that the Park Hill Pond is in the position marked on the present Ordnance Survey 1:25,000 map, although no pond feature appears on the 1892-1908 OS mapping. However, by the date of her visit, enclosure of the wood pasture of the area had taken place and the pattern of rides was established that persists to the present day (see the maps on next page).

Ms Jones says that she went into '*Park Hill Enclosure at the second gate after the pond*'. This is most likely the central of the three marked entrances; the pattern of rides has not changed between the two maps, and there is nothing on the ground to suggest that other rides have since been suppressed. However, there are a couple of complicating factors. One is that she mentions that she left the Inclosure by a gate that '*is the second above Denny Rails*' (the area to the north of the Denny Lodge assart, and just to the east of the area shown). This implies that she used a different gate, since she spells out the details in this way. However, counting the entrances from there suggests that this is the **same** gate. Perhaps she was also counting the ride up to Little Holm Hill, in which case she would have left by the easternmost of the marked entrances. Certainly that is the entrance by which '*you*' (in fact, anyone approaching from the Beaulieu road) '*would probably enter by*': the track between the Inclosures from the central to the

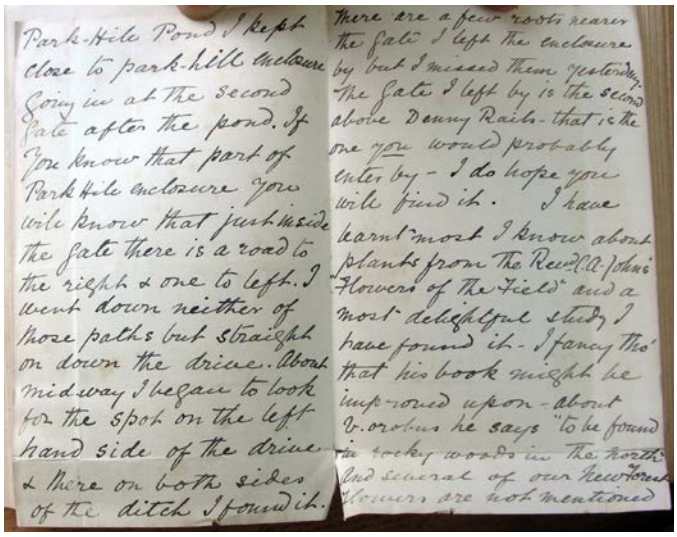


Ruth Jones

Elcham Cottage
Queens Road
Lyndhurst
27th June 1904

Reverend Sir -

Thank you so much for naming my plant - I am sorry to have left your card so long unanswered - but I had lost my way when I found vicia orobus. Yesterday I went there again so as to tele you where to find it. I walked between the two enclosures called Dennyhere and Park Hile. After passing



Park Hile Pond I kept close to park hill enclosure going in at the second gate after the pond. If you know that part of Park Hile enclosure you will know that just inside the gate there is a road to the right & one to left. I went down neither of those paths but straight on down the drive. About midway I began to look for the spot on the left hand side of the drive & there on both sides of the ditch I found it.

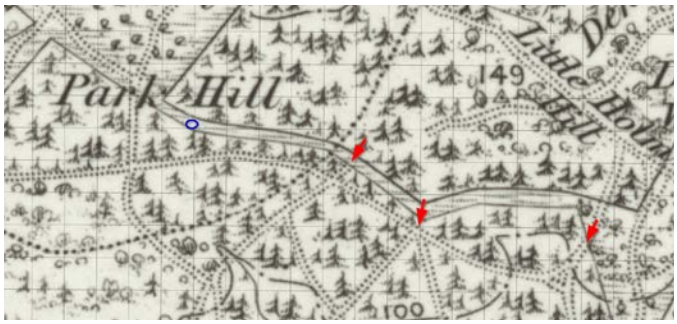
there are a few roots nearer the gate I left the enclosure by but I missed them yesterday. The gate I left by is the second above Denny Rails - that is the one you would probably enter by - I do hope you will find it. I have learnt most I know about plants from the Rev C.A. Johns' Flowers of the Field and a most delightful study I have found it - I fancy tho' that his book might be improved upon - about V. orobus he says "to be found in rocky woods in the north" and several of our heretofore flowers are not mentioned

Letter discovered in a copy of Townsend's *Flora of Hampshire*

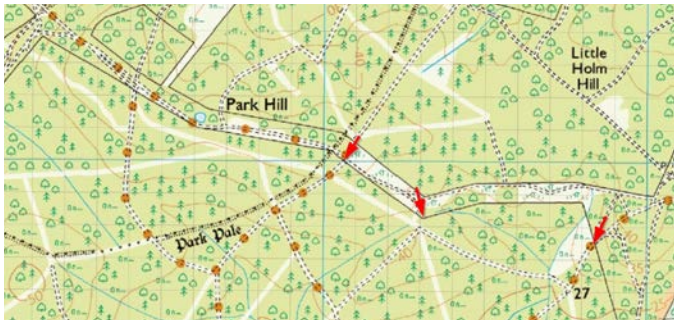
eastern marked gateway is today less obvious, less consolidated and in places very boggy; it may have been little different in Ms Jones' day. The '*road to the right and one to the left*' are obvious at the central entrance, but what to make of '*straight on down the drive*'? There are (and from the earlier map, clearly were) two other rides leading away from this entrance, and surely the writer would have cleared this ambiguity up?

I have made a cursory late-season survey of the ride sides in the vicinity of each of these entrances. Of course the coniferisation of these woods, and forestry operations, will have made a great deal of change in the intervening 100 years, and there is very little habitat that now looks in the least suitable for *Vicia orobus*. The most promising stretch is in fact on the more westerly of the two rides running more or less ahead from the central entrance. Here a stretch of ride-side bank (on the left-hand side of the ride) retains a native woodland flora including *Lathyrus linifolius, Betonica officinalis* and *Euphorbia amygdaloides*. No *Vicia orobus* was found. Also, if the alignment of approach tracks in 1904 was much as it is today, it would be hard to describe this route as '*straight on down the drive*'.

I think the best that can be said with reasonable certainty is that Ms Jones' locations were in monad SU3205.



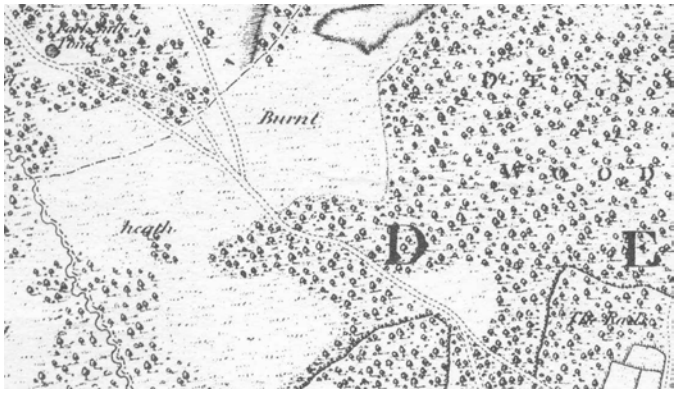
1904 map



2004 map showing locations of access points

There remain the questions: was this the Groves' site; and did she identify the plants correctly? Certainly the first page of the letter does not suggest that she was hunting for a known site; if anything, the reverse. Of course this does not rule out stumbling on the same locality.

For the time being, it is hard to know whether the identification was correct. On the one hand, Kelsall's correspondent obviously had some knowledge of plants, from the orchid species she lists (with scientific names) as her quarry. *Vicia orobus* is not a hard plant to identify, even if you have never seen it before. The account in her copy of Johns' *Flowers of the Field*, while terse, gives the salient features which would have enabled her to distinguish it from other members of the family. But we have no specimen to consult, and Kelsall left no further note against the species in his copy of the *Flora*. If anyone has more information on Ruth Jones and her botanical correspondence, I would much appreciate it.



Driver's 1814 map of Park Hill

Coastal plants at Mudeford and Highcliffe

An article by Martin Rand

View from Highcliffe to Christchurch Harbour *(Martin Rand)*

The Channel coast on either side of Christchurch Harbour has been known to botanists since at least the late 18th century. Dr William Bromfield, writing extensively on Hampshire plants in the *Phytologist* in 1848-1850, added little to our knowledge of this particular area; most of his coastal records from mainland Hampshire are from the south-east of the county. However, by the time Townsend published the first edition of his *Flora of Hampshire* in 1884, there were many localised records of interesting plants from both sides of the harbour mouth. Nowadays, Hengistbury Head to the west is the more appealing destination, as it is a spectacular viewpoint, ends in an only moderately wrecked dune system, and retains a little more wildness than the heavily suburbanised coast to the east. But there are a greater number of interesting records from Mudeford in the 1884 *Flora* than from the other side of the harbour mouth. In modern records without precise localities, it is sometimes difficult to know which side is referred to, since Ordnance Survey grid squares span the harbour. The fact that the sand spit at the end of Hengistbury Head is known as 'Mudeford Spit' has also evidently created confusion in some recorders' minds. But Townsend at least makes all clear, since the boundary between his county Districts 1 and 2 passes through the harbour mouth.

One of the most notable finds of the 19th century was Cottonweed *Achillea maritima*, now considered extinct in Britain but formerly with a very sparse distribution around the coast as far north as Anglesey and East Anglia. It was found in 1879 on a recently emerged sandbank at Mudeford, but soon lost from there when the bank was washed away. At this time there was no hard quay on that side, and landform changes at the mouth of the harbour were no doubt more dramatic than they are now. It reappeared a little way off soon after, but could not be refound in 1892. And that is the last time it appeared in Hampshire! It was also known at Hayling, and it remains present across the Channel and even expanding in a few sites on the Cotentin peninsula east of Cherbourg, despite the threat posed by heavy recreational use (Zambettakis & Provost, *Flore rare et menacée de Basse-Normandie*, 2009). Just possibly, climate change will bring it back to us some day.

Of equal but more current interest is another plant with a southerly distribution in Europe, also very rare and restricted in Britain: Sea Knotgrass (*Polygonum maritimum*).

Sea Knotgrass at Highcliffe *(Martin Rand)*

In 1836 it was found by William Borrer, but it is clear from his own descriptions on herbarium labels that these were from the Hengistbury side of the harbour. He may well have seen it on both sides, and Townsend states that he gathered it at Mudeford in 1847. It was certainly there in 1879 when Bolton King and others were recording Cottonweed. The two species suffered together in the shifting of the sands shortly after, but it reappeared at Mudeford in 1885 and continued to be seen there until 1902. No doubt the subsequent building of the harbour quay and the hardening of sea defences at Mudeford did little to improve its life prospects. By the time of the first BSBI *Atlas of the British Flora (*1962) it was considered extinct in Britain in all but a handful of sites in the far south-west and the Channel Islands.

Its story does not end here, but first we need to bring the history of the Mudeford/Highcliffe coast up to date. Apart from the low-lying ground at the harbour mouth, most of the shore is backed by low soft cliffs of clays and sands that rise to about 25 metres towards Chewton Bunny at Highcliffe. The development of the Mudeford end put paid to the most important area of mobile sand habitat; sand accretion farther east is at best vestigial, and until recent times much of the foreshore consisted of shelving shingle below slumped cliff material. Colonising opportunities for foreshore plants have therefore been limited. However recent decades have seen the build-up of a substantial high storm beach under the steep sand cliffs of Steamer Point and Highcliffe Castle, above all but the most violent of tides. Perhaps even more important is the stabilisation of the cliffs to the east of Highcliffe Castle, where grading, facing, a hard walkway at the top

of the beach and the construction of massive groynes with Dorset freestone have transformed the landscape. To appreciate the difference one has to visit the dramatic unprotected stretch of coast east of Chewton Bunny, where wet and perilous clay strata tumble (literally in winter storms) into a narrow strip of wave-racked shingle.

These sea defences can hardly be said to have enhanced the natural interest of the soft cliffs themselves. Towards the eastern end, most of the slopes are dominated by an unexciting mosaic of rough grassland and scrub where few of the more interesting coastal plants of open grassland can now thrive. In 1879 Bolton King found Hairy Bird's-foot-trefoil *Lotus subbiflorus* 'in considerable plenty' on the 'sand cliff E. of Mudeford'. It has only regained this status in recent years when the reconstruction of the zig-zag path east of Highcliffe Castle exposed bare soil again. Huge tracts are now dominated by dense scrub, of either the native Rusty Willow *Salix cinerea* ssp. *oleifolia* or the introduced Holm Oak *Quercus ilex*. The latter makes a gloomy grove enlivened occasionally by other evergreen exotics like Bay *Laurus nobilis* and Strawberry-tree *Arbutus unedo*. As slight consolation, the questing botanist may stumble across some of the few really convincing stands of Atlantic Ivy *Hedera hibernica* in the county, maybe with Ivy Broomrape *Orobanche hederae* growing on it.

But I am coming to the opinion that the same works have actually improved the situation for at least some of the plants of the shoreline. Now the shingly high beach line is no longer regularly covered by cliff-fall; it is relatively level, not scoured by most tides, and sand has started to accrete amongst the shingle, making vestigial foredunes in places. The huge boulders of the groynes have also brought an element of rocky shore where there was none before. Of the roughly 30 species of coastal plants that Townsend noted at Mudeford and Highcliffe (where we can be sure that records refer to the Channel coast rather than the shore of Christchurch Harbour), it is the plants of upper saltmarsh and brackish seepages that seem to have suffered most. No doubt most of these were concentrated at the low-lying Mudeford end that has been most heavily urbanised.

To return to the Sea Knotgrass: after a gap of 88 years, it reappeared on the spit at Hengistbury Head in 1990. By 1993 there were 144 plants, and it was still going strong in 2007 when the Hampshire Flora Group made a visit. It deserves another census there. What triggered its reappearance? A plausible explanation is that the storms of the preceding winter uncovered surviving viable seed; certainly it came up in several of its other old haunts in southern Britain at the same time. It had arrived on the Mudeford side by 1995, when Paul Bowman recorded 10 well-grown plants and 2 seedlings on Avon Beach. This is a heavily-used stretch and its chances for persisting there were perhaps always low, but there was at least one plant flowering and fruiting there in 2010.

Following a report by a visiting botanist in 2007 at a location farther east along the shore, I made a census of plants on the beach below Highcliffe Castle grounds and found 8 mostly small plants in that stretch. Odd plants have continued to appear until 2013 but it has clearly not thrived here. This is also another well-trodden stretch of beach, although a longer walk from the car parks than Avon Beach. But in 2014 and 2015 it seems to be on the move eastwards again, and its main centre is now to the east of the zig-zag path to the beach from Highcliffe Castle grounds. Here there were 7 plants in the autumn of 2014, and in 2015 I counted 14, mostly well-grown and flowering and fruiting well. David Leadbetter raised this to 16 shortly after, and Felicity Woodhead lays claim to even more but has not yet sent me the details.

What are its long-term prospects on this stretch of coast? In its current position it is better protected from trampling, as the frequent large stone groynes make a leisurely sea-side stroll out of the question. The population at Hengistbury is mostly on sand, and at Highcliffe it seems to thrive best where sand has accreted amongst the shingle-dominated shore. It seems fussier in this respect than its congener Ray's Knotgrass *Polygonum oxyspermum* ssp. *raii*, another uncommon coastal species which will colonise more open shingle. Townsend noted Ray's Knotgrass as plentiful at Hengistbury and all along the coast from Mudeford to Chewton, and it remains the commoner species here. On the other hand, if periodic 'churn' is a requirement to keep a population of Sea Knotgrass going, then perhaps this stretch of the coast will eventually prove too well stabilised.

It remains to comment on some of the other plants recorded by Townsend and other observers in the 19th century. Yellow Horned-poppy *Glaucium flavum* persists east of Highcliffe Castle, where it seems to do best by hunkering down in the groynes where it has Rock Samphire *Crithmum maritimum* for company – the latter being one of the few species that has benefited throughout the county from the ever greater encroachment of hard sea defences. Sea Spurge *Euphorbia paralias* is present in very small numbers but has apparently spread eastwards in the last few years. Sea Rocket *Cakile maritima* is enjoying something of a resurgence, scattered all the way from Avon Beach to Highcliffe and doing particularly well in the upper beach east of Highcliffe Castle at the moment. In contrast, Sea-kale *Crambe maritima* has yielded records of only two small plants in well separated spots at the Highcliffe end of the coast. One Crucifer noted only as a rare casual in earlier times, Sweet Alison *Lobularia maritima,* is now thoroughly established along Avon Beach almost to Mudeford Quay.

Of the two 'beach' Oraches, Babington's Orache *Atriplex glabriuscula* continues to be a frequent presence along the shingle, but just a few plants of Frosted Orache *Atriplex laciniata* were seen on sand below Highcliffe Castle in 2011 (the first since 1997) and none have been recorded since. Sea Bindweed *Calystegia soldanella* has apparently given up on 'real' beach, but just a couple of plants survive in sandy crevices of concrete sea defences at Avon Beach. Sand Sedge *Carex arenaria*, Lyme-grass *Leymus arenarius* and Marram *Ammophila arenaria* all still maintain a good footing.

At the beginning of the 20th century, Edward Linton's *Flora of Bournemouth* added very little in our area to the stock of knowledge already in Townsend, but there is one intriguing record. In 1879 the energetic Bolton King had already picked up the rare and inconspicuous Least Club-rush *Eleocharis parvula* 'in a small salt marsh on the sandy bar at Mudeford', but this was almost certainly on the Christchurch Harbour shore where it persists at Stanpit Marsh. Linton added an 1894 record that was indisputably on the 'coast' side: 'Pool under the cliff, Mudeford, towards Highcliff', but when this is taken up in the second edition of Townsend's *Flora* he gives it as another Bolton King record of 1885 'in a salt water pond, lately formed towards Highcliffe'. There is now no trace of this pond, and doubtless it was a temporary product of cliff slippage.

The Mudeford/Highcliffe coast is subject to ever-increasing visitor pressure, many people now enjoying it as a quieter alternative to the Bournemouth beaches. Its recent history hardly presents a shining example of coastal nature conservation. But it does demonstrate the remarkable resilience of some of our native plants against all the odds, and remains worth a visit for that reason.

