

KENT BOTANICAL RECORDING GROUP

NEWSLETTER No. 5

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Front cover: Apologies to Lewis Carroll! An eye-catching botanical 'soup' at the margins of a wet area on the grazing marshes north of Iwade, containing fruits of *Rumex conglomeratus* (Clustered Dock) and *Rumex palustris* (Marsh Dock). Photograph by Liam Rooney, 23 October 2012.

Eric Philp

We are pleased to report that our president, Eric Philp, has been released from hospital on 20 December, having been treated for a stroke which followed completion of a course of chemotherapy. We are sure that all members will be wishing him well and hope to see him back at field meetings in 2013.

2012 field meeting reports



13 June 2012: Godmersham Downs



The ups and downs of Godmersham. Photograph by Liam Rooney

The primary purpose of the meeting was, with the kind permission of the Godmersham Estate, to undertake a BSBI threatened plants project survey for *Orchis anthropophora* (Man Orchid) and its associated flora where found by the Nature Conservancy Council in 1988. It was co-led by Alfred Gay and Sue Buckingham, and 16 botanists attended. Despite so many pairs of eyes and a thorough search, unfortunately we did not find any Man Orchids. However, we were treated to an excellent display of *Polygala amarella* (Kentish Milkwort) - at least 46 flowering plants were counted, but the real number flowering on the site may well have been closer to 100, if not more. It is possible that a lot of recent rain and a slight relaxation of the grazing regime may have helped produce this impressive display.

The *Polygala* is an inconspicuous plant, perhaps most visible on a hands-and-knees search, so there were limits to what we could achieve in searching. We also took the opportunity of undertaking some general recording whilst on land not normally accessible, and had the advantage of the presence of both Eric Philp and Mervyn Brown to assist with grass identification. Distinguishing between *Festuca rubra* (Red Fescue) and *Festuca ovina* (Sheep's-fescue) was a particularly helpful exercise.

After lunch, at Eric's suggestion, we crossed the road and visited the banks of the River Stour where the rare Pondweed hybrid, *Potamogeton x salicifolius* has been known for many years in its sole Kentish station. However, the water levels were high, the fishermen had cut the river banks steeply to the discouragement of the growth of aquatics, and no *Potamogeton* was to be found. Many general records were added to the morning's list here.

Around 3.30 p.m., half a dozen members decided to add an extra session with a visit to the Kneading Trough at Wye NNR. A search for early flowering *Herminium monorchis* (Musk Orchid) was inconclusive, but Geoff Joyce, Heather Silk and Jan Armishaw managed to locate two fine flowering plants of *Orchis fuciflora* (Late Spider-orchid), a useful record as it is not clear that this species is receiving regular recording attention at Wye.

So, overall the meeting did not find some of the plants which were sought, but this was counter-balanced by other finds made, and the fine weather.



27 June 2012: The Dowels

Thirteen KBRG members, including a Sussex contingent, plus Naomi Dalton (a Bristol PhD student) met at the car park by the Royal Military Canal on a warm and humid morning. Owen Leyshon had arranged for us to have access over several landowners' holdings, although in the event we did not have time to explore anything like their full extent.



The grazing fields alongside the RMC were bounded by a network of ditches in which, for the most part, the real botanical interest lay. Several members were thoroughly equipped: grapnels of varying sophistication were brought into use. Owen was also burdened with rescue equipment should anyone fall in, but fortunately there was no call for its use.

The first ditch
Photograph by Owen Leyshon

We began with hauling out some *Elodea nuttallii* (Nuttall's Waterweed) and a slender leaved *Potamogeton* which turned out to be *P. pectinatus* (Fennel Pondweed). Also clearly visible were the large leaves of *P. lucens* (Shining Pondweed); and we had hardly got going before a somewhat brownish ribbon-leaved *Potamogeton* was found and identified as the Critically Endangered species, *P. acutifolius* (Sharp-leaved Pondweed). We were also to see this last species in other ditches, so the Dowels clearly holds a significant quantity in national terms, just it does with *Sium latifolium* (Greater Water-parsnip), a nationally Endangered species. *S. latifolium* was noted as emerging from fairly deep water in the same ditch (and in both deep and shallower marginal areas elsewhere).

Eventually, after a prolonged search of the first enclosure, as a result of which we also noted *Ceratophyllum demersum* (Rigid Hornwort) and – another aquatic with rigid, branched and spreading narrow leaves – *Ranunculus circinatus* (Fan-leaved Water-crowfoot), we moved on to the next field. Owen pointed out a moorhen's nest high up in a hawthorn tree and we worked along to a narrower and more congested ditch. Here, Jon Bramley demonstrated his habitat knowledge by declaring that it was just right for *Wolffia arrhiza* (Rootless Duckweed – a nationally Vulnerable species). And so it was: barely visible, because so small, amongst other duckweeds and *Hydrocharis morsus-ranae* (Frogbit – also a nationally Vulnerable species), but detectable as feeling gritty when rolled between finger and thumb.