News and Views

Field Eryngo *Eryngium campestre* refound in Hampshire

A note by Tony Mundell

Field Eryngo *Eryngium campestre* is a rare plant in Britain, given as Critically Endangered in the Red List for England, though it is relatively frequent in northern and central France. The first British record for it in the wild was by John Ray in 1662 in Devon. In Hampshire there are a few records but it was judged to be extinct in the Hampshire Rare Plant Register, published in 2011. It persisted at Mapledurwell beside a Roman Road for 1943-1968, and close to the coast near Pylewell 1983-1985 (when it was destroyed by the hole dug for a new telephone post!) as well as briefly near Milton in 1921.

However, apart from those, there was a celebrated site that gave many records for 1912-1978 north of Winchester at Worthy Down. Initially there was a large patch of plants there on downland close to a Roman Road (now the A272). That was ploughed *c.*1950 but the plant persisted nearby along a hedgerow bordering the chalky field at SU 459 356 until it was eventually choked out by brambles. Rayner's 1929 Supplement to Townsend's Flora of Hampshire gives a record that is clearly for the Worthy Down site, but also a separate undated record by Miss H M Salmon for 'Sutton Scotney'. Rayner wrote that these were 'Probably the same station', and this may be true though Sutton Scotney itself is nearly three miles north of Worthy Down.

On 6 August 2015 Paul Stanley noticed one large plant of Field Eryngo beside the slip road onto the A34 at the northern edge of the northbound service station at Sutton Scotney in North Hampshire, VC12. Several people, including Brian Laney then visited this site (see his photo below).

Brian then helped by setting up a meeting with the E M Highways Agency on 24 Sep 2015, that I attended with Brian and Mervyn Brown, an expert on this species. The Highways Agency representatives agreed to protect the plant from future mowing, as it is only 60cm from the A34 kerb. By then the plant had collapsed and was rotten at the base, so Mervyn decided to cut it off. A little further down he found two buds for next year's growth. Mervyn replaced the top few inches of soil with silver sand to reduce competition from other plants and to help to prevent the plant from rotting. He has taken most of the plant to the Kew Millennium Seed Bank but a little may be used to raise young plants that could be planted out in a safer spot nearby. Mervyn has arranged this with Kew, the land owner and Natural England (as it is a Schedule 8 species covered by the Wildlife and Countryside Act).

I picked up a dead detached leaf and Mervyn gave me a very small piece of the plant in order to make a voucher herbarium specimen. Natural England's permit for its collection requires that I deposit this at the Kew herbarium. Dissecting the fruits of a few of the capitula under my microscope I could find hardly any seeds that looked viable. I look forward to hearing whether any viable-looking seed is found on the main stem handed to the Millennium Seed Bank.

Mervyn is of the opinion that the plant should be regarded as native here, but I see that 'Atlas 2000' regards it as an archaeophyte in Britain. An archaeophyte is an alien plant (i.e. originally introduced by humans either intentionally or unintentionally) that has been present in a wild state since before the year 1500. Because they have been here for so long, many people regard archaeophytes as 'honorary natives'. It is just possible that the Sutton Scotney plant originally arrived as seed on the tyres of a vehicle from France but if so it is a remarkable coincidence that it grew quite close to where the plant was previously recorded.

Field Eryngo, Sutton Scotney, 21 August 2015 *(Brian Laney)*

An *Erigeron/Conyza* hybrid

A report by Tony Mundell

Paul Stanley, who lives on the Isle of Wight, has a knack of finding really exciting plants whenever he visits the mainland. Apart from the Field Eryngo recounted above, he also phoned me to say that he had found the hybrid between Blue Fleabane *Erigeron acris* and Bilbao's Fleabane *Conyza floribunda,* on the M3 Junction 9 roundabout at Winchester.

So a couple of days later, on 29 September 2015, I visited this site and soon found the hybrid plants. There were at least 20 plants of the hybrid scattered around the grassy south-east part of the roundabout. They grew amongst numerous plants of both parents and most were easy to pick out as at least some of the flowers (or more strictly the capitula phyllaries and the floret ligules) were bright purple. The flower head (capitula) size was much smaller than those of *Erigeron acris* but of similar size to *C. floribunda.* In contrast *C. floribunda* has whitish flowers and green phyllaries. The hybrids were also intermediate in size at 30–50cm tall compared to typically 15–25cm for *E. acris* and 80–90cm for *C. floribunda* in the soil conditions of this site (though it is often much taller to 1.5m).

C. floribunda is a relatively new alien invader in Britain. It was first noticed as a distinctly different species of *Conyza* in 1992 in Southampton, and in the same year in Ireland. Subsequently it was found that a specimen had been collected in Dublin in 1984-5. In 1996 it was eventually identified as *C. bilbaoana* E. J. Rémy but

Left: *Erigeron acris* with an *Erigeron* x *Conyza* hybrid; above: close-up of the flowers of the hybrid and showing expanded capitula *(Tony Mundell)*

'Stace' now regards that as a synonym of *C. floribunda* Kunth. It is a much taller plant than Canadian Fleabane *Conyza canadensis* and has an inflorescence that branches strongly to widen out broadly towards the top, unlike the narrowly cylindrical and compact inflorescence of *C. canadensis*. One key character to separate them is that *C. canadensis* has disc florets with a 4-lobed corolla whereas *C. floribunda* has 5-lobed florets.

There is another alien invader, Guernsey Fleabane *C. sumatrensis*, which had been recognised in Hampshire and elsewhere in England before *C. floribunda* was found. Both are now common plants of disturbed soil, especially in towns (although still very under-recorded in North Hampshire). *C. sumatrensis* is also taller than *C. canadensis* with a wider ellipsoid inflorescence. It has larger capitula with densely hairy phyllaries, unlike the almost glabrous phyllaries of both *C. canadensis* and *C. floribunda*. Once you are familiar with them, these three *Conyza* species can easily be separated at a glance as they have a very different 'jizz'.

It is known that all three of these *Conyza* species can hybridise with *Erigeron acris* and the intergeneric genus is named *x Conyzigeron.* The hybrid with *C. canadensis,* called *x Conyzigeron huelsenii* has not yet been recorded in Hampshire but it may well occur as there are now scattered records across much of England. The hybrid with *C. floribunda* has not yet been given a binomial name and according to the new 'Hybrid Flora of the British Isles', by Stace, Preston & Pearman, published in 2015, only a single plant has been found, and that was in Ireland. So I thought initially that the Winchester site was the first recorded for it in England but at the BSBI Exhibition Meeting in London on 28 Nov 2015 I found that it had been recorded in a couple of sites in Cambridgeshire. I have little doubt that more sites will eventually be found wherever both the parents occur.

I collected a voucher specimen of the hybrid, noted the size, etc. of the floral and other features and took several photos shown here. I returned on 20 November 2015 to see if any seed had been set. The achenes examined under a microscope were clearly infertile as they were extremely thin and flat, with translucent tissue.

Spartina at Bury Marsh

A note by Clive Chatters

In late summer 2015 the Barker-Mill Estate kindly assisted Martin Rand and me to visit Bury Marsh. The marsh is sited at the head of Southampton Water opposite the container port and has been much studied in the past for its population of *Spartina alterniflora* the Smooth Cord-grass. This cord-grass is a native of North-American saltmarshes and was one of the parents from which the 'new' species of Common Cord-grass *Spartina anglica* arose.

Armed with a copy of the detailed distribution maps of Maskell and Raybold (*Watsonia* 23: 391-400 [2001]) we walked and waded the creeks and platforms of the marsh. Having measured the key characteristics of many specimens from across the marsh we left without being confident that any Smooth Cord-grass stands survive at Bury Marsh.

In the late 1960s Smooth Cord-grass was reported as growing in local abundance between Hythe Marina and Eling Church. By the Maskell and Raybold survey of 1999 the plant was much more restricted. Bury Marsh has undergone significant changes in recent decades. The tidal river at this point has been modified by dredging, both to deepen the channel to take bigger ships as well as to create a turning circle. These changes may, at least in part, have contributed to the erosion of the marshes and the replacement of many former vegetated areas with an open sediment shore. The extent of marshes mapped in 1999 is much reduced with few areas of Cord-grass colonisation present and many areas of erosion of the saltmarsh cliffs.

Various reasons have been offered for the decline in Smooth Cord-grass. The habitats of the plant have clearly been heavily modified by industrial development, dredging, pollution and the decline of marsh grazing since its discovery in the early nineteenth century. The proven ability of the cord-grasses to hybridise may also play a role with the 'pure' species possibly both hybridised out of existence as well as being out-competed by its vigorous offspring. Whatever the reasons it appears that Smooth Cord-grass continues to decline and may soon cease to be found in the wild in Britain.

View over Bury Marsh *(Clive Chatters)*

An ancient Yew

A note by Andrew Powling

Last summer Eric Clement and I were square bashing for Atlas 2020 when we followed a track into a wood that looked interesting. Alas, the wood soon showed itself to be mostly a recent larch plantation, but then we noticed a large Yew tree. We estimated its girth at somewhere between 20 to 25 feet. A couple of weeks later we returned with a tape measure and found it had a circumference of 7.55 metres (24' 9") at about 1 m height, although this was a slight over-estimate due to the difficulty of getting the tape past the epicormic shoots.

A check of the Ancient Yew Group's list of large yews failed to find any mention of the tree, but since it was on private land maybe the Group kept it off their web site. An e-mail to the Group got the response that they did not know about it. So on an August morning in pouring rain I met with Peter Norton of the Group and Hugh Milner to lead them to the tree. They decided to measure its girth near ground level where the minimum measurement would be obtained, avoiding any branch swell which could inflate the reading. The result was 7.02cm (23' 0½"). The yew, a male, is growing on a low, wide bank with a ditch on one side. The bank also has large ashes, beeches and oaks growing on it. Interestingly there is a large coppiced Wych Elm near the yew, which like the yew may indicate the past significance of the bank. The opinion of Peter and Hugh was that the bank may be of Anglo-Saxon origin, perhaps marking a once-important boundary.

Hugh knew the local farmer and since his farmhouse was nearby we paid him a visit. No, he did not own the wood containing the yew but he knew who did. Again, Hugh knew the land agent for the owner and e-mails subsequently established that he was aware of the tree and would look after it – a reassuring response.

It is widely conjectured that yews can live to be thousands of years old, but proving this is impossible. The problem is that old yews become hollow, so no complete sequence of tree rings can be obtained and no original wood still exists which can be carbon dated. Authors such as Alan Mitchell have emphasised the unreliability of age estimates based on tree girths, due to the hugely varying rates at which individual yews grow. This has not stopped Mitchell and several other authors publishing rough and ready figures for correspondences between girth and age. Mitchell (1996) offered guide figures: girth 20ft = 800-1000 years, and 30ft = 1500-2000+ years. Where that leaves a tree such as the Fortingall yew in Scotland, with two measurements of circumference in 1769 of 52ft and 56ft but now in fragments, is open to conjecture; Mitchell suggested 4-5000 years.

The Ancient Yew Group has recently tried to bring more rigour to age estimates. The Group has established growth rate statistics for younger yews and cautiously extrapolated them to larger and older trees. A girth of 7m or more implies, with high probability, an age of 800 years or more, and such a tree is classified as Ancient. A girth of 4.90m up to 7m implies 500 to 1200 years, with the tree classified as Veteran. Since the yew we measured is just over the 7m mark it counts as Ancient with a probable age between the lower limit of 800 years for Ancient and the upper limit of 1200 years for Veteran. Check the Group's web site for more information on the age of yews: **http://www.ancient-yew.org**.

Peter produced a list of the largest yews in Hampshire, Wiltshire and Dorset. Our tree fits in at position 34. The two largest trees on the list are at Breamore in Hampshire (girth 11.12m) and Broadwindsor in Dorset (10.06m). Both these trees are old stumps with multi-stemmed regrowth. The largest tree still possessing parts of its original trunk is in the churchyard at South Hayling in Hampshire (also 10.06m).

The yew we measured is located near Hoe Cross, between Soberton and Hambledon, and we wanted to find out about the significance of the tree and the area (in Hugh's phrase 'living archaeology'). An e-mail discussion ensued with local historian Roger Clooney. He informed us that the 'Cross of Hoo' (near but probably not at Hoe Cross) was mentioned in 1280 as a northern boundary point in the perambulation of the Forest of Porcestr'. We do not know the location of the Cross but in medieval times crosses were erected at religious sites where churches were often built later. Yews are associated with religious sites, so maybe our yew, in an alternative history, might have eventually been incorporated into a churchyard. In fact, there is a 'lost' chapel in East Hoe which belonged to Southwick Priory and might be the location of the Cross, but there is no sign of a chapel near the yew. The presence of a Roman building nearby suggests that the history of the area and its vegetation could be traced back further. While the bank with the yew may have marked a boundary in Saxon or medieval times, it is not shown at all on an Ordnance Surveyor's drawing from 1806, so by then it had lost whatever significance it once had.

Fred Hageneder observed in his book 'Yew' (2013) that everyone wants 'their' tree to be 1000 years old. I am no exception, but I can't make the claim. However, on the evening after first finding the tree I happened to watch a rather macabre TV programme about a post-mortem performed on a medieval knight, who had died a violent death in the 1360s but had since lain well-preserved in his lead coffin. Interesting to think that when this knight flourished, then fell, the yew tree was also flourishing, but is still with us.

References

Hageneder, F. (2013) *Yew*. Reaktion Books, London.

Mitchell, A. (1996) *Alan Mitchell's Trees of Britain*. Harper Collins, London.

The ancient Yew *(Andrew Powling)*

Crassula helmsii research

A note by Catherine Chatters, New Forest Non-Native Plants Officer

New Zealand Pigmyweed *(Ashley Basil)*

The New Forest Non-Native Plants Project is hosted by Hampshire & Isle of Wight Wildlife Trust, supported by a partnership of other organisations, to help stop the spread of invasive non-native plants in the New Forest area, particularly along rivers and it wetland habitats. One of the aims of the Project is to commission research into novel ways of controlling invasive non-native plants.

Crassula helmsii (commonly known as New Zealand Pigmyweed or Australian Swamp-stonecrop) was introduced to the UK in 1911 as a garden pond plant. It was recorded in the wild in Essex in 1946, had spread to the New Forest by 1976 and I recall that by the time I came to work for the Nature Conservancy Council at Lyndhurst during 1986 my colleagues were extremely concerned at its rapid rate of spread across the New Forest's wetland habitats, especially the temporary ponds which are so important botanically and entomologically.

This highly invasive non-native plant is very adaptable to different conditions; it can exist in submerged, emergent and terrestrial conditions. It had proved to be resistant to many attempts to control it including, *inter alia*, trying to exclude light by covering it with black plastic sheeting; burning it with flame throwers; freezing it with liquid nitrogen. Although the herbicide Diquat (Reglone) had been used in the past to treat submerged *Crassula helmsii*, there is now no longer any herbicide that is available for use actually in the water.

The New Forest Non-Native Plants Project commissioned research into two novel techniques, namely hot foam and aquatic dye and compared the results with herbicide treatment using the glyphosate-based herbicide called Roundup Pro Biactive. Dr Naomi Ewald recommended suitable ponds for the trials to be undertaken; the hot foam and herbicide trials required temporary ponds which are expected to dry out in late summer/early autumn whilst the aquatic dye trials required ponds which would retain water. The trials were undertaken between 2011 and 2013, although the very wet summer of 2012 prevented the hot foam and herbicide trials being undertaken as the selected ponds failed to dry out.

The hot foam treatment involved plant sugars mixed with very hot water and applied to the vegetation using a hand-propelled trolley or a hand-held lance. The hot foam treatment is based on the principle that the plant sugars act as a foaming agent and would retain the high temperature for a sufficiently long period to effectively 'cook' the *Crassula helmsii*. The aquatic dye involved adding sachets of dark-coloured water-soluble dye to the ponds, with the aim of blocking out certain parts of the light spectrum, thereby disrupting photosynthesis.

Hot foam being applied at Abbot's Well *(Catherine Chatters)*

Dr Naomi Ewald of Freshwater Habitats Trust monitored the trial sites of behalf of HIWWT and her final report is available on the HIWWT website at **www.hiwwt.org.uk** If you would like to read this report, go to the Home Page, click on 'What we do', select 'We Produce Publications and Reports' and scroll down to '*Crassula helmsii* in the New Forest. Final report on the status, spread and impact of this non-native invasive plant, and the efficacy of control techniques following a 3-year trial' and accompanying Annex Report dated October 2014.

May the Twenty-third

A note by Catherine Chatters

Last year's Flora Group AGM was held on 23 May in East Hampshire where we had a most interesting and enjoyable day botanising in the vicinity of Steep, delighting in species such as Herb Paris and an abundance of Sword-leaved Helleborine on Shoulder of Mutton Hill.

The visit prompted me to pick up my copy of 'Selected Poems and Prose' by Edwards Thomas, one of my favourite poets who lived in Steep and who drew inspiration from the surrounding landscape, particularly the Hanger woodlands which we'd explored last May. His memorial, a large sarsen stone, is located amongst the species-rich grassland on Shoulder of Mutton Hill where we paused to admire the fine views towards Butser Hill and the South Downs.

To my surprise I came across a poem by Edward Thomas titled 'May The Twenty-Third', the same date as our Flora Group visit last year. The poem even includes botanical references, namely 'cowslips from Wheatham hill' and 'cresses from Oakshott rill'. I wonder whether watercress still grows at Oakshott?

Recording

VC11 Records

Compiled by Martin Rand (December 2015)

The most significant new records from the BSBI/ Hampshire Flora Group *Taraxacum* (Dandelion) workshop in April are listed below. Since the last report, we have also had the presence of another exciting species confirmed – the rare endemic *T. margettsii*, previously known from the south-west peninsula, mostly on the Lizard. If you would like to see a full list from the meeting, you can download one from the Hants Plants web site (look under the new 'Genera' menu topic).

Although the second formally arranged survey visit to Hatchet Pond was a bit of a damp squib (appalling weather in the morning, and consequently a low turnout), those of us mad enough to turn up did enjoy some breezy sunshine later in the day, and a chance to see and record some good plants around the pond and 'triangle'. Prior to this, a few of us had also made an extra visit expressly to record Bog Orchid *Hammarbya paludosa* populations. This turned out to be very fruitful, with plants well distributed round the pond and in good numbers in places. However, we couldn't rival Richard Reeves's estimate of more than 5000 flowering plants at one site in the Foxlease area. And as you will see below, Richard has also once again turned up a new site, in the north-west of the Forest.