Further along, a short stretch of muddy margin held the leaves of *Hottonia palustris* (Water-violet). By this time we were just about to enter the next field – still well in sight of the car park which was our starting point. We then stopped for lunch, the Romney Marsh sheep keeping well away from us. *Stellaria palustris* (Marsh Stitchwort) had been recorded in this vicinity some years before, and so we worked the ditches very thoroughly.

Eventually we saw Stitchwort flowers on the far bank of a ditch and trekked to a crossing point only to find that these were of *Stellaria graminea* (Lesser Stitchwort) – see the photograph below –and the Marsh Stitchwort remained elusive.



The group tries to find Marsh Stitchwort. Photograph by Geoffrey Kitchener

We then joined the public path alongside the Royal Military Canal, which carried floating leaves of *Sagittaria sagittifolia* (Arrowhead), but much less *Nymphoides peltata* (Fringed Water-lily) than might normally have been expected. From the path, we reverted to the grazing fields, seeing some very large plants of *Oenanthe aquatica* (Fine-leaved Water-dropwort) with massive hollow stems. Our second Water-crowfoot was found in a ditch – *Ranunculus trichophyllus* (Thread-leaved Water-crowfoot) with its small flowers and capillary leaves. Just beyond this, Jan Armishaw drew attention to a similar plant with larger flowers and both laminar and capillary leaves. On examination it was found to have pear-shaped nectar pits at the base of the petals and was identified as *Ranunculus peltatus* (Pond Water-crowfoot), an increasingly rare Kentish plant.

An ungrazed field further on held much brome-grass with small, delicate spikelets. This was tentatively identified as either *Bromus lepidus* or (to the extent that this is currently regarded as a hybrid taxon) *Bromus x pseudothominei* (Lesser Soft-brome) and subsequent research confirmed it be the latter plant. Then we saw a purple shimmer over a circular area which as we approached became apparent as a bent-grass about to flower – a dense mat of rhizomatous growth where subject to winter inundation. This was true *Agrostis canina* (Velvet Bent). The ditch beyond this, which was our furthestmost point of exploration, was found by Naomi Dalton to be displaying *Hottonia palustris* (Water-violet) in flower.



The return journey by the Royal Military Canal – Daphne Mills secures a specimen of Calvatia gigantea (Giant Puffball) for the larder...

Photograph by Geoffrey Kitchener

We returned via the canal-side path and remarked on the exceptional quality of the Dowels ditch flora we had encountered during the day, even with the relatively small area which we covered. We made 114 records in TQ9731, and 47 records in TQ9730. We did not record fully in the latter monad, given that our recording approach is not to be concerned about recording all the common plants in a monad, where we have already seen the species elsewhere in the same tetrad.



1 July 2012: Walmer

Seven members met for the Walmer Beach to Oldstairs Bay meeting on a day forecast for showers; a great improvement on the continuous rain which we had on last year's attempt at this venue. We walked fairly quickly along the stretch of beach which we had covered well last July, adding two plants for the Rare Plant Register in the first monad from some grassland. These were two flowering spikes of *Himantoglossum hircinum* (Lizard Orchid) and a patch of *Medicago polymorpha* (Toothed Medick). Nearby was some *Avenula pratensis* (Meadow Oat-grass), and *Trifolium scabrum* (Rough Clover) was abundant. Last year the little annual pea-flowers were scarce here because of the dry weather.

As we approached Kingsdown we began to see some established alien plants on the beach. New for this year were *Sedum spurium* (Caucasian-stonecrop), *Dianthus caryophyllus* (Clove Pink), a single plant of *Helychrysum italicum* ssp. *microphyllum* (Curry Plant) and *Lonicera japonica* (Japanese Honeysuckle). The annual grass, *Lagurus ovatus* (Hare's-tail), was just spilling out of a front garden onto the roadside and *Geranium pratense* (Meadow Crane's-bill) had established itself beside an interesting area of waste ground. Around this point, with very little shelter, we were struck by our second particularly heavy downpour driven by an unseasonably cold wind, but we braved it all and carried on regardless.

Geoff Joyce captures two plants for the price of one photograph.

Photograph by Sue Buckingham



Some *Hieracium grandidens* (Grand-toothed Hawkweed) was still flowering on the waste ground; its identity had been confirmed for Sue by Eric Philp a few weeks earlier. The Hawkweed is very well established here unlike the next plant *Potentilla recta*, (Sulphur Cinquefoil) with only one individual; and a single *Laurus nobilis* (Bay) had established itself on the shingle well away from houses near the pub.