I wasn't able to get there at the right time myself, but I had reports of good flowering in the *Utricularia bremii* population near Beaulieu Road this year. I confess I still harbour doubts about the true identity of this plant, and it seems that Fred Rumsey does too. Perhaps it will be possible to get some molecular work done. There is an interesting Web page at **http://www2.arnes.si/~sopjslat/mesojedke/bremii.htm** which shows a bremii-like plant from Slovenia apparently very similar to ours.

The codings at the front of each plant are:

* = Hampshire notable (** = British or English Red List). I list these whenever I have a record for a tetrad that is either new, or the first for a long time (usually taken as about 25 years, but for species 'on the brink' it can be shorter). However, the account would be long and tedious in the case of some plants now on the English Red List that are widespread in Hampshire, so I have summarised tetrads for these unless the record is a significant extension to the known range. A year in brackets indicates when last recorded in the tetrad; no brackets means a new tetrad record.

IN = Invasive, or Potentially Invasive, Non-native. I use the IUCN's three-pronged definition of 'Invasive', so that a plant like *Artemisia ambrosiifolia* (Ragweed), which hasn't actually invaded anywhere in Hampshire yet but will pose a health hazard if it does, are included. I also list these for new tetrads, but when you are recording I would like as precise a grid reference and as many supporting details as possible.

NN = other Neophyte Non-native. Defining Neophyte (arrived after 1500) or Archaeophyte (arrived by 1500) in a local context is beset with difficulty, but I use this category if the plant in the given location is outside its generally agreed native range and can reasonably be inferred to have got there recently by human agency whether intentional or not. That includes plants that are native elsewhere in Britain, or even nearby in other habitats. Generally, I list these if they are new vice-county records, new to a hectad or the first for a long time. I mostly exclude patently planted trees and shrubs occurring in gardens, municipal parks and cemeteries unless they are also self-establishing or very likely to do so. However, I keep records for them on the database so records are welcome, provided you state that they are 'Planted' if the only individuals clearly are planted, or 'Introduced' if they are spreading naturally from original plantings.

NA = Native or Archaeophyte. Again, I list these if they are new vice-county records, new to a hectad or the first for a long time.

Abbreviations for recorders and determiners are:

AHP = Andrew Powling; AJR = Dr John Richards; AJWe = Andy Welch; ALe = Andrew Leonard; AMC = Andy Cross; ARGM = Tony Mundell; BGo = Barry Goater; BF = Brian Fellows; BSBI = BSBI field meeting (leader's initials in brackets); CC = Clive Chatters; DHu = David Hughes; DL = David Leadbetter; DN = Dawn Nelson; DWh = Deborah Whitfield; EAP = Ted Pratt; EJC = Eric Clement; GCo = Ginnie Copsey; GFa = Geoff Farwell; GK = Geoffrey Kitchener; HFG = Hampshire Flora Group meeting (leader's initials in brackets); J-PF = Jean-Paul Flavell; JAN = John Norton; JOa = Jill Oakley; JPa = Jo Parmenter; LBak = Laura Baker; MLy = Mark Lynes; MPo = Mike Porter; MR = Martin Rand; MWR = Mike Rowe; PAB = Phil Budd; PM = Peter Marston; PMS = Paul Smith; PW = Pat Woodruffe; RCR = Clare Rand; RPR = Richard Reeves; SP = Steve Povey; WR = Wolfgang Ritter.

NN *Abies alba* (European Silver-fir): Horndean North-west, SU6813; 26 Nov 2015; AHP & EJC; Planted. **1st for SU61**.

NN *Abies grandis* (Giant Fir): Rhinefield House area 2603, SU2603; 25 Jun 2015; PAB. Self sown at SU266032 and SU268033. **1st for SU20**. Stoke Park Wood - extreme east, SU486193; 14 Feb 2015; PAB; 50 individuals. Self sown and extending into SU484193. **1st for SU41**.

NN *Acer cappadocicum* (Cappadocian Maple): Marchwood, SU386102; 25 Jun 2015; PM; Planted. Large tree in St. John's churchyard producing many suckers at SU3860 1023. **1st for SU31**.

IN *Acer negundo* (Ashleaf Maple): Blashford (Meadow Lake area), SU147079; 30 Sep 2015; MWR; Planted. Planted in hedge, Blashford Lakes Nature Reserve, SU 1479 0791. **1st for SU11**.

NN *Acer saccharinum* (Silver Maple): Denmead, north west., SU6512; 01 Oct 2015; AHP & EJC; Planted. **1st for SU61**.

***NN *Acorus calamus* (Sweet-flag):** Southampton Common Central, SU4114; 08 Apr 2015; PAB. South and east shore of Ornamental Lake and probably introduced. **New tetrad**.

NN *Aesculus carnea* (Red Horse-chestnut): Rockbourne, SU115178; 28 Apr 2015; MR, BGo & GCo det. MR; 1 individual: Planted. Young tree. **1st for SU11**.

****NA *Agrostemma githago* (Corncockle):** Shirley Holms, SZ305981; 23 Jun 2015; MWR. 1 plant, SZ 3056 9814, presumed sown. **New tetrad**.

***NA *Agrostis curtisii* (Bristle Bent):** Southampton Common Central, SU4114; 08 Apr 2015; PAB. Heathy areas north of Ornamental Lake. **1st for tetrad since ?1970**.

***NA *Agrostis vinealis* (Brown Bent):** Southampton Common Central, SU4114; 21 Jul 2015; PAB. Uncut grass NE of paddling pool. **New tetrad**.

NN *Akebia quinata* (Five-leaf Akebia): Lymore and SE Everton, SZ294931; 18 Jul 2015; MWR det. EJC 27/11/2015. Well established for some distance in hedge, Lymore Lane, SZ 2947 9312. **New VC record**.

NN *Allium subhirsutum* (Hairy Garlic): Lower Buckland, Undershore, Walhampton, SZ320967; 12 May 2015; MWR. By railway near houses, Marsh Lane, SZ 3200 9671, with Lamiastrum galeobdolon ssp. argentatum. **1st for SZ29**.

****NA *Althaea officinalis* (Marsh-mallow):** Lepe Shore, SZ448985; 08 Aug 2015; MR; 1 plant. Lepe (Lepe House area), SZ448985; 13 Sep 2015; MWR. 1 plant, SZ 4486 9859. **New tetrad**.

****NA *Anacamptis morio* (Green-winged Orchid):** Swaythling, Southampton, SU4315; 24 May 2015; PAB; 4 spikes. Going over; reported to PAB. **New tetrad**.

NN *Anthemis austriaca* (Austrian Chamomile): North of Manor Farm Country Park, SU5012; 27 Jul 2015; GCo; Not recorded. Close to a sowing of wildflower seed mix, possibly escaped from a previous year. **1st for SU51**.

***NA *Apium graveolens* (Wild Celery):** Wick Ferry, SZ158923; 21 Aug 2015; J-PF; Rare. On the old harbour wall. **New tetrad**.

****NA *Apium inundatum* (Lesser Marshwort):** Turf Hill Inclosure, E of, SU2117; 23 Jun 2015; PM. **1st for tetrad since 1950**.

NN *Aucuba japonica* (Spotted-laurel): Royal Victoria Country Park, SU466073; 11 Sep 2015; MWR. Naturalised in hedge, SU 4664 0732. **1st for SU40**. Horndean North-west, SU689137; 26 Nov 2015; AHP & EJC. SU6897 1373. Probably bird-sown. **1st for SU61**.

NN *Berberis darwinii* (Darwin's Barberry): Ashley Heath, SU114046; 09 Sep 2015; MWR. 1 bush by garden, Castlemain Trailway, SU 1143 0464, probably bird-sown. **1st for SU11**.

NN *Borago officinalis* (Borage): North Park Farm, Little Somborne, SU370336; 17 Aug 2015; MR, BGo & GCo. In planted arable marginal strip. **1st for SU33**.

NN *Brachyglottis x jubar* (Shrub Ragwort (?B.laxifolia x B. compacta)): Royal Victoria Country Park, SU464077; 11 Sep 2015; MWR. Planted and possibly becoming naturalised, Royal Victoria Country Park, SU 4645 0776. **1st for SU40**.

***NA *Briza minor* (Lesser Quaking-grass):** Nr Mansfield Barn, SU548118; 09 Aug 2015; HFG [CC]; Rare. In abandoned arable, SU5486 1186. **New tetrad**.

***NA *Bromus commutatus* (Meadow Brome):** Bryce's Farm, Sherfield English, SU284235; 27 Jun 2015; PW. **New tetrad**.

***NA *Bromus racemosus* (Smooth Brome):** Field W of Potters Heron, Ampfield, SU410230; 08 Jul 2015; MR & DN det. MR; Rare. Damp grassland in SE of field, SU4108 2306. Mixed characters of 'racemosus' and 'commutatus': Sheaths pilose, panicle narrow, drooping to one side, some primary panicle branches more than 4cm but not bearing more than one spikelet, spikelets 19-23mm, lowest rhachilla-internode c. 1.5mm, lemmas 8-9.5mm. **New tetrad**. Beeches Hill, SU5518; 20 Aug 2015; GCo. **New tetrad**. Shrover (Horndean) area, SU6712; 07 Oct 2015; AHP & EJC. **New tetrad**. East Meon south west, SU6721; 06 Aug 2015; AHP & EJC. **New tetrad**.

****NA *Bromus secalinus* (Rye Brome):** Boarhunt, SU609091; 11 Jul 2015; GFa. Abundant in Cultivated Oat crop. **New tetrad**. Widley, SU661071; 01 Aug 2015; GFa. Widley Farm, along field margin for approx 40 metres. **New tetrad**.

NN *Buddleja globosa* (Orange-ball-tree): Marchwood, SU388107; 25 Jun 2015; PM. Very large bush flowering and spreading for 12 metres at edge of recreation ground at SU3889 1073. **1st for SU31**. Weston Shore - NW of central car park, SU437100; 04 Jun 2015; PAB. Probably planted in scrub near yatch club end. **1st for SU41**.

****NA *Bupleurum tenuissimum* (Slender Hare's-ear):** Weston Shore - east of children's playground, SU4452 0956; 17 Aug 2015; PAB. Hundreds of flowering plants covering an area of 7 metres square. **1st for tetrad since 1930**.

***NA *Cakile maritima* (Sea Rocket):** W of Lepe (Inchmery House area), SZ438986; 15 Sep 2015; MWR. Several plants on sand/ shingle, SZ 4388 9860. **1st for tetrad since 1985**.

NN *Calystegia silvatica subsp. disjuncta*: Ashley Heath, SU1104; 09 Sep 2015; MWR. **1st for SU11**.

NN *Calystegia silvatica subsp. disjuncta*: Swaythling, SU4415; 29 Sep 2015; MWR. **1st for SU41**.

NA *Campanula glomerata* (Clustered Bellflower): Dundridge Meadow Nature Reserve, SU561180; 21 Aug 2015; GCo. **1st for SU51 since ?1970**.

NA *Carex acuta x nigra*: Boldre, SZ320989; 14 Jun 2015; MWR det. MPo 25/11/2015. SZ 3209 9891. **1st for SZ39**.

***NA *Carex canescens* (White Sedge):** Ober Water, S of Rhinefield House, SU264031; Jun 2015; JPa. At SU2642 0313. **1st for tetrad since 1984**.

IN *Carpobrotus edulis* (Hottentot-fig): Barton on Sea (coast), SZ237929; 05 Sep 2015; MWR. Abundant on cliff, SZ 2371 9295. **1st for SZ29**.

****NA *Catabrosa aquatica* (Whorl-grass):** Warnford Park area, SU6222; 27 Aug 2015; AHP & EJC. **1st for tetrad since 1959**.

NN *Cedrus atlantica* (Atlas Cedar): Warnford Park area, SU6222; 27 Aug 2015; AHP & EJC. Planted. **1st for SU62**.

NN *Cedrus deodara* (Deodar): Warnford Park area, SU6222; 27 Aug 2015; AHP & EJC. Planted. **1st for SU62**.

NA *Centaurea cyanus* (Cornflower): Lee, north of, SU361182; 09 Aug 2015; PM. A few flowering along field margin west of Lee Lane. **New tetrad**. Barton on Sea (Durlston Court area), SZ242930; 05 Sep 2015; MWR. Sown at edge of Long Meadow, SZ 2425 9306, with Eschscholtzia californica, Glebionis segetum and Anthemis austriaca. **New tetrad**.

***NA *Centaurium pulchellum* (Lesser Centaury):** Beaulieu Mill Pond, SU384024; 01 Aug 2015; CC; Occasional. Grazed western bank. **New tetrad**. Ashlett Green, SU4685 0325; 19 Jun 2015; CC. Rather unexpected component of Glaux/Juncus gerardii turf. Confirmed by vegetative and flowering features. Colony immediately under fenceline by the stile. Common Centaury is common elsewhere on the site in seasonally parched grassland. **New tetrad**.

****NA *Cephalanthera damasonium* (White Helleborine):** Bitterne Park Secondary school, SU444147; 22 May 2015; AJWe. At least 50 spikes counted, not counting blind spikes. **New tetrad**.

****NA *Chamaemelum nobile* (Chamomile):** Dibden Purlieu (W side), SU4006; 18 Sep 2015; MWR. Very short grass on heath, SU 4038 0635. **New tetrad**. Bucklers Hard (Keeping), SU401001; 17 Sep 2015; MWR. Short grass on roadside, SU 4010 0010. **New tetrad**.

****NA *Chenopodium glaucum* (Oak-leaved Goosefoot):** Pylewell, SZ345959; 16 Jul 2015; MWR. 3 plants, SZ 3453 9594, with C. album, C. polyspermum, C. ficifolium and C. murale. **New tetrad**.

****NA *Cichorium intybus* (Chicory):** R Test E of Bossington, SU340303; 01 Apr 2015; MR et al.; Occasional. S river bank S of bridge and E of track. **1st for tetrad since 1930**. Butser Ancient Farm, SU719164; 09 Jul 2015; SP. **New tetrad**. Milford (church area), SZ299927; 18 Jul 2015; MWR. Sown on rough ground at edge of field S of Agarton Lane, SZ 2992 9274. **New tetrad**. Bushy Copse and Shotts Copse area., SZ341962; 16 Jul 2015; MWR. 2 plants by track, near Snooks Farm, SZ 3411 9622. **New tetrad**.

NN *Consolida ajacis* (Larkspur): Fort Cumberland, SZ684994; 04 Oct 2015; HFG[JAN]; Casual. On disturbed ground at back of beach. **New tetrad**.

NN *Conyza bonariensis* (Argentine Fleabane): Coldeast - by Balancing Pond, SU504081; 10 Oct 2015; PAB conf. EJC; 1 plant. Voucher Hb MR. **1st for SU50**.

IN *Conyza floribunda* (Bilbao's Fleabane): Denmead, north west., SU6512; 01 Oct 2015; AHP & EJC. **1st for SU61**.

NN *Cornus alba* (White Dogwood): Boyatt Wood, Eastleigh, SU4420; 13 Oct 2015; MR; Occasional. Planted and regenerating at various points under the ETL wayleave between SU446204 and SU447207. **1st for SU42**.

NN *Cornus sanguinea ssp. australis* (Dogwood): Southampton (Thornhill Park), SU460123; 23 Sep 2015; MWR. Edge of rough grass field, Bursledon Road (A3024), SU 4606 1234. **1st for SU41**.

IN *Cortaderia selloana* (Pampas-grass): East Meon south west, SU6721; 06 Aug 2015; AHP & EJC. Planted. **1st for SU62**.

NN *Cotoneaster frigidus* (Tree Cotoneaster): Turf Hill Inclosure, SU204178; 23 Jun 2015; PM. Very large bush flowering at SU2044 1786. **1st for SU21**.

IN *Cotoneaster simonsii* (Himalayan Cotoneaster): Horndean North-west, SU6813; 26 Nov 2015; AHP & EJC. **1st for SU61**.

NN *Cotoneaster x suecicus* (Swedish Cotoneaster): Spinnaker Lake, Blashford, SU155074; 27 Aug 2015; DL; Introduced. S of Ivy Lane by path at 15578 07483. **1st for SU11**.

IN *Crassula helmsii* (New Zealand Pigmyweed): Crock Hill, S of, SU218142; 15 Jul 2015; PM. A few large patches flowering in damp area north of cycle track. **New tetrad**. River Meon, SU5610; 27 May 2015; GCo. **New tetrad**. Battramsley, SZ303983; 15 May 2015; MWR. Sparse in pond by track, Jealous Lane, SZ 3037 9835. **New tetrad**. Mount Pleasant Farm area, SZ304978; 23 Jun 2015; MWR. SZ 3048 9784. **New tetrad**.

NN *Crocus tommasinianus* (Early Crocus): Abbeyfield Park, Netley, SU450089; 17 Feb 2015; PAB. At SU4524 0898. **1st for SU40**.

***NA *Dactylorhiza incarnata subsp. pulchella* (Early Marsh-orchid):** Plaitford Common, SU277191; 01 Jun 2015; LBa det. MR. On Sturtmoor Mire. **New tetrad**.

NA *Dactylorhiza x hallii* (D. maculata x praetermissa): Upper Ratlake, SU4147 2319; 08 Jul 2015; MR & DN det. MR. Robust late-flowering plant. Leaves abundantly but faintly marked (plant in partial shade). Flowers rather pale, line and dot marked. Labellum shallowly lobed. **1st for SU42**.

NA *Diplotaxis tenuifolia* (Perennial Wall-rocket): East Meon, west., SU6722; 17 Sep 2015; AHP & EJC. Maybe escaped from cultivation. **1st for SU62**.

****NA *Dipsacus pilosus* (Small Teasel):** Butser Ancient Farm, SU7116; 09 Jul 2015; SP. Recorded by staff at Butser Ancient Farm in 2013 following soil disturbance. **New tetrad**.