Lunchtime saw the last of the rain and the afternoon became dry and sunny so we continued our exploration along the shingle of Oldstairs Bay, adding *Filago vulgaris* (Common Cudweed), *Rhinanthus minor* (Yellow-rattle), *Anacamptis pyramidalis* (Pyramidal Orchid) and *Orobanche minor* (Common Broomrape). The beach here is a SSSI and as we continued, it became mostly free of non-native plants. Under the chalk cliffs we admired a known colony of *Orobanche picridis* (Oxtongue Broomrape), finding four very fine specimens in a slightly different location from where already recorded. On our rather long walk back along the road to the car park by Walmer Castle we were shown a fine colony of *Anacamptis pyramidalis* (Pyramidal Orchid) by a local lady on a front lawn in Kingsdown village.

The list circulated to members by email for the day is only of those species which have not already been recorded in these monads. We saw many more than those listed.



7 July 2012: Limpsfield Chart / Crockhamhill Common

Our numbers fluctuated during the day, but up to 20 botanists attended this joint meeting between KBRG and Surrey Botanical Society, led by Caroline Bateman for Surrey and Geoffrey Kitchener for Kent. It was just as well that we had chosen Saturday, rather than Sunday, on this weekend, or the alternative attractions of the Wimbledon men's singles final might have proved as strong as botany!

This cross-border meeting featured the high chartlands, the top of the Lower Greensand ridge, whose sandy/cherty cover is too poor for agriculture and sustains much birch / oak woodland. These impoverished conditions, together with the location on the county boundary, probably mean that the area is infrequently botanised, but we found much of interest.



Negotiating a stile near the River Darent headwaters. Photograph by Geoffrey Kitchener

Beginning near St Andrew's church at Limpsfield Chart, Surrey, we saw a strong clump of *Carex muricata* ssp. *pairae* (Prickly Sedge) by the lychgate and *Hieracium trichocaulon* (Hairy-stemmed Hawkweed) nearby. After a tour of the nearby common we set off through woodland along the Greensand Way, reaching the Kent boundary just west of Goodley Stock Road by lunchtime. We stopped for refreshment at a clearing just west of the road and a splinter group explored the roadside banks for their hawkweeds, being aware that the *New Atlas of the Kent Flora* (Philp, Kent Field Club, 2010) holds records for *Hieracium acuminatum* and *H. surreyanum* in this vicinity. We found some specimens of a hawkweed which did not seem to match these species and will be the subject of further study. There was also at least one other species which was not then

determinable, as being unlikely to flower before August. The banks were notable for the presence of Southern and Hairy Wood-rushes, *Luzula forsteri* and *L. pilosa*, together with several hybrid plants (*Luzula x borrieri*).

Our lunch spot held *Doronicum pardalianches* (Leopard's-bane), which was well naturalized, and the shady woodland beyond it was home to large quantities of *Impatiens parviflora* (Small Balsam). The meeting then elected to foray further into Kent, with a view to exploring the upper reaches of the River Darent. On the way we passed *Frangula alnus* (Alder Buckthorn), *Betula x aurata* (Hybrid Birch) and *Epipactis helleborine* (Broad-leaved Helleborine) in the woodland, and some good ferny banks bearing *Blechnum spicant* (Hard-fern), with its conspicuously different fertile and sterile fronds, *Athyrium filix-femina* (Lady-fern) and a small specimen of *Polystichum aculeatum* (Hard Shield-fern). A discussion regarding *Agrostis vinealis* (Brown Bent) was not conclusive at the time, but material collected by Sue Buckingham was subsequently determined as this species, an addition to our rare plant register listings.

Emerging from the woodland, we entered a small valley pasture where a small stream trickling from the grounds of Crockham House represents the beginnings of the river on its journey to the Thames near Dartford. The banks and marshy areas held a very different flora to what we had encountered thus far. We recorded *Chrysosplenium oppositifolium* (Opposite-leaved Golden-saxifrage), *Silene flos-cuculi* (Ragged-Robin), *Myosotis laxa* (Tufted Forget-me-not) and, after some debate about the joints in Jointed Rush, *Juncus articulatus*. It was gratifying that no-one went into any marsh over wellington-boot level, as had befallen Caroline on a reconnaissance session earlier in the week.