NN *Dracunculus vulgaris* (Dragon Arum): Abbeyfield Park, Netley, SU450089; 13 May 2015; PAB; 1 plant. By car park at SU45050907. **1st for SU40**.

***NA *Dryopteris x deweveri* (D. carthusiana x dilatata):** Alder Moor, SU545114; 09 Aug 2015; HFG[CC] det. MR; Rare. **New tetrad**.

NN *Echinops bannaticus* (Blue Globe-thistle): Snails Lane, Blashford, SU150069; 27 Aug 2015; DL; Introduced. Verge of private road SE of Snails Lane at 15006 06954 and 15017 06931. **1st for SU10**.

NN *Elaeagnus commutata* (Silverberry): Burrfields Road, Great Salterns, SU674021; 22 Oct 2015; MR & GCo; Rare: Introduced. Suckering from original planting in roadside verge. **New VC record**.

NN *Elaeagnus macrophylla* (Broad-leaved Oleaster): Horndean North, SU6913; 26 Nov 2015; AHP & EJC. **1st for SU61**.

NA *Eleocharis palustris subsp. vulgaris* (Common Spike-rush): Lepe (Lepe House area), SZ449988; 13 Sep 2015; MWR. Pond, SZ 4499 9880. **1st for SZ49**.

***NA *Epilobium lanceolatum* (Spear-leaved Willowherb):** Hordle, SZ268952; 18 Jun 2015; MWR. Several plants, SZ 2684 9521. **New tetrad**. Ashley, SZ254955; 09 Jul 2015; MWR. 1 plant, SZ 2545 9557. **New tetrad**.

***NA *Epilobium roseum* (Pale Willowherb):** Southampton Common, SU411149; 31 Jul 2015; MWR. By shady path, Southampton Common, SU 4116 1497, with E. montanum. **New tetrad**.

NA *Epilobium x limosum* (E. parviflorum x montanum): Bucklers Hard (Keeping), SU402000; 17 Sep 2015; MWR det. GK 27/11/2015. Roadside ditch, SU 4027 0006. **1st for SU40**.

NN *Epilobium x vicinum* (E. obscurum x ciliatum): Ashley Heath, SU119049; 09 Sep 2015; MWR det. GK 27/11/2015. Damp ground by track, SU 1195 0496. **1st for SU10**.

NN *Epimedium pinnatum* (Caucasian Barrenwort): Hythe Village Marina area, SU4208; 20 Apr 2015; MWR det. EJC 27/11/2015. Rough ground by footpath near gardens, near West Street, SU 4210 0830. EJC says probably E. pinnatum x E. perralderianum. **New VC record**.

****NA *Erica cinerea* (Bell Heather):** Emer Bog and Baddesley Common, SU400214; 16 May 2015; CC; Rare. Searched for as I understand it has not been recorded recently. Also one plant at SU3964 2136. **New tetrad**.

NN *Erigeron glaucus* (Seaside Daisy): Calshot, SU4801; 17 Jul 2015; MR; Occasional: Introduced. Around posts on shingle beach in front of beach huts. **1st for SU40**.

NN *Erigeron karvinskianus* (Mexican Fleabane): Emsworth, southeast, SU7505; 02 Feb 2015; DN and JOa det. DN. **1st for SU70**.

NN *Erinus alpinus* (Fairy Foxglove): High Street, Bursledon, SU4873 0940; 18 Jan 2015; PAB; 1 plant on the face of a wall. **1st for SU40**.

****NA *Eryngium maritimum* (Sea-holly):** The Kench, N of, SU6900; 20 Oct 2015; JOa & DN. North side of spit. **New tetrad**.

NN *Euphorbia corallioides* (Coral Spurge): Keyhaven, SZ303915; 04 May 2015; MWR conf. EJC 27/11/2015. Roadside by garden, Keyhaven Road, SZ 3038 9159, with E. amygdaloides ssp. robbiae. **1st for SZ39**.

****NA *Euphorbia exigua* (Dwarf Spurge):** Ashley Heath, SU117047; 09 Sep 2015; MWR. Pavement edge, Struan Close, SU 1177 0470. **New tetrad**.

NN *Euphorbia oblongata* (Balkan Spurge): Weston Shore - NE of Weston Parade, SU445096; 13 May 2015; PAB; 3 plants. On bank by former lorry park. **1st for SU40**. Chandlers Ford, SU445212; 13 Oct 2015; MR. Notably hairy on stems and rays. Specimen and photos retained. Verge on N side of footpath from Boyatt Wood through Roman Estate to King Rufus, grid ref approximate. **1st for SU42**. Milford on Sea (NW), SZ286923; 15 Jul 2015; MWR. Several large plants by hedge, car park of recreation ground, Barnes Lane, SZ 2860 9236. **1st for SZ29**.

NN *Euphorbia stricta* (Upright Spurge): Hilliers overflow car park, SU504137; 29 Jul 2015; GCo det. MR. **1st for SU51**.

****NA *Euphrasia nemorosa* ():** Dibden Purlieu (W side), SU406062; 18 Sep 2015; MWR. Roadside, A326, SU 4063 0627. **New tetrad**. Southampton Common Central, SU4114; 10 Sep 2015; PAB. **1st for SU41**.

NA *Euphrasia x areschougii* (E. nemorosa x micrantha): Hatchet Triangle, SU368013, Little Hatchet Pond, SU369013; 23 Aug 2015; HFG[MR] det. MR; Locally Frequent. W end of triangle and road banks to S, also road banks to S of triangle. Making up the bulk of a population with the two parents. **1st for tetrad since 1979**.

IN *Fallopia japonica* (Japanese Knotweed): Marchwood - Twiggs Lane End area, SU374085; 30 Apr 2015; MWR. Roadside by garden, Twiggs Lane End, SU 3741 0850. **New tetrad**.

NN *Fatsia japonica* (Fatsia): Burrfields Road, Great Salterns, SU671021; 22 Oct 2015; MR & GCo; 1 plant. **1st for SU60**.

***NA *Festuca rubra subsp. litoralis* (Red Fescue):** Bury Marsh, Eling, SU3711, Bury Marsh, Marchwood, SU3811; 03 Aug 2015; MR & CC. **1st for SU31**.

NN *Forsythia x intermedia* (Forsythia): Ringwood (Hightown), SU161043; 28 Sep 2015; MWR. Hedge across footpath from garden, W of Crow Lane, SU 1610 0438. **1st for SU10**.

***NA *Fumaria capreolata* (White Ramping-fumitory):** Hall Lands House, SU500191; 17 Sep 2015; GCo. Cleared ground next to new fence. 5 plants. **1st for SU51**. Milford on Sea, SZ288916; 26 Jun 2015; MWR. SZ 2887 9160; 1 or 2 plants only. **New tetrad**.

NN *Fumaria densiflora* (Dense-flowered Fumitory): The Kench/ Golf Course, SZ690999; 20 Oct 2015; JOa & DN; Not recorded. Dry grassland area at SZ6902 9999. **1st for SZ69**.

***NA *Galium constrictum* (Slender Marsh-bedstraw):** Hale Purlieu E, SU204187; 23 Jun 2015; PM. A few flowering in damp hollow at SU2044 1871. **New tetrad**.

NA *Geranium columbinum* (Long-stalked Crane's-bill): Toothill Road, SU369185; 09 Aug 2015; PM. Flowering at SU3691 1850. **1st for SU31 since 1975**.

NA *Geranium pusillum* (Small-flowered Crane's-bill): Horndean, Lovedean area., SU6812; 07 Oct 2015; AHP & EJC. **1st for SU61**.

****NA *Glebionis segetum* (Corn Marigold):** Dibden Purlieu (W side), SU407061; 18 Sep 2015; MWR. Roadside, A326, SU 4071 0618. Probably sown (Anthemis cotula nearby). **New tetrad**. Barton on Sea (Durlston Court area), SZ242930; 05 Sep 2015; MWR. Sown at edge of Long Meadow, SZ 2425 9306, with Centaurea cyanus, Eschscholtzia californica and Anthemis austriaca. **New tetrad**.

NN *Griselinia littoralis* (New Zealand Broadleaf): Burrfields Road, SU670022; 22 Oct 2015; MR & GCo; 1 plant. Roadside planting. **1st for SU60**.

****NA *Hammarbya paludosa* (Bog Orchid):** Woodford Bottom, SU192114; 08 Aug 2015; RPR. A small patch with five orchids one of which was going over. Grid Ref estimated from plotting on Living Record is SU 1929 1142. **New tetrad**.

NN *Helianthus annuus* (Sunflower): North Park Farm, Little Somborne, SU370336; 17 Aug 2015; MR, BGo & GCo. Planted arable marginal strip. **1st for SU33**.

NN *Helleborus argutifolius* (Corsican Hellebore): Milford on Sea (S side), SZ285918; 26 Jun 2015; MWR. 3 small plants under seat, Kivernell Road, SZ 2852 9185. **1st for SZ29**.

NN *Hirschfeldia incana* (Hoary Mustard): Biddenfield Lane, SU5411; 30 Jun 2015; GCo. **1st for SU51**.

****NA *Hyoscyamus niger* (Henbane):** Along BOAT south of Folly Farm, SU4116 3358; 02 Aug 2015; WR. Oat field. **New tetrad**.

NN *Iberis umbellata* (Garden Candytuft): Waltham Chase area, SU5616; 20 Sep 2015; PAB. **1st for SU51**.

****NA *Illecebrum verticillatum* (Coral-necklace):** Ocknell Plain, SU234118; 31 May 2015; CC; Locally Abundant. Highly localised as at SU23456 11871. **New tetrad**.

IN *Impatiens glandulifera* (Indian Balsam): Toot Hill, SU389186; 09 Aug 2015; PM. **New tetrad**. Biddenfield Lane, SU5411; 18 Apr 2015; GCo. **New tetrad**. Ashton Lane, SU5418; 16 Apr 2015; GCo. Seedling in ditch near junction. **New tetrad**. Widley, SU6607; 01 Aug 2015; GFa; Rare. Purbrook Heath/Aldermoor Coppice. **New tetrad**. Hambledon, 1 mile to east north east, SU6615; 18 Jun 2015; AHP & EJC. **New tetrad**.

NN *Impatiens parviflora* (Small Balsam): Hambledon, 1 mile to east north east, SU6615; 18 Jun 2015; EHP & EJC. **New tetrad**.

NA *Isatis tinctoria* (Woad): Sholing Valley Study Centre, SU451111; 26 Apr 2015; PAB; 8 plants. Growing up among paving slabs near an area where previously planted but later removed or cut down. **1st for SU41**. Butser Ancient Farm, SU7116; 09 Jul 2015; SP. Now well established in several places in and around Butser Ancient Farm at SU719 164. **1st for SU71**.

***NA *Juncus foliosus* (Leafy Rush):** Pylewell, SZ358952; 26 May 2015; MWR. Kept in water till seeds matured. **New tetrad**.

***NA *Juncus ranarius* (Frog Rush):** Beaulieu Mill Pond, SU384024; 01 Aug 2015; CC; Rare. **New tetrad**.

NN *Kerria japonica* (Kerria): Lordswood (N side), SU405160; 03 Sep 2015; MWR. Copse, Coxford Road, SU 4050 1606. **1st for SU41**.

***NA *Lactuca virosa* (Great Lettuce):** B3037, SU509190; 16 Jun 2015; GCo conf. MR; Not recorded. **1st for SU51**.

NN *Lapsana communis subsp. intermedia* (Nipplewort): Cross Lanes, Ashton, SU544185; 16 Oct 2015; GCo conf. MR. **1st for SU51**.

NN *Larix x marschlinsii* (Hybrid Larch (L. decidua x kaempferi)): Lower Toothill, SU378183; 09 Aug 2015; PM. Large tree in north-east section of Nightingale Wood at SU3788 1831. Toot Hill, SU380183; 09 Aug 2015; PM. Large tree in north-east section of Nightingale Wood at SU3800 1830. **1st for SU31**.

NN *Leucojum vernum* (Spring Snowflake): Hound Corner Ecology Park, SU469087; 07 Feb 2015; PAB; 1 plant. A flore pleno variety not obviously planted and among native vegetation. **1st for SU40**.

***NA *Linum bienne* (Pale Flax):** Southampton Sports Centre - east of childrens playground, SU4111 1615; 19 Sep 2015; PAB; 25 plants. **New tetrad**.

NA *Linum usitatissimum* (Flax): B3035, SU552177; 31 Jul 2015; GCo. **1st for SU51**.

NN *Lolium x boucheanum* (L. perenne x multiflorum): Warnford area, SU6223; 12 Nov 2015; A Powling & EJ Clement; Not recorded. **1st for SU62**.

NN *Lonicera pileata* (Box-leaved Honeysuckle): Batchley Farm and Upper Pennington Common area, SZ2995; 01 Jul 2015; Mike Rowe det. Confirmed EJ Clement 27/11/2015; Not recorded. Roadside, Wainsford Road, SZ 2989 9504. **1st for SZ29**.

***NA *Lotus subbiflorus* (Hairy Bird's-foot-trefoil):** Lower Pennington, SZ314932; 25 May 2015; MWR. Patch 80 x 80cm, by footpath, Iley Lane, SZ 3146 9328. **New tetrad**.

***NA *Ludwigia palustris* (Hampshire-purslane):** Hincheslea Bog, SU277005; 30 Jun 2015; MWR. Patch 1 x 1m, SU 2775 0052. **New tetrad**.

NN *Luzula nivea* (Snow-white Wood-rush): Lower Buckland, Undershore, Walhampton, SZ324969; 07 Jun 2015; MWR det. EJC 27/11/2015. 1 clump at edge of copse by roadside, Undershore, SZ 3240 9695, clearly a throwout. **New VC record**.

***NA *Luzula x borreri* (Southern Wood-rush):** Breamore Wood, SU1419; 24 Apr 2015; MR et al. det. MR. Several robust plants with parents. Voucher Hb MR. **New tetrad**.

NN *Meconopsis cambrica* (Welsh Poppy): Beckford Bridge area., SU6210; 10 Sep 2015; AHP & EJC. **1st for SU61**.

NN *Melilotus albus* (White Melilot): Hoe Gate area, south east., SU6312; 03 Sep 2015; AHP & EJC. **1st for SU61**.

NA *Myosotis ramosissima* (Early Forget-me-not): Opp.Fox and Hounds, SU49051985; 10 Jun 2015; GCo. **1st for SU41 since 1930**.

***NA *Myosotis secunda* (Creeping Forget-me-not):** Mount Pleasant Farm area, SZ305977; 23 Jun 2015; MWR. Patch 2 x 2m in damp wood, SZ 3051 9772. **New tetrad**. East End, SZ364976; 07 Jun 2015; MWR. SZ 3645 9766. **New tetrad**.

IN *Myriophyllum aquaticum* (Parrot's-feather): Totton, SU360136; 25 Jun 2015; PM. In pond near Civic Centre at SU3600 1365. **New tetrad**. Totton, SU359136; 25 Jun 2015; PM. A large area in pond near Civic Centre. **New tetrad**.

NN *Narcissus papyraceus* (Paper-white Daffodil): Weston Shore - NW of central car park, SU437100; 23 Mar 2015; PAB; 1

plant. On eroding cliffs near to Southampton Sailing Club. **New VC record**.

NN *Narcissus poeticus* (Pheasant's-eye Daffodil): Dibden, SU407083; 20 Apr 2015; MWR. Planted in cemetery, Main Road, SU 4072 0832. **1st for SU40**.

NN *Narcissus tazetta* (Bunch-flowered Daffodil): Hurst Castle, SZ317897; 21 Apr 2015; MWR. 1 clump planted by entrance to Hurst Castle, SZ 3174 8975. **New VC record**.

***NA *Nasturtium microphyllum* (Narrow-fruited Water-cress):** Ashley, SZ251952; 09 Jul 2015; MWR. Stream, Ashley Road, SZ 2514 9526. **New tetrad**.

NA *Nasturtium x sterile* (N. officinale x microphyllum): Upper Ratlake, SU414232; 08 Jul 2015; MR & DN det. MR; Occasional. At SU4147 2320. Most fruits with 1 or 2 well-formed seeds (max 4) and most aborted. Generally, in one row but some in 'zigzag' double row. **1st for SU42**. Soberton north west, SU6017; 04 Jun 2015; AHP & EJC; Not recorded. **1st for SU62**.

NN *Nicandra physalodes* (Apple-of-Peru): Ringwood (S side), SU151045; 20 Sep 2015; MWR. 1 plant by building, New Street, SU 1515 0456. **1st for SU10**. Fort Cumberland, SZ684994; 04 Oct 2015; HFG[JAN]. **1st for SZ69**.

NN *Nigella damascena* (Love-in-a-mist): Cadnam, SU299139; 14 Jun 2015; PM. A large plant with white flowers on rough ground on east side of Old Lyndhurst Road at SU2993 1396. **1st for SU21**.

NN *Oenothera x fallax* (O. glazioviana x biennis): Michelmersh, SU354254; 11 Oct 2015; MR & RCR det. MR; Rare. N side of lane by old entrance to gravel pit (pit now infilled). **1st for SU32**.

NN *Oxalis exilis* (Least Yellow-sorrel): Horndean, Lovedean area., SU6812; 07 Oct 2015; AHP & EJC. **1st for SU61**.

***NA *Papaver lecoqii* (Yellow-juiced Poppy):** Meonstoke, 1 km north-east, SU6221; 20 Aug 2015; AHP & EJC. **New tetrad**.

***NA *Parentucellia viscosa* (Yellow Bartsia):** Highwood area, SU163070; 16 Jul 2015; DHu; Locally Abundant. Field gateway, Highwood. **New tetrad**.

***NA *Paris quadrifolia* (Herb-paris):** Weston, SW of, SU7221; 07 Apr 2015; DN & JOa. In Bopeep Copse. 3 at SU72216 21515 9 at SU72191 21491 - probably more, it was very young. **1st for tetrad since 1966**.

NN *Parthenocissus quinquefolia* (Virginia-creeper): Hordle (E side), SZ272952; 15 Jun 2015; MWR. Well established in dense nettles by garden next to footpath, SZ 2724 9528. **1st for SZ29**.

NN *Passiflora caerulea* (Blue Passionflower): Horndean North, SU6913; 26 Nov 2015; AHP & EJC. Probably bird-sown. **1st for SU61**. Bure Lane/Bure Homage Lane, SZ188929; 24 Sep 2015; DL; 1 plant. NW side of the verge in Bure Lane close to the junction of the Runway. It could have been planted, or perhaps seeded from a garden. **1st for SZ19**.

NN *Persicaria affinis* (Himalayan Bistort): Batchley Farm and Upper Pennington Common area, SZ291953; 23 May 2015; MWR conf. EJ Clement, 27/11/2015. Planted by track several years ago and now well established, Batchley Farm, SZ 2916 9531. **New VC record**.

***NA *Persicaria bistorta* (Common Bistort):** Danes Stream, Milford on Sea, SZ279921; 18 Jun 2015; DL. 1 plant by path at edge of wood, Studland Common at 27938 92192. **1st for SZ29**.

NN *Petasites japonicus* (Giant Butterbur): Upham, east, SU540205; 25 Mar 2015; PM. Spreading along bank on south side of village pond with at least 60 flower heads. **1st for SU52**.

***NA *Pinguicula lusitanica* (Pale Butterwort):** Between Parkhill and Denny Inclosures, SU325059; 09 Nov 2015; MR. 10 small plants in bog along brook, SU3253 0591. **1st for tetrad since ?1957**.

NN *Pinus contorta* (Lodgepole Pine): Slufters Inclosure, SU230106; 13 May 2015; PM. Young tree 5 metres tall on east side of cycle track at SU2300 1066. **1st for SU21**.

NN *Pinus nigra subsp. laricio* (Corsican Pine): Southwick, SU6109; 12 Jul 2015; GFa; Locally Abundant. Walton Heath. **1st for SU60**.

NN *Pinus nigra subsp. nigra* (Austrian Pine): Hurst Castle, SZ318898; 21 Apr 2015; MWR. Planted near lighthouse, SZ 3182 8989. **1st for SZ38**.

NN *Pinus pinaster* (Maritime Pine): The Kench/Golf Course, SZ692996; 20 Oct 2015; JOa & DN. SZ692996, probably planted. **1st for SZ69**.

NN *Pittosporum tenuifolium* (Kohuhu): Warnford area, south west., SU6223; 27 Aug 2015; AHP & EJC. Planted. **1st for SU62**.

****NA *Platanthera bifolia* (Lesser Butterfly-orchid):** Beaulieu Airfield (W side), SU347007; 17 Jun 2015; MWR. 2 spikes, SU 3479 0073. **New tetrad**.

NN *Platanus orientalis* (Oriental Plane): Warnford Park area, SU6222; 27 Aug 2015; AHP & EJC. Planted. **1st for SU62**.

NN *Platanus x hispanica* (London Plane (P. occidentalis x orientalis)): Denmead, north west., SU6512; 01 Oct 2015; AHP & EJC. Planted. **1st for SU61**. Lepe (Lepe House area), SZ443988; 13 Sep 2015; MWR. Planted in roadside hedge, SZ 4437 9884. **1st for SZ49**.

***NA *Poa angustifolia* (Narrow-leaved Meadow-grass):** Weston Shore - eastern half, SU444095; 13 May 2015; PAB. Woodland remnant along Netley Road. **1st for SU40**.

***NA *Poa humilis* (Spreading Meadow-grass):** Barton Golf Course and Beckton Bunny., SZ254926; 20 May 2015; MWR. Grassy clifftop, SZ 2547 9261. Milford on Sea (Cliff Road), SZ275918; 29 May 2015; Mike Rowe; Not recorded. Grassy cliff base, SZ 2753 9184. Three Beech Bottom and Milking Pound Bottom areas, SZ294999; 11 Jun 2015; MR. Edge of heath by railway line, SZ 2940 9996. **1st for SZ29**.

NA *Polypodium interjectum* (Intermediate Polypody): Meon Valley Railway Line, SU6004 1451; 04 Apr 2015; ALe; Rare. Hambledon, 2km west of., SU6214; 11 Jun 2015; AHP & EJC. **1st for SU61**.

NN *Prunus padus* (Bird Cherry): Grange Fields - southern edge, SU457093; 11 May 2015; PAB; 1 individual. **1st for SU40**.

NN *Pulmonaria officinalis* (Lungwort): Fritham, E of, SU241138; 17 Apr 2015; PM. Flowering on north side of road at SU2418 1389. **1st for SU21**.

NN *Pulmonaria saccharata* (Bethlehem-sage): Weston Shore - NE of Weston Parade, SU445096; 17 Feb 2015; PAB. Naturalised. **1st for SU40**.

NA *Pyrus pyraster* (Wild Pear): Denmead, north west., SU6512; 01 Oct 2015; AHP & EJC. Planted. **1st for SU61**. Warnford area, south west., SU6223; 27 Aug 2015; AHP & EJC. Planted. **1st for SU62**.

NA *Rhamnus cathartica* (Buckthorn): Bramshaw, SU263153; 12 Aug 2015; PM. Large tree. **1st for SU21**.

***NA *Rorippa amphibia* (Great Yellow-cress):** Fish Ponds, Hursley, SU415250; 27 Aug 2015; GCo. Vegetative, many plants. **New tetrad**.

***NA *Rorippa sylvestris* (Creeping Yellow-cress):** Fish Ponds, Hursley, SU415250; 27 Aug 2015; GCo. **New tetrad**.

NN *Rosa glauca* (Red-leaved Rose): Southampton Common Central, SU418150; 21 Jul 2015; PAB; 1 plant. West side of The Avenue. **New VC record**.

IN *Rosa rugosa* (Japanese Rose): Rookesbury Park, SU5912; 19 May 2015; MR & RCR det. MR; Occasional: Planted. **1st for SU51**.

***NA *Rosa spinosissima* (Burnet Rose):** Ashley, SZ252956; 09 Jul 2015; MWR. Railway bank, SZ 2527 9566. **1st for tetrad since 1930**.

NA *Rosa x irregularis* (Rosa arvensis x canina (fxm or mxf)): Hoe gate, south east, SU6312; 03 Sep 2015; AHP & EJC. **1st for SU61**.

IN *Rubus armeniacus* (Rubus 'Himalayan Giant'): Church Green, Meonstoke, SU6120; 13 Jul 2015; AHP & GCo. Warnford Park area, SU6222; 27 Aug 2015; AHP & EJC. **1st for SU62**. Great Newbridge Copse, SZ309938; 19 Jul 2015; MWR. Hedge, SZ 3093 9388. **1st for SZ39**.

IN *Rubus laciniatus* (Cut-leaved Bramble): Sway (Durns Town), SZ281989; 29 Jun 2015; MWR. 1 small plant in grassland near gardens, presumed bird-sown, SZ 2815 9895. **New tetrad**.

***NA *Rumex crispus subsp. littoreus* (Curled Dock):** W of Lepe (Inchmery House area), SZ439986; 15 Sep 2015; MWR. Shore, SZ 4396 9862. **New tetrad**.

NA *Rumex x sagorskii* (R. crispus x sanguineus): Great Newbridge Copse area, SZ306937; 19 Jul 2015; MWR det. GK 27/11/2015. By track/hedge, between Efford Bridge and Great Newbridge Copse, SZ 3064 9377. Both parents in vicinity. **1st for SZ39**.

***NA *Salicornia pusilla* (One-flowered Glasswort):** W of Lepe, SZ433986; 15 Sep 2015; MWR. SZ 4338 9862. **New tetrad**.

NN *Salix elaeagnos* (Olive Willow): Portsmouth Outdoor Centre, SU674028; 22 Oct 2015; MR & GCo; Occasional: Planted. In boundary hedges of centre. **1st for SU60**.

NA *Salix x multinervis* (S. aurita x cinerea): Black Down, SU352064; 18 May 2015; MR & AMC det. MR; 1 plant. Ditch side running E of Beaulieu Road car park, SU3521 0642. **New tetrad**.

NA *Salix x reichardtii* (S. caprea x cinerea): Horndean, Lovedean area., SU6812; 07 Oct 2015; AHP & EJC. **1st for SU61**.

***NA *Sambucus ebulus* (Dwarf Elder):** Hilliers overflow car park, SU504137; 29 Jul 2015; GCo. **1st for SU51**.

NA *Saponaria officinalis* (Soapwort): Butser Ancient Farm, SU719164; 09 Jul 2015; SP. **1st for SU71**.

***NA *Sarcocornia perennis* (Perennial Glasswort):** The Kench, N of, SU6900; 20 Oct 2015; JOa & DN. South side of spit. **New tetrad**. Hilsea, SU6604; 17 Aug 2015; GFa; Rare. Ports Creek/ Hilsea Lines. **1st for tetrad since 1979**.

NN *Scilla sardensis* (Lesser Glory-of-the-snow): Stoneham Cemetery, SU447160; 27 Mar 2015; PAB. Naturalised in several places. **1st for SU41**.

NN *Senecio inaequidens* (Narrow-leaved Ragwort): Mayhill, SU5917; 21 Jul 2015; GCo. **1st for SU51**.

NN *Sequoiadendron giganteum* (Wellingtonia): Holly Hatch Inclosure, SU218119; 18 Feb 2015; PM. Tall trees with mature cones at SU2183 1194. **1st for SU21**.

NN *Sisymbrium orientale* (Eastern Rocket): Lymington (Buckland), SZ317968; 07 May 2015; MWR. 1 plant, garden wall/pavement junction, A337, SZ 3170 9680. **1st for SZ39 since 1930**.

NN *Sisyrinchium striatum* (Pale Yellow-eyed-grass): Lower Pennington, SZ314932; 25 May 2015; MWR. By footpath, edge of gravel pit, Iley Lane, SZ 3145 9328. **1st for SZ39**.

NN *Skimmia japonica* (): Radar Way, Christchurch - north, SZ186934; 24 Sep 2015; DL. **1st for SZ19**.

NN *Sorbaria sorbifolia* (Sorbaria): Netley Castle Park, SU451090; 28 Oct 2015; PAB. **1st for SU40**.

NA *Sparganium erectum subsp. neglectum* (Branched Bur-reed): Dibden Purlieu (W side), SU401068; 18 Sep 2015; MWR. Stream, SU 4013 0684. **1st for SU40**.

NN *Spinacia oleracea* (Spinach): Hedge End, SU525134; 28 Jul 2015; GCo. In wide grass verge. **1st for SU51**.

****NA *Spiranthes spiralis* (Autumn Lady's-tresses):** Ashley Heath, SU1104; 09 Sep 2015; MWR. Verge, Struan Close/Struan Gardens, SU 1180 0475; 5 spikes. Verge, Bushmead Drive, SU 1115 0417; 2 spikes. Verge, Hill Way, SU 1158 0424; 91 spikes. **1st for tetrad since 1974**. Longdown, SU3607; 13 Sep 2015; PAB; 1 spike. **1st for tetrad since 1960**. Rownhams Lane, North Baddesley, SU3894 1954; 21 Aug 2015; DWh. Reported by resident to have flowered here for 15 years. **New tetrad**.

NA *Stachys x ambigua* (Hybrid Woundwort (S. palustris x sylvatica)): East Meon, 1.5 km east, SU6922; 30 Aug 2015; AHP. **New tetrad**.

NN *Stranvaesia davidiana* (Stranvaesia): Lodge Hill, SW Newtown, SU6012; 30 Apr 2015; AHP & EJC; Not recorded. **1st for SU61**.

NN *Symphoricarpos x chenaultii* (Pink Snowberry): Eling, SU363124; 30 Sep 2015; PM. Fruiting patch spreading for 9 metres beside footpath at SU3632 1242. Marchwood, SU387102; 08 Feb 2015; PM. Large bush near school at SU3875 1028 (presumed planted). **1st for SU31**.

NN *Symphytum grandiflorum* (Creeping Comfrey): East Meon, 2km south east, SU6921; 30 Jul 2015; AHP & EJC. **1st for SU62**.

?NN *Taraxacum aberrans* (Sect. Ruderalia): Bickerley Common, Ringwood, SU147049; 19 Apr 2015; BSBI[AJR] det. AJR. Verge of Bickerley Road. Full grid ref SU1470 0495. MLy photo record https://goo.gl/photos/3ioYScCZM3gDVyuKA. **New VC record**.

NN *Taraxacum acutifidum* (Sect. Ruderalia): Bickerley Common, Ringwood, SU147049; 19 Apr 2015; BSBI[AJR] det. AJR. Verge of Bickerley Road. Full grid ref SU1474 0498, SU1476 0496. photo record 537-539. **New VC record**.

NN *Taraxacum acutifrons* (Sect. Ruderalia): Bickerley Gardens, Ringwood, SU148049; 18 Apr 2015; BSBI[AJR] det. AJR. Full grid ref SU1489 0498. Voucher Hb MR. ARGM photo record 396-399. **New VC record**.

?NN *Taraxacum aequilobum* (Sect. Ruderalia): Bickerley Common, Ringwood, SU147049; 19 Apr 2015; BSBI[AJR] det. AJR. Verge of Bickerley Road. Full grid ref SU1473 0496. ARGM photo record 532-534. **New VC record**. Locks Heath, pavement-side weed, SU513065; 19 Apr 2015; PMS det. AJR. Full grid ref SU51337 06513. Voucher Hb P Smith. **1st for SU51**. Hengistbury Head, SZ161908; 20 Apr 2015; BSBI[AJR] det. AJR. Sandy grassland S of car park. Full grid ref SZ1615 9088, SZ1624 9091. ARGM photo record 572. Hengistbury Head, SZ162909; 20 Apr 2015; BSBI[AJR] det. AJR. Sandy grassland S of car park. Full grid ref SZ1615 9088, SZ1624 9091. ARGM photo record 572. **1st for SZ19**.

NA *Taraxacum alatum* (Sect. Ruderalia): Ringwood Community Centre car park, SU149049; 17 Apr 2015; BSBI[AJR] det. AJR. Full grid ref SU1490 0499. ARGM photo record 315. **1st for SU10**. Locks Heath, garden weed, SU513065; 18 Apr 2015; PMS det. AJR; Not recorded. Full grid ref SU51343 06515. . Voucher Hb P Smith. **1st for SU51**. Hengistbury Head, SZ163911; 20 Apr 2015; BSBI[AJR] det. AJR. Banks of car park. Full grid ref SZ1637 9111. **1st for SZ19**.

NA *Taraxacum ancistrolobum* (Sect. Ruderalia): Bickerley Road, Ringwood, SU148048; 17 Apr 2015; BSBI[AJR] det. AJR. Full grid ref SU1486 0489. ARGM photo record 325-326. **New VC record**. Locks Heath, garden weed, SU513065; 18 Apr 2015; PMS det. AJR; Not recorded. Full grid ref SU51343 06515. Voucher Hb P Smith. **1st for SU51**. Hengistbury Head, SZ161908; 20 Apr 2015; BSBI[AJR] det. AJR. Vestigial cliff-top dunes. Full grid ref SZ1618 9089. **1st for SZ19**.

****NA *Taraxacum anglicum* (Sect. Palustria):** Ossemsley Ford, Holmsley, SU231004; 18 Apr 2015; BSBI[AJR] det. AJR. E.g. at SU2316 0040. Material with dark colouring on bracts taken at SU2317 0039. Voucher Hb MR. ARGM photo record 357-362. **New VC record**.

***NA *Taraxacum argutum* (Sect. Erythrosperma):** Pheasant Pen Rough, SU142015, SU142016; 19 Apr 2015; BSBI[AJR] det. AJR. Sandy pasture. Full grid ref SU1424 0159, SU1428 0145, SU1426 0162. Voucher Hb MR. ARGM photo record 429-431, 445-446, 457-458. **1st for SU10**.

?NA *Taraxacum atactum* (Sect Hamata): E of Wattons Ford, SU141019; 19 Apr 2015; BSBI[AJR] det. AJR. Flood plain grassland N of lane. Full grid ref SU1416 0192. **1st for SU10**.

?NN *Taraxacum aurosulum* (Sect. Ruderalia): Hengistbury Head, SZ162909; 20 Apr 2015; BSBI[AJR] det. AJR. Sandy grassland S of car park. Full grid ref SZ1624 9091, SZ1625 9090. ARGM photo record 555-557. **New VC record**.

?NA *Taraxacum boekmanii* (Sect. Hamata): E of Wattons Ford, SU141015, SU141017; 19 Apr 2015; BSBI[AJR] det. AJR. Meadow S of lane. Full grid ref SU1411 0151, SU1411 0158, SU1412 0176. ARGM photo record 502-504, 511-514. **1st for SU10**.

NA *Taraxacum brachyglossum* (Sect. Erythrosperma): Pheasant Pen Rough, SU142016, SU143014; 19 Apr 2015; SU142016. Sandy pasture. Full grid ref SU1425 0161, SU1437 0144. Voucher Hb MR. ARGM photo record 436-437, 449-451. **1st for SU10**. Hengistbury Head, SZ165911; 20 Apr 2015; BSBI[AJR] det. AJR. Bank of cross-dyke. Full grid ref SZ1653 9113. ARGM photo record 596. **1st for SZ19**. N of Holmsley Walk car park, SZ209995; 18 Apr 2015; BSBI[AJR] det. AJR. Hard-grazed and dog-polluted grassland, full grid ref SZ2097 9952. ARGM photo record 387-388. **1st for SZ29**.

NA *Taraxacum bracteatum* (Sect. Celtica): N of Holmsley Walk car park, SZ209994; 18 Apr 2015; BSBI[AJR] det. AJR. Hard-grazed and dog-polluted grassland, full grid ref SZ2096 9947. **1st for SZ29**.

****NA *Taraxacum ciliare* (Sect. Palustria):** Ossemsley Ford, Holmsley, SU231004; 18 Apr 2015; BSBI[AJR] det. AJR. Voucher Hb EAP. MLy photo record. ARGM photo record 368. **New VC record**.

NA *Taraxacum cordatum* (Sect, Ruderalia): Ringwood Community Centre car park, SU149050; 17 Apr 2015; BSBI[AJR] det. AJR. Full grid ref SU1492 0504. ARGM photo record 310-314. **1st for SU10**.