The circuit then took us across Kent Hatch Road and into Surrey along footpaths traversing the upper parts of the wooded scarp slope of the Greensand Ridge. Just before emerging from the woods we stopped to look at *Hedera hibernica* (Atlantic Ivy) with its flat-lying pale brown hairs on the leaf undersides and a patch of *Fallopia x bohémica*, the hybrid between Giant and Japanese Knotweeds, bearing large leaves with a range of variation in the shape of the leaf bases. At the top of Treverex Hill we regained our start point for the refreshments which are part of the Surrey Botanical Society's tradition. We had dipped into four monads on the Kent side of the county (and vice county) boundary, making a total of 246 Kent records.

Many thanks to Caroline Bateman for organising the Surrey side of the meeting.



16 July 2012: Orlestone Forest

Five members met in the Faggs Wood Forestry Commission Car Park for this meeting which had been rescheduled from the original date in order to avoid the Olympic Torch relay in nearby Ham Street. The main



purpose of the meeting was to find and identify *Agrostis vinealis* (Brown Bent) and we planned to explore the northern part of the Forest, Longrope and Birchett Woods, in the morning and then take a look at the Faggs Wood area to the south, if time permitted.

Umbrellas compulsory!

Photograph by Owen Leyshon

However this was a very wet day and not ideal for spotting a grass that was always going to be difficult to find even in the best weather. The paths were flooded and the mosquitoes out in force but our

small group was undaunted and proceeded with general recording as well as looking for the target species.

The first interesting find was *Pimpinella major* (Greater Burnet-saxifrage) along the roadside; and *Rhinanthus minor* (Yellow-rattle) was a surprise on the edge of a ride. The forest rides were very colourful with *Trifolium medium* (Zigzag Clover), *Lotus pedunculatus* (Greater Bird's-foot-trefoil) and many more common species.

Some large blocks of forest had been cleared in recent years and colonised by *Senecio sylvaticus* (Heath Groundsel), *Solidago virguarea* (Golden-rod), *Polygala serpyllifolia* (Heath Milkwort) and *Dryopteris carthusiana* (Narrow Buckler-fern). We recorded self-sown *Pseudotsuga menziesii* (Douglas Fir), *Picea abies* (Norway Spruce) and *Tsuga heterophylla* (Western Hemlock-spruce).

Orlestone Forest has a number of small pools and beside one, *Carex canescens* (White Sedge), which had been recorded here previously (at its only current Kent station), still had some fruits remaining; and we admired a large stand of *Calamagrostis epigejos* (Wood Small-reed) in a drainage ditch nearby.

On the higher and normally drier eastern section in Birchett Wood, we found *Calluna vulgaris* (Heather), and here was probably our best chance of finding *Agrostis vinealis* but the heather growth was tall and rank and seemed unsuitable. We added *Salix aurita* (Eared Willow) and *Pedicularis sylvatica* (Lousewort); and finally, back at the car park, *Lathyrus linifolius* (Bitter-vetch) was a good discovery.



2012: Sissinghurst

Twelve members met at the National Trust car park by Sissinghurst Castle hoping to find *Wahlenbergia hederacea* (Ivy-leaved Bellflower) in the woodlands around the estate, where pre-2010 records exist for Roundhill Park Wood.

Our route took us past the house and gardens where we found a single plant of *Cynara cardunculus var scolymus* (Globe Artichoke) which, although it was not far from the gardens, certainly did not look as if it had been planted beside the footpath. Beyond the house a path leads down to a couple of lakes where we found *Scutellaria galericulata* (Skullcap) at the water's edge. The footpath continues into Roundhill Park Wood where we began a diligent search for *Wahlenbergia*, carefully inspecting the margins and banks of the woodland rides where we found plants typical of the damp acidic woodland soils: *Potentilla erecta* (Tormentil), *Scutellaria minor* (Lesser Skullcap), *Lythrum portula* (Water-purslane) and *Gnaphalium uliginosum* (Marsh Cudweed). *Isolepis setacea* (Bristle Club-rush) was an interesting find here, also *Galeopsis bifida* (Bifid Hemp-nettle) and *Hypericum humifusum* (Trailing St John's-wort).

A couple of woodland pools contained *Alisma plantago-aquatica* (Water-plantain), *Potamogeton natans* (Broad-leaved Pondweed) and *Glyceria fluitans* (Floating Sweet-grass). After lunch, and no success with our *Wahlenbergia* search, we headed for a different nearby woodland where Ivy-leaved Bellflower had been recorded. Here we were successful in locating several patches in some privately owned chestnut coppice, thanks to two Group members who had found the plants there in 2010. Sadly there were no flowers, probably because of the very low light levels. *Myosotis secunda* (Creeping Forget-me-not) flowering by a small muddy stream was another record for the Rare Plant Register.