NN *Taraxacum densilobum* (Sect. Ruderalia): Pheasant Pen Rough, SU143014; 19 Apr 2015; BSBI[AJR] det. AJR. Field edge. Full grid ref SU1436 0147. Voucher Hb MR. ARGM photo record 452-453. **New VC record**. Hengistbury Head, SZ162909, SZ163910; 20 Apr 2015; BSBI[AJR] det. AJR. Sandy grassland S of car park. Full grid ref SZ1625 9093, SZ1630 9101. ARGM photo record 547. **1st for SZ19**.

?NN *Taraxacum dilaceratum* (Sect. Ruderalia): E of Wattons Ford, SU140014; 19 Apr 2015; BSBI[AJR] det. AJR. Meadow S of lane. Full grid ref SU1406 0146. Voucher Hb MR. ARGM photo record 498-501. **New VC record**.

NA *Taraxacum dilatatum* (Sect. Ruderalia): Locks Heath, garden weed, SU513065; 18 Apr 2015; PMS det. AJR. Full grid ref SU51343 06515. Voucher Hb P Smith. **New VC record**.

NA *Taraxacum duplidentifrons* (Sect. Celtica): Pheasant Pen Rough, SU142014; 19 Apr 2015; BSBI[AJR] det. AJR. Sandy pasture S of derelict cottage. Full grid ref SU1424 0147, SU1428 0144. ARGM photo record 454-456. E of Wattons Ford, SU140014; 19 Apr 2015; BSBI[AJR] det. AJR. Meadow S of lane. Full grid ref SU1405 0145. E of Wattons Ford, SU140016; 19 Apr 2015; BSBI[AJR] det. AJR. Meadow S of lane. Full grid ref SU1409 0160. ARGM photo record 475-477. **1st for SU10**. N of Holmsley Walk car park, SZ209994; 18 Apr 2015; BSBI[AJR] det. AJR. Hard-grazed and dog-polluted grassland, full grid ref SZ2096 9947. **1st for SZ29**.

?NA *Taraxacum ekmanii* (Sect. Ruderalia): Bickerley Road, Ringwood, SU148049; 17 Apr 2015; BSBI[AJR] det. AJR. Full grid ref SU1482 0492, SU1483 0491. ARGM photo record 324, 407-407. **1st for SU10**.

?NA *Taraxacum expallidiforme* (Sect. Ruderalia): Bickerley Road, Ringwood, SU148049; 17 Apr 2015; BSBI[AJR] det. AJR. Full grid ref SU1486 0497. **1st for SU10**. Hengistbury Head, SZ163911; 20 Apr 2015; BSBI[AJR] det. AJR. Banks of car park. Full grid ref SZ1637 9111. **1st for SZ19**.

NA *Taraxacum fulvum* (Sect. Erythrosperma): Pheasant Pen Rough, SU142015; 19 Apr 2015; BSBI[AJR] det. AJR. Sandy pasture. Full grid ref SU1424 0158. ARGM photo record 439-440. **1st for SU10**. N of Holmsley Walk car park, SZ209994; 18 Apr 2015; BSBI[AJR] det. AJR. Hard-grazed and dog-polluted grassland, full grid ref SZ2097 9942. Voucher Hb MR. ARGM photo record 441-443. **1st for SZ29**.

NA *Taraxacum gelertii* (Sect. Celtica): Ossemsley Ford, Holmsley, SU231003; 18 Apr 2015; BSBI[AJR] det. AJR. Full grid ref SU2314 0034. ARGM photo record 364-366. **1st for SU20**. N of Holmsley Walk car park, SZ210993; 18 Apr 2015; BSBI[AJR] det. AJR. Hard-grazed and dog-polluted grassland, full grid ref SZ2107 9939. **1st for SZ29**.

NA *Taraxacum glauciniforme* (Sect. Erythrosperma): Pheasant Pen Rough, SU142016; 19 Apr 2015; BSBI[AJR] det. AJR. Sandy pasture. Full grid ref SU1425 0161. ARGM photo record 434-435. **1st for SU10**.

?NA *Taraxacum hamatulum* (Sect. Hamata): Ossemsley Ford, Holmsley, SU232004; 18 Apr 2015; BSBI[AJR] det. AJR. Stream bank, full grid ref SU2328 0040. ARGM photo record 375. Mill Lawn, Burley, SU225035, SU225036; 18 Apr 2015; BSBI[AJR] det. AJR. Full grid ref SU2256 0359, SU2255 0360. ARGM photo record 336-338. **New VC record**.

?NA *Taraxacum hamiferum* (Sect. Hamata): Mill Lawn, Burley, SU223034; 18 Apr 2015; BSBI[AJR] det. AJR. By car park. **New VC record**.

NN *Taraxacum horridifrons* (Sect. Ruderalia): Osmund Bushes, Holmsley, SU232005; 18 Apr 2015; BSBI[AJR] det. AJR. Full grid ref SU2324 0052. ARGM photo record 380-382. **New VC record**.

?NN *Taraxacum interveniens* (Sect. Ruderalia): Bickerley Gardens, Ringwood, SU148049; 17 Apr 2015; BSBI[AJR] det. AJR. Full grid ref SU1488 0498, SU1489 0499. ARGM photo record 317-319. **New VC record**.

?NN *Taraxacum lacerifolium* (Sect. Ruderalia): Ringwood Community Centre car park, SU149050; 17 Apr 2015; BSBI[AJR] det. AJR. Full grid ref SU1493 0505. ARGM photo record 307. **New VC record**.

?NA *Taraxacum laciniosifrons* (Sect. Ruderalia): Hengistbury Head, SZ161908; 20 Apr 2015; BSBI[AJR] det. AJR. Vestigial cliff-top dunes. Full grid ref SZ1613 9089. ARGM photo record 573-578. **New VC record**.

NA *Taraxacum lacistophyllum* (Sect. Erythrosperma): Pheasant Pen Rough, SU143014, SU143015; 19 Apr 2015; BSBI[AJR] det. AJR. Sandy pasture. Full grid ref SU1438 0140, SU1438 0154. ARGM photo record 444. Pheasant Pen Rough, SU142016; 19 Apr 2015; BSBI[AJR] det. AJR. Sandy pasture. Full grid ref SU1426 0162. Voucher Hb MR. ARGM photo record 428. **1st for SU10**. Hengistbury Head, SZ165911; 20 Apr 2015; BSBI[AJR] det. AJR. Bank of cross-dyke. Full grid ref SZ1653 9113, SZ1655 9117. ARGM photo record 597-598, 602. **1st for SZ19**.

?NA *Taraxacum lepidum* (Sect. Ruderalia): Bickerley Road, Ringwood, SU148049; 18 Apr 2015; BSBI[AJR] det. AJR. Full grid ref SU1488 0497. ARGM photo record 400-402. **New VC record**. Hengistbury Head, SZ165911; 20 Apr 2015; BSBI[AJR] det. AJR. Verge of road to field centre. Full grid ref SZ1651 9110. ARGM photo record 590-592. **1st for SZ19**.

NA *Taraxacum lingulatum* (Sect. Ruderalia): Locks Heath, pavement-side weed, SU513064; 19 Apr 2015; PMS det. AJR; Not recorded. Full grid ref SU51334 06493. Voucher Hb P Smith. New hectad. Voucher Hb P Smith. **New VC record**. Hengistbury Head, SZ165911; 20 Apr 2015; BSBI[AJR] det. AJR. Verge of road to field centre. Full grid ref SZ1652 9110. ARGM photo record 593-595. **1st for SZ19**.

***NA *Taraxacum margettsii* (Sect. Ruderalia):** Bickerley Gardens, Ringwood, SU148049; 18 Apr 2015; BSBI[AJR] det. AJR. **New VC record**.

NA *Taraxacum marklundii* (Sect. Hamata): Burbush car park fringes, SU202017; 18 Apr 2015; BSBI[AJR] det. AJR. ARGM photo record 390-392. **1st for SU20**. Hengistbury Head, SZ163910; 20 Apr 2015; BSBI[AJR] det. AJR. Sandy grassland S of car park. Full grid ref SZ1630 9100. **1st for SZ19**.

NN *Taraxacum multicolorans* (Sect. Ruderalia): E of Wattons Ford, SU140014; 19 Apr 2015; BSBI[AJR] det. AJR. Meadow S of lane. Full grid refs SU1404 0144, SU1408 0149. Voucher Hb MR. ARGM photo record 493-495. **New VC record**.

?NN *Taraxacum necessarium* (Sect. Ruderalia): Hengistbury Head, SZ163911; 20 Apr 2015; BSBI[AJR] det. AJR. Banks of car park. Full grid ref SZ1637 9111.MLy photo record https://goo.gl/photos/o9RDbKtY1PDLK8Np6. **New VC record**.

NA *Taraxacum oblongatum* (Sect. Ruderalia): Osmund Bushes, Holmsley, SU232005; 18 Apr 2015; BSBI[AJR] det. AJR. Full grid ref SU2325 0054. ARGM photo record 348. **New VC record**. E of Wattons Ford, SU141019; 19 Apr 2015; BSBI[AJR] det. AJR. Flood plain grassland N of lane. Full grid ref SU1418 0191. **1st for SU10**.

NN *Taraxacum obtusifrons* (Sect. Ruderalia): Bickerley Gardens, Ringwood, SU148049; 17 Apr 2015; BSBI[AJR] det. AJR. Full grid ref SU1480 0494, SU1488 0498, SU1489 0499. ARGM photo record 393-395. **New VC record**.

***NA *Taraxacum oellgaardii* (Sect. Celtica):** Mill Lawn, Burley, SU224035; 18 Apr 2015; BSBI[AJR] det. AJR. Full grid ref SU2248 0359. Voucher Hb MR. **New VC record**.

?NA *Taraxacum pallescens* (Sect. Ruderalia): E of Wattons Ford, SU140015; 19 Apr 2015; BSBI[AJR] det. AJR. Meadow S of lane. Full grid ref SU1408 0159. Voucher Hb MR. ARGM photo record 478-479. E of Wattons Ford, SU141018; 19 Apr 2015; BSBI[AJR] det. AJR. Flood plain grassland N of lane. Full grid ref SU1415 0183. Pheasant Pen Rough, SU142016; 19 Apr 2015; BSBI[AJR] det. AJR. Lane verge. Full grid ref SU1429 0165. ARGM photo record 424-427. **1st for SU10**.

?NN *Taraxacum pallidipes* (Sect. Ruderalia): Ringwood Community Centre car park, SU149050; 18 Apr 2015; BSBI[AJR] det. AJR. **New VC record**.

****NA *Taraxacum palustre* (Sect. Palustria):** Ossemsley Ford, Holmsley, SU231004; 18 Apr 2015; BSBI[AJR] det. AJR. E.g. at SU2317 0041. Voucher Hb MR. ARGM photo record 350-354, 363. **1st for tetrad since 1976**.

?NN *Taraxacum pannucium* (Sect. Ruderalia): Osmund Bushes, Holmsley, SU232005; 18 Apr 2015; BSBI[AJR] det. AJR. Road verge, full grid ref SU2324 0051. ARGM photo record 379. **1st for SU20**.

NA *Taraxacum pannulatiforme* (Sect. Ruderalia): Hengistbury Head, SZ162909; 20 Apr 2015; BSBI[AJR] det. AJR. Sandy grassland S of car park. Full grid ref SZ1627 9095. ARGM photo record 543-546. **New VC record**.

?NN *Taraxacum pannulatum* (Sect. Ruderalia): E of Wattons Ford, SU140014; 19 Apr 2015; BSBI[AJR] det. AJR. Meadow S of lane. Full grid ref SU1402 0143. Voucher Hb MR. ARGM photo record 488-492. **New VC record**.

?NN *Taraxacum piceatum* (Sect. Ruderalia): E of Wattons Ford, SU141017; 19 Apr 2015; BSBI[AJR] det. AJR. Flood plain grassland N of lane. Full grid ref SU1415 0178. ARGM photo record 518-520. **New VC record**.

?NN *Taraxacum pseudoproximum* (Sect. Erythrosperma): Hengistbury Head, SZ161908; 20 Apr 2015; BSBI[AJR] det. AJR. Vestigial cliff-top dunes. Full grid ref SZ1619 9089. Voucher Hb AJR. ARGM photo record 561-568. **New VC record**.

NA *Taraxacum proximiforme* (Sect. Erythrosperma): N of Holmsley Walk car park, SZ209994; 18 Apr 2015; BSBI[AJR] det. AJR. Hard-grazed and dog-polluted grassland, full grid ref SZ2096 9947. **New VC record**.

NA *Taraxacum pseudohamatum* (Sect. Hamata): Mill Lawn, Burley, SU225035; 18 Apr 2015; BSBI[AJR] det. AJR. Full grid ref SU2256 0357. ARGM photo record 333-335. **1st for SU20**.

NN *Taraxacum pulchrifolium* (Sect. Ruderalia): Bickerley Gardens, Ringwood, SU148049; 17 Apr 2015; BSBI[AJR] det. AJR. Full grid ref SU1487 0497, SU1488 0498. Voucher Hb C Turner, ARGM photo record 320-322. **New VC record**. Hengistbury Head, SZ161908; 20 Apr 2015; BSBI[AJR] det. AJR. Vestigial cliff-top dunes. Full grid ref SZ1612 9089. ARGM photo record 579-581. **1st for SZ19**.

?NN *Taraxacum quadrans* (Sect. Hamata): Ringwood Community Centre car park, SU149050; 17 Apr 2015; BSBI[AJR] det. AJR. Full grid ref SU1492 0504. ARGM photo record 308. **New VC record**.

NN *Taraxacum rhamphodes* (Sect. Ruderalia): Hengistbury Head, SZ164911; 20 Apr 2015; BSBI[AJR] det. AJR. Verge of car turning circle. Full grid ref SZ1648 9110. ARGM photo record 586-589. **1st for SZ19**.

***NA *Taraxacum sahlinianum* (Sect. Hamata):** Ringwood Community Centre car park, SU149050; 17 Apr 2015; BSBI[AJR] det. AJR. Full grid ref SU1492 0504. ARGM photo record 309. **New VC record**.

NA *Taraxacum sellandii* (Sect. Ruderalia): E of Wattons Ford, SU141017; 19 Apr 2015; BSBI[AJR] det. AJR. Flood plain grassland N of lane. Full grid ref SU1414 0171. ARGM photo record 505-510. **New VC record**. Hengistbury Head, SZ163910; 20 Apr 2015; BSBI[AJR] det. AJR. Sandy grassland S of car park. Full grid ref SZ1630 9101. **1st for SZ19**.

***NA *Taraxacum stenacrum* (Sect. Ruderalia):** E of Wattons Ford, SU140014; 19 Apr 2015; BSBI[AJR] det. AJR. Meadow S of lane. Full grid ref SU1400 0148. Voucher Hb MR. ARGM photo record 483-487. **New VC record**.

NA *Taraxacum subhamatum* (Sect. Hamata): Pheasant Pen Rough, SU142016; 19 Apr 2015; BSBI[AJR] det. AJR. Lane verge. Full grid ref SU1429 0165. ARGM photo record 421-423. **1st for SU10**.

NA *Taraxacum sublaeticolor* (Sect. Ruderalia): Bickerley Common, Ringwood, SU147049; 19 Apr 2015; BSBI[AJR] det. AJR. Verge of Bickerley Road. Full grid ref SU1474 0498. ARGM photo record 540-542. **New VC record**.

NA *Taraxacum subundulatum* (Sect. Ruderalia): Meadow S of Bickerley Common, Ringwood, SU145047; 18 Apr 2015; BSBI[AJR] det. AJR. Full grid ref SU1457 0468. Voucher Hb MR. ARGM photo record 412-415. **New VC record**.

?NN *Taraxacum tumentilobum* (Sect. Ruderalia): Hengistbury Head, SZ162908; 20 Apr 2015; BSBI[AJR] det. AJR. Vestigial cliff-top dunes. Full grid ref SZ1624 9088. ARGM photo record 558-560. **New VC record**.

?NA *Taraxacum undulatum* (Sect. Ruderalia): Mill Lawn, Burley, SU223035, SU224035; 18 Apr 2015; BSBI[AJR] det. AJR. Full grid ref SU2248 0359, SU2239 0354. Voucher Hb MR, ARGM photo record 343-346. **New VC record**. Hengistbury Head, SZ161908; 20 Apr 2015; BSBI[AJR] det. AJR. Vestigial cliff-top dunes. Full grid ref SZ1612 9089, SZ1619 9089. ARGM photo record 569-571, 582-585. Hengistbury Head, SZ162909; 20 Apr 2015; BSBI[AJR] det. AJR. Sandy grassland S of car park. Full grid ref SZ1624 9091, SZ1629 9099. ARGM photo record 548-551. **1st for SZ19**.

?NN *Taraxacum wallonicum* (Sect. Erythrosperma): Pheasant Pen Rough, SU142016; 19 Apr 2015; BSBI[AJR] det. AJR. Sandy pasture. Full grid ref SU1424 0159, SU1426 0162,SU1425 0161. Voucher Hb MR. ARGM photo record 432-433, 438. **New VC record**.

***NA *Torilis nodosa* (Knotted Hedge-parsley):** Fratton Industrial Estate, Portsmouth, SU658003; 25 Jun 2015; GFa. 4 well-developed plants on grassy bank between industrial unit and

footpath. **New tetrad**. Sway, SZ276991; 16 May 2015; MWR. Small patch, SZ 2765 9915. **New tetrad**.

****NA *Trifolium fragiferum* (Strawberry Clover):** Upham Village Hall, SU521195; 16 Jul 2015; GCo. **1st for tetrad since 1966**.

***NA *Trifolium glomeratum* (Clustered Clover):** Milford on Sea, SZ286917; 26 Jun 2015; MWR. SZ 2860 9170. **New tetrad**.

NN *Trifolium incarnatum subsp. incarnatum* (Crimson Clover): West Hoe Lane, SU567179; 22 Aug 2015; GCo. Flower head cylindrical. **1st for SU51 since 1930**.

***NA *Trifolium suffocatum* (Suffocated Clover):** Milton Common, SU675009; 04 Oct 2015; HFG[JAN]. Short turf in triangle of track junction, SU6758 0099. **1st for SU60**.