Alongside a public footpath were several flowering plants of *Epipactis helleborine* (Broad-leaved Helleborine), one of which was being pollinated by a pollinia-laden wasp and this kept several photographers busy for a time. Meanwhile, others searched a field margin hopefully, but unsuccessfully, for *Radiola linoides* (Allseed), which had been seen here in the past.



2012: Teise valley near Bayham

This joint meeting with the Sussex Botanical Recording Society attracted ten botanists from both groups and explored a very rural part of the county border which was remote from public footpaths. However, open access was available to parts of Sunninglye Farm participating in the Countryside Stewardship scheme, and this enabled us to range over grassland, woods and the valley of the River Teise, which here approximates to the county and vice county boundary. The terrain covered Tunbridge Wells sand, the Ashdown Formation and Wadhurst clay, and so the flora reflected moderately acidic conditions; the alluvium of the river valley held the greatest variety.

We convened outside Sunninglye Farm, and those of us who had not encountered the practice of glamorous camping (usually known as glamping) now know that this is a place to indulge in it. Our start point was in East Sussex, and we began with parts of two tetrads where SBRS were short of records for the pending Sussex Flora. It was a hot day with a forecast of fine weather, so when a few raindrops precipitated from nowhere, the party was apprehensive about the ability to share the one umbrella (and no waterproofs) which we held between us. Fortunately, the forecast was otherwise correct. Through fields and woodland we worked down towards the river valley, so that by late morning we had crossed a small footbridge and were in Kent.

We now exchanged recording roles: Sussex botanists relinquished the pen and Sarah Kitchener kindly took over plant listing for Kent. Soon we came across *Stachys x ambigua* (the hybrid between Marsh and Hedge Woundworts), to counterbalance a record of this already made on the Sussex side of the border river. *Galeopsis bifida* (Bifid Hemp-nettle) was nearby.

Lunch was taken by the river bank, after which we spent some time in an area disturbed by tree clearance comparing *Rumex sanguineus* (Wood Dock) with *Rumex conglomeratus* (Clustered Dock) in a mixed population. Both species are fairly similar, but Wood Dock normally has one, rounded tubercle per perianth, and Clustered Dock normally has three, oblong tubercles. We found a few apparently hybrid plants of anomalous appearance with intermediate and mosaic characters of the parents.



*Lunch over-looking the county border.
Photograph by Geoffrey Kitchener.*

Following the river downstream, we passed through woodland into a neglected field where *Potentilla x mixta* (Hybrid Cinquefoil) was spotted on a grassy slope. The neglect was manifest in the number of docks present, amongst which we found several specimens of the common cross, *Rumex x pratensis* (hybrid of furred and Broad-leaved Docks) and one plant of *Rumex x abortivus* (hybrid of Clustered and Broad-leaved Docks).

Turning back, we re-crossed the river for the Sussex botanists to resume the lead. Near this point the county and vice-county boundaries diverge briefly from the river, probably representing its former course. It may be that we lost ownership of some *Salix x reichardtii* (hybrid between Goat and Grey Willows) in the uncertainties here, although *Mentha x verticillata* (Whorled Mint) in an interesting marshy area was ceded to Sussex. This was a meeting which supplied some good records in a marginal area for both counties, and which included a surprising number of diverse hybrids. For Kent, we made 66 records in TQ6237 (including eight duplicates of existing records held by us for 2010 onwards) and 35 records in TQ6337 (including a further eight duplicates).

Many thanks to Helen Proctor for organising the SBRS side of the meeting.

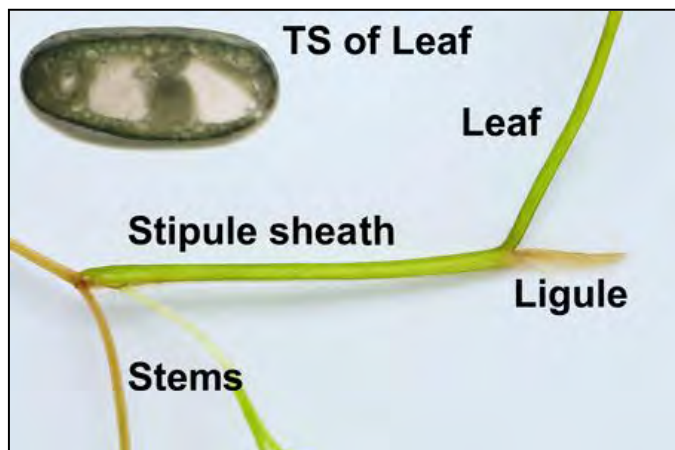


The Pondweeds are a far from easy group of plants to work with; not only because they offer the botanist a challenge in determining their identity, but also because of the environment in which they are to be found. One doesn't ordinarily come across the Pondweeds but rather has to seek them out; and even then, one needs some sort of tool to remove them from their world, usually involving the construction of ever elaborate grapnel devices! Because of this, the Pondweeds can tend to be overlooked and probably under-recorded.