NA *Ulmus minor* (Small-leaved Elm (sensu Stace)): Lepe (Lepe House area), SZ443988; 13 Sep 2015; MWR. Roadside hedge, SZ 4436 9886. **1st for SZ49**.

***NA *Ulmus minor subsp. angustifolia* (Cornish Elm):** Hordle (E side), SZ273951; 15 Jun 2015; MWR. Hedge, Hordle Lane, SZ 2732 9510. **1st for tetrad since 1958**.

NA *Ulmus x hollandica* (Dutch Elm (U. glabra x minor x plotii)): Denmead, north west., SU6512; 01 Oct 2015; AHP & EJC. SU6502 1279, in hedge. Specimen collected. **1st for SU61**.

NA *Ulmus x vegeta* (Huntington Elm (U. glabra x minor)): S of Portsmouth Outdoor Centre, SU675027; 22 Oct 2015; MR & GCo det MR. Forming bulk of young trees/shrubs along former hedge line. Possibly native. **1st for SU60**.

NN *Verbascum phlomoides* (Orange Mullein): Hoe Gate area, south east, SU630129; 03 Sep 2015; AHP & EJC. SU63051290, casual. **1st for SU61**.

****NA *Veronica scutellata* (Marsh Speedwell):** Ratlake monad, SU4123; 08 Jul 2015; MR & DN; Rare. **New tetrad**.

NN *Viburnum rhytidophyllum* (Wrinkled Viburnum): Dundas Lane, Portsea, SU669028; 22 Oct 2015; MR & GCo. Planted into scrubby margins of golf course. **1st for SU60**.

****NA *Viola lactea* (Pale Dog-violet):** Greenmoor area, SZ3399; 21 May 2015; MWR. Grassland, Whitemoor Rough, sparse at SZ 3333 9953, 1 plant at SZ 3328 9948. **1st for tetrad since 1980**.

NN *Weigela florida* (Weigelia): Blashford (Meadow Lake area), SU1407; 30 Sep 2015; MWR. Planted in hedge, Blashford Lakes Nature Reserve, SU 1480 0774. **1st for SU10**.

NN *X Cuprocyparis leylandii* (Leyland Cypress): Horndean North, SU6913; 26 Nov 2015; AHP & EJC. Planted. **1st for SU61**.

NN *Xanthocyparis nootkatensis* (Nootka Cypress): Southampton Common North, SU4115; 08 Apr 2015; PAB; 1 tree. Possibly planted in woods at SU41181506. **1st for SU40**.

NN *Zea mays* (Maize): Wickham Square, SU5711; 18 Sep 2015; GCo. In pavement. **1st for SU51**.

VC12 Records

Compiled by Tony Mundell (November 2015)

Here is a set of my personal selections from the records received recently. As usual I have tended to select the scarcer native species with a sprinkling of interesting aliens.

As usual I have omitted the 'SU' to save space, and I remind you that inclusion of a record does not imply that there is public access, as some of these records were obtained during surveys at the owner's invitation.

It is remarkable how many uncommon plants continue to be found. Of course this is partly because of the enormous recording effort currently underway as part of the national 'Atlas 2020' project. Two of the most notable plants found recently must be Field Eryngo *Eryngium campestre* and the intergeneric hybrid *Erigeron acris x Conyza floribunda* but I have written separate notes about those. Another excellent recent find was Orange Foxtail *Alopecurus aequalis* during the 2015 HFG meeting at Fleet Pond. This was first recorded at Fleet Pond in 1941 but Chris Hall refound it in 1998, 2000 and 2007. It was recorded as a weed in pots of aquatic plants for sale at Longstock Nurseries for a period about a decade ago, but it seems lost from all its other Hampshire sites, such as Tundry Pond where it was last recorded in 1982.

The records below show a number of uncommon Goosefoots *Chenopodium* species. I am pleased that Maple-leaved Goosefoot *C. hybridum* is still hanging on at the Thruxton site. Most Hampshire records for it are clustered in the NW. There are a couple of new sites for Oak-leaved Goosefoot *C. glaucum* which is pleasing as it has been lost from most VC12 sites and is mainly a coastal species. However, the most valuable record for me was the discovery of Nettle-leaved Goosefoot *C. murale* by Tony Davis. There are a few old records but this is now its only surviving site in VC12.

Nettle-leaved Goosefoot *(Tony Davis)*

Surprises still turn up even in areas as well-studied as Eelmoor Marsh, where there is a history of 40 years of botanical recording and continuing survey work virtually every year for the last couple of decades. In the previous *Flora News* I commented briefly on Marsh Clubmoss *Lycopodiella inundata* being found by Fred Rumsey new to that site. Since then both an Eyebright *Euphrasia micrantha* and Bladderwort *Utricularia australis* have been found in new spots on Eelmoor Marsh. Presumably

the Bladderwort was spread as small pieces on bird's feet. The related Lesser Bladderwort *Utricularia minor* has had a population explosion there in recent years, soon colonising suitable wet habitat exposed by the annual winter-works programme.

Plants are very good at responding to positive habitat management. I have seen countless examples of this over the years. Apart from the vegetative spread noted above, seeds are absolutely wonderful. They can lie dormant in the soil for years and then germinate when management actions create the right conditions. One example is the appearance of Ivy-leaved Bellflower *Wahlenbergia hederacea* at Long Bottom, Aldershot on a recently made heathland 'scrape' beside a small stream. This species is teetering on the edge of extinction in North Hampshire, so it is splendid to have it in another spot. In Charles Edgar Salmon's 'Flora of Surrey', published 1931 there is an old record for Ivy-leaved Bellflower by W H Beeby given as 'Below Hungry Hill'. Although Hungry Hill is just a few metres into Surrey, the stream-side site in Long Bottom in Hampshire is below Hungry Hill, so it fits that old record well.

Another recent example of plants responding to sympathetic management is given by the remarkable records below for a couple of scarce arable plants, Ground-pine *Ajuga chamaepitys* and Venus's-looking-glass *Legousia hybrida*. The well-known site for Ground-pine south of Freefolk Wood at Cranbourne had deteriorated in recent years and had become overgrown, with maximum counts of 15 in 2012, 3 in 2013 and only 1 in 2014. Purely by chance Simon Melville and I happened to meet up with a farmer in summer 2014 at Hunton (some miles south of the Ground-pine site). As we chatted about wildflower recording he told us that he had Ground-pine on his land and I realised that he meant the well-known site. He was very proud of his rarity but unaware how precarious its survival was. So I explained that all it needed was annual ploughing in winter without any herbicide in that local area. I got Harold Makant from Natural England to back me up with the same message (as the site was in Higher-level Stewardship). That led to a record 244 Ground-pine plants in 2015 plus over 1,000 Venus's-looking-glass and numerous other scarce arable plants there too. Of course I later congratulated the farmer.

Aconitum napellus **(Monk's-hood)** Baker's Corner 774370, a couple of plants in shady scrub beneath oaks, Steve Povey 22 Jul 2015.

Agrimonia procera **(Fragrant Agrimony)** Two plants in Fleet Pond car park at 8250 5532, HFG 25 Jul 2015.

Agrostis curtisii **(Bristle Bent)** 150+ young tufts on a turf scrape made Nov 2014, Aldershot Heath 8399 5017, Chris Hall 24 Sep 2015. Increasing, c. 300 tufts, Velmead Common 8246 5322–8250 5317, Chris Hall 16 Aug 2015.

Ajuga chamaepitys **(Ground-pine)** Cranbourne, a total of 244 plants in northern field margin thus: 50426 43921 - 11 plants plus 7 plants 50425 43915 - 13 plants 50402 43919 38 plus 40 plants 50394 43921 - 25 plants 50394 43920 - 55 plants 50384 43918 - 39 plants 50375 43914 - 15 plants 50358 43712 - 1 plant, Simon Melville 29 Jul 2015.

Alisma lanceolatum **(Narrow-leaved Water-plantain)** A few plants growing with the much commoner A. plantago-aquatica at Fleet Pond 8233 5513, confirmed by examining seeds under microscope, HFG 25 Jul 2015.

Alnus cordata **(Italian Alder)** In field hedge, south of Shipton Bellinger 2344, John Moon 16 Aug 2015.

Alopecurus aequalis **(Orange Foxtail)** One plant at Fleet Pond 82116 55246, specimen scanned and confirmed under microscope with its tiny awns (unlike the common *A. geniculatus*) HFG 25 Jul 2015.

Anacamptis pyramidalis **(Pyramidal Orchid)** 211 individual plants at Andover 347466, Graeme Davis 22 Jul 2015. On A303 apron on north side of Parkhouse Cross junction 2306 4371, John Moon 23 Aug 2015.

Anagallis arvensis subsp. arvensis f. lilacina **(Scarlet Pimpernel, purple form)** Arable field edge at Vernham Street 3435 5725, Peter Billinghurst 21 Aug 2015.

Anagallis tenella **(Bog Pimpernel)** Yateley Country Park, Hospital Pond Valley 8208 5949, Ian Stoneman 30 Jul 2015. Very few in dried-up pond/bog at Tadley Common 6063 6230 Tony Mundell et al 4 Aug 2015. Two young plants on a turf scrape done in Jan 2015, Brocks Heath 8283 5259, Chris Hall 12 Sep 2015.

Anchusa arvensis **(Bugloss)** Several plants in field, Headley Park 816385, Steve Povey 20 Jul 2015.

Anisantha diandra **(Great Brome)** Manydown Estate 5996 5047, Adam Lucas, Phil Wilson et al 19 Aug 2015. Worthy Down 4593 3569 on north side of public footpath on arable field edge, Brian Laney & Mervyn Brown 24 Sep 2015. Edge of arable field at Binsted 7800 4155, Tony Mundell, Ginnie Copsey & Mary Parker 6 Aug 2015.

Arctium lappa **(Greater Burdock)** A few plants at Sherfield on Loddon 6866 5600 on roadside verge, Tony Mundell & Adam Lucas 23 Jul 2015. Mill Field Conservation Area 662533, corymbose inflorescence and solid lower leaf stalks, Adam Lucas 9 Aug 2015.

Asperula cynanchica **(Squinancywort)** SW corner of Perham Ranges 2345, John Moon 16 Aug 2015.

Atriplex hortensis **(Garden Orache)** Single bronze-leaved plant on recently disturbed ground behind East Stratton Church 541401, Steve Povey 18 Aug 2015.

Baldellia ranunculoides **(Lesser Water-plantain)** Fleet Pond 8244 5509, also several plants at 8234 5513, and many more at 8236 5513, HFG 25 Jul 2015.

Barbarea intermedia **(Medium-flowered Winter-cress)** Arable field corner, Binsted 780408, Tony Mundell, Ginnie Copsey & Mary Parker 6 Aug 2015.

Bidens tripartita **(Trifid Bur-marigold)** Sutton Scotney Service Station, A34, kerb by café 4539, Ginnie Copsey 30 Aug 2015.

Bromus commutatus **(Meadow Brome)** Voucher specimen from arable field corner at Binsted 7807 4090, but seen in numerous other spots in this tetrad, e.g. 780414, 789413 etc. Tony Mundell, Ginnie Copsey & Mary Parker 6 Aug 2015 (Dr Tom Cope lumps this within *B. racemosus* as it is doubtfully distinct).

Bromus secalinus **(Rye Brome)** Overton, North at 5094 5038 on arable field margin, Sarah Ball & Sarah White 12 Aug 2015. SW of Noar Hill in quantity along field edge 739318 and at and around 741317, Steve Povey 30 Jul 2015. N of Priors Dean 724312, in some quantity along field edge, Steve Povey 27 Oct 2015. Voucher specimen collected, locally abundant at Faccombe Wood 3869 5616 in arable field corner, Tony Mundell & Peter Billinghurst 28 Jul 2015.

Calamagrostis epigejos **(Wood Small-reed)** Arable field headland at North Waltham 5683 4647, Tony Mundell & Gareth Knass 21 Jun 2015.

Calystegia pulchra **(Hairy Bindweed)** Voucher specimen collected, roadside verge at Greywell 7220 5128, near to River Whitewater,

Tony Mundell 31 Jul 2015. Single plant on bare ground near cottages, Ovington 559314, Steve Povey 15 Sep 2015.

Campanula poscharskyana **(Trailing Bellflower)** Ovington Churchyard 5609 3160, Andrea Bassett & Loraine Martin 9 Aug 2015. NW of Hawkley 738305, several plants beneath hedgerow some way from nearest dwelling, Steve Povey 20 Oct 2015.

Campanula rapunculoides **(Creeping Bellflower)** Some 20 plants at Hurstbourne Tarrant, Netherton Bottom 385559 & 386561 - NE corner of field and track between fields, Peter Billinghurst 2 Aug 2015.

Cannabis sativa **(Hemp)** About a dozen plants hidden on waste land in centre of slip road loop at Parkhouse Cross 23114381, probably deliberately sown, John Moon 3 Sep 2015.

Carex acuta **(Slender Tufted-sedge)** Patch at Cobden's Copse 7927 4152, stomata only on leaf underside, Tony Mundell, Ginnie Copsey & Mary Parker 6 Aug 2015, voucher specimen confirmed by Mike Porter. Two large patches in wet meadow south of Hartley Wespall, one of them at 6942 5683, Tony Mundell & Adam Lucas 23 Jul 2015.

Carex canescens **(White Sedge)** It has suffered a massive decline at Fleet Pond, where it used to be sub-dominant over a large area. A few plants at 8236 5493 amongst much *Carex acutiformis* and *Juncus effusus*, HFG 25 Jul 2015.

Carex echinata **(Star Sedge)** Fleet Pond 8249 5499, HFG 25 Jul 2015. Locally plentiful at Caesar's Camp 8386 5012 in a boggy area, Tony Mundell 17 Oct 2015.

Carex oederi **(Small-fruited Yellow-sedge)** One outlier plant at Fleet Pond 8246 5508, but many dozens of plants at 8247 5507 and several at 8251 5503, HFG 25 Jul 2015.

Carex rostrata **(Bottle Sedge)** Patches at Fleet Pond 8239 5511 and 8240 5510, HFG 25 Jul 2015.

Carex strigosa **(Thin-spiked Wood-sedge)** Wolverton Common 5626 5857, Sarah Ball & Sarah White 3 Aug 2015. Sherfield on Loddon 6894 5669 on muddy footpath through woods, Tony Mundell & Adam Lucas 23 Jul 2015.

Carex vesicaria **(Bladder Sedge)** Fleet Pond 8244 5509 and 8251 5499, HFG 25 Jul 2015.

Cephalanthera damasonium **(White Helleborine)** SW corner of Perham Ranges 2345, amongst beech trees, John Moon 16 Aug 2015. A few plants at Three Maids Hill 4623 3398, near roundabout, now gone to seed, Graham Long 19 Aug 2015. At least six plants scattered along roadside bank under beech trees at edge of Ropley Chalk Quarry 656306, also two plants in lawn of garden lower down Soames Lane, Mary Flatt 10 Sep 2015.

Ceratocapnos claviculata **(Climbing Corydalis)** Two plants at Eversley Cross 7901 6119 in ditch beside footpath, Tony Mundell 17 Sep 2015.

Chaenorhinum minus **(Small Toadflax)** On fallow conservation strip N of Ibthorpe 3842 5395, Peter Billinghurst 7 Sep 2015.

Chamaemelum nobile **(Chamomile)** Locally very common on playing fields at Queen's Parade, North Camp. For example in 869527extensive, numerous patches from 8692 5283 to 8686 5274, 105 metres long, width variable, up to c.65 metres at 8694 5276. Another patch east of the track c.5 x 3m at 8691 5272. Also similar detailed records within 868528, 868526, 868527, 867528 and 867527 not repeated here. All Chris Hall 10 Oct 2015.

Chenopodium giganteum **(Tree Spinach)** Many plants in arable field at Faccombe 3997 5696, presumably sown as a seed contaminant in crop of what is probably *C. quinoa* (but the crop plants too young to identify), Tony Mundell & Peter Billinghurst 28 Jul 2015. Single plant on recently disturbed ground behind East Stratton Church 541401, Steve Povey 18 Aug 2015.

Chenopodium glaucum **(Oak-leaved Goosefoot)** Single plant on recently disturbed ground behind East Stratton Church 541401 (with ***C. giganteum***), Steve Povey 18 Aug 2015. 20 plants in two adjacent arable field corners S of Eversley 7886 6073, voucher specimen retained, Tony Mundell 17 Sep 2015.

Chenopodium hybridum **(Maple-leaved Goosefoot)** S of Thruxton Race Circuit 27834 45198, Ted Pratt & David Leadbetter 8 Aug 2015.

Chenopodium murale **(Nettle-leaved Goosefoot)** At least six plants in grounds of Manor Farm, Itchen Stoke 5651 3273, Tony Davis & Dan Hoare 15 Sep 2015, photos and voucher specimen collected 4 Oct 2015 confirmed by Tony Mundell.

Cicerbita macrophylla **(Common Blue-sow-thistle)** Beside Snoddington Lane, S of Shipton Bellinger 2344, John Moon 16 Aug 2015.

Cirsium eriophorum **(Woolly Thistle)** Five young plants Andover 379464, in previous years one has made it to maturity, but now mown closer, Graeme Davis 21 Aug 2015.

Comarum palustre **(Marsh Cinquefoil)** Large colony at Fleet Pond 8247 5499 plus a few at 823551, HFG 25 Jul 2015.

Cotoneaster bullatus **(Hollyberry Cotoneaster)** A large bird-sown bush, over 2m tall, with many bright red berries at Basingbourne Heath, Church Crookham 8087 5261, Tony Mundell 10 Sep 2015, specimen det. Jeanette Fryer 26 Oct 2015.

Cruciata laevipes **(Crosswort)** Overton, North 5088 5051 beside bridle track on railway bridge, Sarah Ball & Sarah White 12 Aug 2015.

Daphne laureola **(Spurge-laurel)** Selborne Common Hanger 738333, Steve Povey 25 Jul 2015. Dozens of plants at Cobden's Copse 7927 4151, more at 7931 4140, Tony Mundell, Ginnie Copsey & Mary Parker 6 Aug 2015. SW of Noar Hill c.7375 3135, Mary Parker 8 Aug 2015.

Dittrichia graveolens **(Stinking Fleabane)** About 100 plants along about 50m of verge beside A303 slip road on north side at Parkhouse Cross 23034372, John Moon 3 Sep 2015.

Drosera intermedia **(Oblong-leaved Sundew)** Many hundreds of plants on the edges of ephemeral pools near the southern end of Woolmer Pond at and around 7865 3167, Steve Povey 9 Sep 2015. One plant on a turf scrape made Nov 2014, Caesar's Camp 8350 5049, Chris Hall 23 Sep 2015.

Drosera rotundifolia **(Round-leaved Sundew)** Plentiful in bog, Woolmer Forest 793322, Steve Povey 1 Sep 2015. Nine young plants on a new turf scrape made Nov 2014, Caesar's Camp 8347 5038, Chris Hall 19 Sep 2015.

Epilobium palustre **(Marsh Willowherb)** Frequent among herbage on damp ground at southern end of Woolmer Pond 786316, Steve Povey 9 Sep 2015. A few plants beside MoD track, Liss Forest 781296, Steve Povey 25 Sep 2015.

Epilobium x floridulum **(E. parviflorum x ciliatum)** Three hybrid plants varying between the two parents, on recently disturbed ground behind East Stratton Church 5409 4011, Steve Povey 18 Aug 2015. Neither of the parents nearby.

Epipactis phyllanthes **(Green-flowered Helleborine)** Single plant on bank beneath beech alongside Whitmore Vale Road, Barford East, VC12 part, 8521 3739, Steve Povey 28 Jul 2015.

Epipactis purpurata **(Violet Helleborine)** Two single-stemmed plants and one with six stems beside path on Selborne Common Hanger 738333, Steve Povey 25 Jul 2015. 11 plants near to Chawton Park Wood car park, some going over. One at 6726 3612 at southern edge of a large beech, one at 6726 3615 next to a Hazel stool on the bank, one at 6727 3615 on the opposite bank, and eight at 6728 3612 next to the conifer plantation, Graham Long 5 Sep 2015. On shady sunken track, Little Ham Farm, Westfield Copse 571608, Graham Dennis 12 Sep 2015.

Erigeron acris x Conyza floribunda **(An unnamed x Conyzigeron hybrid)** About 20 plants on the M3 Winnall roundabout, first found by Paul Stanley 27 Sep 2015. Tony Mundell visited the site on 29 Sep 2015 and found about 6 plants at 4975 3042 at the eastern end of the roadside crash-barrier, with more scattered plants further east amongst both parents on the SE part of the

roundabout at 4976 3043, 4978 3045, 4980 3049, extending to 4980 3050 6m north of a large road sign.

Eryngium campestre **(Field Eryngo)** One large plant beside the slip road onto the A34 at the northern edge of the northbound service station at Sutton Scotney 4592 4012, Paul Stanley 6 Aug 2015.

Euphorbia characias **(Mediterranean Spurge)** Many plants established in low scrub at end of Town Lane, Sheet (VC12 part) 756242, surely originally planted, Steve Povey 13 Oct 2015.

Euphorbia exigua **(Dwarf Spurge)** Scattered plants in field corner, Armsworth 614374, Geoffrey Farwell 25 Jul 2015. Northern edge of arable field, Cranbourne 5043, Simon Melville 29 Jul 2015. West margin of field adjoining Augurs Hill Copse (Demolition Field) 385428, John Moon 28 Aug 2015. Edge of arable field at Shipton Bellinger 2377 4588, John Moon 3 Sep 2015. On new Picket Twenty playing fields around 386459, frequent in bare patches, John Moon 21 Sep 2015.

Euphorbia lathyris **(Caper Spurge)** In lane between houses Shipton Bellinger 233 452, John Moon 16 Aug 2015.

Euphorbia oblongata **(Balkan Spurge)** Voucher specimen retained. Numerous plants on both sides of lane, Tadley 6100 6184 to 6099 6184, seeded across lane from an adjacent garden, Tony Mundell et al 4 Aug 2015.

Balkan Spurge showing the hemisherical warts, Tadley 4 August 2015 *(Tony Mundell)*

Euphrasia micrantha **(An Eyebright)** A few plants scattered on open, damp MoD tracks Liss Forest 7860 2973, specimen retained, Steve Povey 25 Sep 2015. Two or three plants beside Laffan Track, Eelmoor Marsh 8377 5302, small purple flowers and spindly growth habit, Tony Mundell 30 Sep 2015, it is possible that these are *E. nemorosa x micrantha* but with so few plants present I could not collect a specimen to be expertly checked. Certainly *E. nemorosa* is plentiful along this track.

Fagopyrum esculentum **(Buckwheat)** On broad headland, Vernham Street 340574, Peter Billinghurst 21 Aug 2015.

Filago minima **(Small Cudweed)** Two very small plants c10mm, Headley Gravel Pit 511627, Graham Dennis 26 Jul 2015. Scattered on bare sand on Slab Common 7835, Steve Povey 7 Aug 2015.

Filago vulgaris **(Common Cudweed)** Dozens of unusually large multi-stemmed plants forming clumps 20cm in diameter and 15cm high, scattered across two arable fields NW of Fleet, spread across 784548, 784549 and 784550, also huge numbers of typical small plants with few stems beside sandy Motocross track at 7804 5532, Tony Mundell & Andy Cross 8 Aug 2015.

Filipendula vulgaris **(Dropwort)** Headley Gravel Pit 511627, first time I've seen it on this site, Graham Dennis 26 Jul 2015. Small patch at Perham Ranges 2385 4651, John Moon 21 Aug 2015.

Fumaria densiflora (Dense-flowered Fumitory) Manydown Estate 594490, abundant along field margin, Adam Lucas, Phil Wilson et al 19 Aug 2015.

Fumaria parviflora **(Fine-leaved Fumitory)** Manydown Estate 5994 5043, Adam Lucas, Phil Wilson et al 19 Aug 2015.

Galeopsis angustifolia **(Red Hemp-nettle)** Old Burghclere Lime Quarry 471572, about 150 plants inside rabbit enclosure and 60 plants outside, Graham Dennis 3 Aug 2015. Manydown Estate 5942 5006 (one quite large plant) and 5938 5006 (three smaller plants), Adam Lucas, Phil Wilson et al 19 Aug 2015.

Galinsoga parviflora **(Gallant Soldier)** Single plant by Tesco Store in Liss village 777275, Bill Lowe 4 Nov 2015.

Gaultheria shallon **(Shallon)** In woodland SE of Whitmore Vale 861360, Steve Povey 28 Jul 2015.

Gentiana pneumonanthe **(Marsh Gentian)** Total of 931 flowering plants counted for whole of Bartley Heath within area bounded by 727533, 730533, 727536 and 730536, Peter Vaughan & HIWWT 30 Aug 2015.

Geranium pusillum **(Small-flowered Crane's-bill)** Beside tarmac path to Cove Brook bridge, West Heath. Outer five stamens lack anthers, smooth seeds in hairy mericarp, Tony Mundell, Ginnie Copsey & Mary Parker 1 Aug 2015. Manydown Estate 5949 4972, two plants by field edge, Adam Lucas, Phil Wilson et al 19 Aug 2015.

Geranium rotundifolium **(Round-leaved Crane's-bill)** Tadley 6053 6181, at foot of hedge along public footpath and on roadside verge at 6101 6204, Tony Mundell et al 4 Aug 2015.

Geranium sanguineum **(Bloody Crane's-bill)** In lane between garden fences Shipton Bellinger 2335 4525, John Moon 16 Aug 2015.

Glebionis segetum **(Corn Marigold)** Several plants on recently disturbed ground behind East Stratton Church 541401, Steve Povey 18 Aug 2015. Road verge, Ibthorpe 3780 5367, Peter Billinghurst 22 Sep 2015.

Hedera colchica **(Persian Ivy)** S of Eversley beside track at 7835 6076, Tony Mundell 17 Sep 2015.

Hordeum secalinum **(Meadow Barley)** Locally plentiful at Cobden's Copse 7944 4131, in meadow beside the copse, Tony Mundell, Ginnie Copsey & Mary Parker 6 Aug 2015.

Hottonia palustris **(Water-violet)** Patch c. 1 metre across in Gelvert Stream overflow channel at Fleet Pond 8255 5488, Tony Mundell & HFG 25 Jul 2015.

Hydrocotyle ranunculoides **(Floating Pennywort)** Patch on Hampshire bank of River Blackwater at Yateley 8187 6204, Tony Mundell 23 Oct 2015. (This is one of the most invasive alien plants. It can clog waterways but (ironically though insufficient mismanagement!) this area of the R. Blackwater is too densely shaded by trees for it to spread.)

Hyoscyamus niger **(Henbane)** Ashe Warren and Deane 5466 5172 on arable headland, Sarah Ball & Sarah White 17 Aug 2015.

Hypopitys monotropa **(Yellow Bird's-nest)** 65 plants counted in leaf-litter beside woodland path at and around Wheatham Hill 7493 2708, Steve Povey 4 Aug 2015. About 30 spikes, now gone over, on the outside of Noar Hill Reserve fence at the Violet Helleborine site [so 7452 3186], Graham Long 15 Aug 2015.

Impatiens parviflora **(Small Balsam)** SW of Priors Dean 713281, single plant in farmyard, Steve Povey 21 Aug 2015. A few

plants in Tankerdale Lane 765258 near railway, Steve Povey 1 Oct 2015.

***Juncus x kern-reichgeltii* (J. conglomeratus x effusus)** Clearing in Cobden's Copse at 7943 4133. Stems with 24 ridges (like J. conglomeratus) but main bract not opened out beside inflorescence. Some of inflorescences on peduncles (like *J. effusus*, not *J. conglomeratus*), Tony Mundell, Ginnie Copsey & Mary Parker 6 Aug 2015.

***Lactuca virosa* (Great Lettuce)** Ashe Warren and Deane 5475 5078, railway bridge/roadside verge, Sarah Ball & Sarah White 18 Aug 2015.

***Legousia hybrida* (Venus's-looking-glass)** 1,000+ plants both in northern and eastern field edge at Cranbourne as far south as 50589 43420, Simon Melville 29 Jul 2015. Ginnie Copsey visited the same site on 13 Aug 2015 and photographed a patch of 50 plants in a 2 metre square at 505434.

***Lepidium campestre* (Field Pepperwort)** About ten plants in field corner at North Waltham 5723 4682. Fruits covered in scale-like translucent vesicles, longest styles just barely exceed fruit, Tony Mundell & Gareth Knass 21 Jul 2015.

***Lepidium ruderale* (Narrow-leaved Pepperwort)** On southbound A34 verge at Headbourne Worthy 492319 and Winchester 495306, spotted while queuing in traffic, Tim Rich 24 Oct 2015.

***Liriodendron tulipifera* (Tulip-tree)** Many huge trees in Cobden Copse at 7929 4142, Tony Mundell, Ginnie Copsey & Mary Parker 6 Aug 2015.

***Melampyrum pratense* (Common Cow-wheat)** Woodland beside track, Baughurst, West Heath 581595, Sarah Ball & Sarah White 22 Jul 2015.

***Mercurialis annua* (Annual Mercury)** Round farm buildings at Grateley 253414 and in ploughed strip north of track 254414 to 256415, Peter Billinghurst 1 Aug 2015. On new Picket Twenty playing fields around 386459, John Moon 21 Sep 2015.

***Misopates orontium* (Weasel's-snout)** A plentiful weed in allotments at Tadley 6044 6176 and 6046 6176, Tony Mundell et al 4 Aug 2015.

***Myosotis secunda* (Creeping Forget-me-not)** Plentiful in ditch at Longmoor Airstrip 8083 3138, creeping habit, lower stem with patent hairs, upper stem with adpressed hairs, calyx teeth narrower than M. laxa (isosceles rather than equilateral triangle shape), flowers a paler blue, Tony Mundell 25 Oct 2015.

***Orobanche hederae* (Ivy Broomrape)** Alresford Pond 588330, west of B3046, Dave Pearson 26 Jul 2015.

***Papaver argemone* (Prickly Poppy)** Ashe Warren and Deane 5435 5161, many scattered on arable field margin and corner, Sarah Ball & Sarah White 17 Aug 2015.

***Parentucellia viscosa* (Yellow Bartsia)** Longmoor Airstrip, four at 8088 3138, 20 under willows at 8084 3135 and six at 8090 3137, Bill Wain 25 Jul 2015.

***Paris quadrifolia* (Herb-paris)** Plentiful scattered throughout Cobden's Copse 793414, 792414, 792415, certainly over a hundred plants, Tony Mundell, Ginnie Copsey & Mary Parker 6 Aug 2015.

***Parthenocissus inserta* (False Virginia-creeper)** Patch in woods not far from houses at Hawley Common 8446 5754, no suckers at tips of tendrils, Tony Mundell, Ginnie Copsey & Mary Parker 1 Aug 2015. All along road verge near Parkhouse Motel 2312 4353, John Moon 3 Sep 2015.

***Persicaria wallichii* (Himalayan Knotweed)** Two large clumps beside the B2070 between Stodham Lane and Pruetts Lane 7725, Steve Povey 8 Sep 2015.

***Poa angustifolia* (Narrow-leaved Meadow-grass)** In brickwork of bridge at 235445 in Snoddington Lane, south of Shipton Bellinger, John Moon 16 Aug 2015.

***Prunus serotina* (Rum Cherry)** Hawley Common 8438 5747 and 8427 5745 but also in other spots nearby. Brown hairs on midrib under leaves, keys to this rather than *P. padus*, Tony Mundell, Ginnie Copsey & Mary Parker 1 Aug 2015.

***Ranunculus lingua* (Greater Spearwort)** Cove Brook, West Heath, beside stream at 8567 5663 and 8573 5660, Tony Mundell, Ginnie Copsey & Mary Parker 1 Aug 2015.

***Sambucus ebulus* (Dwarf Elder)** Still a few plants beneath wall near entrance to Goleigh Manor 734313, Steve Povey 18 Aug 2015. Large clump by building at Longmoor 7929 3146, Steve Povey 9 Sep 2015.

***Samolus valerandi* (Brookweed)** Six plants in puddles at Longmoor Airstrip 8075 3124, still in flower, Tony Mundell 25 Oct 2015.

***Securigera varia* (Crown Vetch)** Patch beside track at Tadley 6047 6173, Tony Mundell et al 4 Aug 2015.

***Silene noctiflora* (Night-flowering Catchfly)** Manydown Estate 59942 5003 and 5955 5002, Adam Lucas, Phil Wilson et al, 19 Aug 2015.

***Silybum marianum* (Milk Thistle)** Cranbourne 503433, Ginnie Copsey 13 Aug 2015, photo confirmed Tony Mundell.

***Sparganium emersum* (Unbranched Bur-reed)** Cove Brook, near West Heath 8573 5660, Tony Mundell, Ginnie Copsey & Mary Parker 1 Aug 2015.

***Spirodela polyrhiza* (Greater Duckweed)** A few fronds mixed with much *Lemna minuta* at Sandy Bay Fleet Pond 8237 5497. Specimen frond scanned showing characteristic reddish colour beneath and with numerous roots, HFG 25 Jul 2015. Dominant across whole of pond S of Eversley 7867 6076, Tony Mundell 17 Sep 2015.

***Stachys arvensis* (Field Woundwort)** Manydown Estate 5953 5006, Adam Lucas, Phil Wilson et al 19 Aug 2015.

***Teucrium botrys* (Cut-leaved Germander)** In the railway sidings at Micheldever 518429, visible by walking north on the middle platform, at sign for 'Car stop 2-4' look right into the sidings, Paul Stanley 27 Sep 2015.

***Thesium humifusum* (Bastard-toadflax)** About a dozen small plants on grassy apron adjacent to former 4WD track, Perham Ranges 2376 4620, John Moon 21 Aug 2015.

***Thymus pulegioides* (Large Thyme)** In Ashford Hill church yard 549621 on anthills, Sarah White 21 Jul 2015.

***Torilis nodosa* (Knotted Hedge-parsley)** At least seven plants at Aldershot 8653 5052 on the edge of the grass by the flats, just in front of the wall that runs around the flats, the grass had been recently strimmed, Isobel Girvan 19 Jul 2015.

***Turritis glabra* (Tower Mustard)** Woolmer, Linchborough, could only find two plants, they were right beside the tall conifer at 81389 33448 and not at all on the recently well disturbed soil around there, Bill & Chris Wain 19 Jul 2015.

***Utricularia australis* (Bladderwort)** At Blackmoor 7887 3346 in a deep 'canal' cut across a boggy area, John Buckley 20 Aug 2015, specimen confirmed by Tony Mundell. 'A few stems' first noted by Chris Hall on 23 July 2015 in a ditch at Eelmoor Marsh 8338 5309. A specimen collected by Chris Hall on 27 Aug 2015 was confirmed as *U. australis* by Tony Mundell when there were 'c.20 stems, large plants'. This overgrown ditch was cleared on 28 Nov 2014.

***Verbascum densiflorum* (Dense-flowered Mullein)** Locally plentiful S of Thruxton Race Circuit, e.g. 27845 45026, Ted Pratt & David Leadbetter 8 Aug 2015.

***Wahlenbergia hederacea* (Ivy-leaved Bellflower)** A single young plant where first found very recently by Chris Hall, extending 17cm x 10cm at 83927 49694 on a scrape made in Nov 2014 beside a small stream, confirmed Tony Mundell 17 Oct 2015.

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

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

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When submitting digital photographs, please reduce the size of each image to no larger than 2MB and please include your own name in the filename, along with description of subject and date taken for inclusion in the caption. Please include English and scientific names of any plants.

If you would like to send in your plant records, please see the Hants Plants website: http://www.hantsplants.org.uk for information, including downloadable forms, or contact your relevant vice-county Recorder:

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'Gazing at conifers' – participants at the conifer workshop, 31 October 2015 (see p.8) *(Tony Mundell)*

If you would like to join Hampshire & Isle of Wight Wildlife Trust and become a member of the Flora Group please contact our Membership Team on 01489 774400 or visit our website for further details: www.hiwwt.org.uk

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