The Kent Pondweed key is designed to help distinguish between the 14 *Potamogeton* species known in the county, of which two may possibly be extinct, without having to concern oneself with the other UK species. Two hybrids are also included, although one of these has not been seen for many years. The Pondweeds considered possibly extinct in Kent are underlined in the key, not only to help in the speed of probable determination, but also to encourage and aid identification of plants looked for and found in likely locations. The key also covers four other species which are either in the Pondweed family but not a *Potamogeton* or which are similar in form and could be confused with species within the Pondweed family and so need to be differentiated.

For accurate identification, it is essential first to examine thoroughly the leaf morphology, including range of leaf-shape, leaf-blade venation, and morphology of basal sheath/stipules. The key only covers mature plants that have reached flowering or are about to flower; beware recent flooding or drying out of habitat when distinguishing floating and submerged leaves. In taxa that can have floating leaves (whether actually present or not) the upper submerged leaves often approach these in certain respects and may be quite different from the middle and lower submerged leaves, which are the diagnostic ones. In the key and descriptions 'veins' refers to the midrib plus its laterals that run \pm parallel to it for nearly the whole leaf length. Fruit lengths include the beak. Fresh material is best for determination; the stipule characters are difficult to see in dried material, but are sometimes necessary for certain identification.

The key and descriptions, including the above guide to identification, have been derived substantively from the third edition of *The New Flora of the British Isles*, (Cambridge University Press 2010) by kind permission of the author, Clive Stace. The habitat descriptions, locations and status are all taken from *The New Atlas of the Kent Flora* (by Eric Philp, 2010), unless otherwise indicated.



Potamogeton pectinatus. The most common of all the grass-like Pondweeds and well worth becoming familiar with. This photograph shows all the vegetative features necessary for identification. TS = transverse section.

Key

- 1 All or most leaves alternate. 3
- 1 All or most leaves opposite (or some in whorls of 3). 2
- 2 Leaves lanceolate to ovate, 1.5-13mm wide, 2-9x as long as wide, uppermost leaves with stipules; flowers bisexual. **Groenlandia densa.**
- 2 Leaves linear, ≤ 2 mm wide, > 10 x as long as wide, no stipules; flowers unisexual. Cross section of leaves with two large hollows. **Zannichellia palustris.**
- 3 Floating leaves present. 4
- 3 All leaves submerged. 7
- 4 Floating leaves with distinct hinge-like joint at junction with petiole; submerged leaves (if present) < 3.5 mm wide. **Potamogeton natans.**
- 4 Floating leaves merging gradually or abruptly into petiole, but without distinct joint; at least some submerged leaves (if present) > 3.5 mm wide. 5
- 5 Submerged leaves always present, sessile or with petiole < 1 cm. **P. alpinus.**
- 5 Submerged leaves usually present, if so then some or all distinctly petiolate with petiole > 1 cm. 6
- 6 Floating leaves translucent, thin, the vein network clearly visible (fresh or dried); fruits green or greenish-brown, 1.5-1.9mm; of base-rich environments. **P. coloratus.**
- 6 Floating leaves opaque, \pm leathery, the vein network difficult to see; most leaves floating (or \pm aerial); fruits reddish, 1.9-2.6mm; of acid environments. **P. polygonifolius.**
- 7 Leaves slightly to strongly convex-sided, > 6 mm (usually > 10 mm) wide; often with ≥ 7 main veins. 8
- 7 Leaves grass-like, parallel-sided for almost whole length, $< 5(7)$ mm wide with 1-5(7) main veins. 13
- 8 Leaves minutely serrate along \pm whole margin to naked eye; usually regularly undulate or crisped; fruits with beak \geq half as long as body. **P. crispus.**
- 8 Leaves entire even with $\times 10$ lens, or obscurely serrate just near apex, not regularly undulate (crisped); fruits with beak $<$ half as long as body. 9
- 9 Leaves with acute, acuminate or cuspidate apex. 10
- 9 Leaves with obtuse to rounded, sometimes hooded, apex. 11
- 10 All leaves tapered to base, petiolate, not clasping stem, the petiole unwinged near base; stipules strongly keeled, 3.5-8cm; fruits 3.2-4.5mm. **P. lucens.**
- 10 Some leaves rounded at base and \pm clasping stem, no petiole or rarely very shortly petiolate; stipules weakly keeled, 2-7cm; sterile hybrid. **P. x salicifolius.**
- 11 Leaves clasping stem, often surrounding stem with auricles at cordate base. **P. perfoliatus.**
- 11 Leaves narrowed to base, not clasping stem. 12
- 12 Stem terete; may have floating leaves, submerged leaves with > 7 veins and > 6.5 mm wide fertile. **P. alpinus.**
- 12 Stem compressed; submerged leaves only, (3-)5 veins and ≤ 5 mm wide; sterile. **P. x lintonii.**
- 13 Stipules mostly > 5 cm; leaves actually blade-less petioles, opaque, without obvious midrib. **P. natans.**
- 13 Stipules < 5 cm; leaves translucent, with obvious midrib. 14
- 14 Cross section of leaves with two large hollows, stipules fused to leaf-base, forming sheath around it. 15
- 14 Cross section of leaves without two large hollows, stipules free from leaf, forming stipule-like outgrowth from node. 17
- 15 Sheathing leaf-base, free distally to form ligule, leaf margin near apex entire. **P. pectinatus.**

- 15 Sheathing leaf-base not forming ligule, leaf margin near apex minutely toothed. 16
- 16 Leaves 0.35-0.9mm wide, usually acute, sheaths slightly inflated; peduncles \leq 2.6cm. **Ruppia maritima.**
- 16 Leaves 0.2-1.4mm wide, usually obtuse to rounded, sheaths strongly inflated; peduncles \geq 4cm. **Ruppia cirrhosa.**
- 17 Most leaves $<$ 2mm wide, with 3(-5) veins. 18
- 17 Most leaves $>$ 2mm wide, with 3-5 (or many) veins. 20
- 18 Stipules fused in tube around stem proximally when young, but soon splitting longitudinally, not overlapping; fruits 1.8-2.3mm **P. pusillus.**
- 18 Stipules not fused in tube around stem, but with margins overlapping; fruits 1.8-3.2mm. 19
- 19 Leaves acute to finely acute, mostly $<$ 1mm wide; carpels 1(-2) per flower; fruits usually warty or \pm toothed near base. **P. trichoides.**
- 19 Leaves obtuse to subacute, often mucronate, mostly $>$ 1mm wide; carpels (3)4-5(7) per flower; fruit not warty. **P. berchtoldii.**
- 20 Leaves with 3 main veins and many finer strands between them; fruit usually with erect symmetric beak and basal wart or tooth. **P. acutifolius.**
- 20 Leaves with 3 or 5(7) main veins only. 21
- 21 Leaves usually minutely serrate along at least part of margin; fruits tapered to beak \geq half as long as body. **P. crispus.**
- 21 Leaves entire or minutely serrate just near apex; fruits, if formed, with beak $<$ half as long as body. 22
- 22 Stems with many lateral branches closely placed, forming fan-like sprays; stipules not fused in tube round stem. **P. obtusifolius.**
- 22 Stems without many closely placed lateral branches; stipules fused in tube round stem proximally when young. 23
- 23 Leaves \leq 5mm wide, usually serrulate distally, rounded to acute at apex; sterile. **P. x lintonii.**
- 23 Leaves \leq 3.5(4)mm wide, entire, mucronate at apex; fruits 2.4-3mm. **P. friesii.**

Descriptions

Potamogeton L. – *Pondweeds*. Leaves all alternate, or just those subtending inflorescence opposite, all with membranous sheath or stipules; flowers bisexual, in spikes; perianth of 4 tepals; stamens 4; fruits with thick pericarp, soft on outside but with bony inner layer.

Potamogeton natans L. – *Broad-leaved Pondweed*.

Floating leaves opaque, elliptic to ovate-elliptic, up to 10(14) x 4.5(8)cm, very rarely none, hinge with petiole is diagnostic; submerged leaves opaque, linear, \leq 3.5mm wide, often very long, rounded at apex, sessile; fruit 3.8-5mm. In lakes, ponds, ditches and slow-flowing streams and rivers.

Potamogeton polygonifolius Pourr. – *Bog Pondweed*.

Floating (or emergent) leaves opaque, shape resembling those of *P. natans*, up to 10.5 x 7cm; submerged leaves narrowly elliptic to oblanceolate, up to 16 x 2.5cm, petiolate, obtuse, sometimes none; fruit 1.9-2.6mm. In bogs and other shallow water in acid areas.

Potamogeton coloratus Hornem. – *Fen Pondweed*.

Floating leaves ovate, up to 8.5 x 5.5cm, translucent, often reddish-brown; submerged leaves similar to those of *P. polygonifolius* but wider; fruit 1.5-1.9mm. In calcium-rich marsh dykes in the Ham Fen/Worth Minnis area (TR35H, 35M & 35N). Up from two to now three tetrads in Kent and is on Kent's **Rare Plant Register**.

Potamogeton lucens L. – *Shining Pondweed*.

Leaves all submerged, elliptic or obovate to narrowly elliptic or oblanceolate, yellowish-green and shiny, up to 20 x 6.5cm, acuminate to rounded and mucronate at apex, petiolate; fruit 3.2-4.5mm. In relatively deep water in rivers, canals, marsh dykes and ponds.

Potamogeton x salicifolius Woflg. (*P. lucens* x *P. perfoliatus*) – *Willow-leaved Pondweed*.

Leaves all submerged, elliptic-oblong to narrowly so, up to 21.5 x 4cm, sessile and some clasping stem, acute to cuspidate at apex; no fruits. In the River Great Stour at Godmersham (TR05Q) where it has been known for over forty years and is the only current Kent record, although not found in 2012.

Potamogeton perfoliatus L. – *Perfoliate Pondweed*.

Leaves all submerged, broadly ovate to narrowly oblong-ovate, up to 11.5 x 4.2cm (often much shorter), obtuse to rounded and often ± hooded at apex, cordate and clasping stem (and so easily recognized as perfoliate); fruit 2.6-4mm. In rivers, canals and other large water bodies.

Potamogeton alpinus Balb. – *Red Pondweed*.

Plant often tinged reddish; floating leaves ± translucent, elliptic to rather narrowly so, up to 9 x 2.5cm, sometimes none; submerged leaves lanceolate to narrowly elliptic, up to 22 x 3.3cm, obtuse at apex, all except the upper ones sessile; fruit 2.6-3.7mm. Formerly recorded from the central Wealden area of the county, but repeated searches have failed to find it. It was known in narrow slow-flowing rivers near Headcorn (TQ84S) and near Bethersden (TQ93N) (*Atlas of the Kent Flora*, Philp, Kent Field Club 1982). It is to be hoped that it might still be present in this general area.

Potamogeton friesii Rupr. – *Flat-stalked Pondweed*.

Stem compressed; leaves all submerged, linear, 1.5-3.5(4)mm wide, mucronate at apex, (3)5(-7)-veined; fruit 2.4-3mm. In lakes, marsh dykes and slow-flowing rivers or streams. A scarce plant which appears to be restricted to a limited area in the north-east of the county, and is nationally listed as 'Near Threatened'. Up from four to now seven tetrads in Kent and is on Kent's **Rare Plant Register**.

Potamogeton x lintonii Fryer (*P. friesii* x *P. crispus*) – *Linton's Pondweed*.

Stems compressed; leaves all submerged, linear or very narrowly oblong-elliptic, 1.7-5mm wide, rounded at apex, 3-5 veined. Recorded from two localities in the past, but not seen in the county for more than fifty years now.

Potamogeton obtusifolius Mert. & W.D.J. Koch – *Blunt-leaved Pondweed*.

Stem only slightly compressed; leaves all submerged, linear, usually <10cm long, (1)2.5-3.6mm wide; obtuse or rounded and apiculate at apex, 3-5 veined; fruit 2.6-3.2mm. Formerly well scattered in ponds in the central Wealden area of the county but not found recently. The only explanation is that the correct habitats have not been looked at during the right time of year, as the plant must surely still survive in a few ponds in the county; and for this reason it is on Kent's **Rare Plant Register**. Down to 0 from 13 tetrads in Kent.

Potamogeton pusillus L. (*P. panormitanus* Biv.) – *Lesser Pondweed*.

Stem only slightly compressed; leaves all submerged, linear, 0.5-1.4(1.9)mm wide, acute or obtuse and mucronate at apex, 3(-5)-veined; fruit 1.8-2.3mm. Confirmed records include: in a dyke on the Swanscombe marshes (TQ57X), in a flooded gravel pit at Aylesford (TQ75J), in a marsh dyke on The Dowels (TQ93Q), in a flooded gravel pit at Dungeness (TR01Y), and in a marsh dyke at Stodmarsh (TR26G). Due to the lack of confirmed records it is on Kent's **Rare Plant Register**. Down to five tetrads in Kent from 35.

Potamogeton berchtoldii Fieber (*P. pusillus* auct. non L.) – *Small Pondweed*.

Stem scarcely compressed; leaves all submerged, linear, 0.5-1.8(2.3)mm wide, subacute to obtuse and often mucronate at apex, 3(-5)-veined; fruit 1.8-3mm. In dykes, ponds and slow-flowing rivers, often growing with other fine-leaved pondweeds and separable from *P. pusillus* by the stipules (see key).

Potamogeton trichoides Cham. & Schldl. – *Hairlike Pondweed*.

Stems not compressed; leaves all submerged, linear, 0.3-1(1.8)mm wide, acute at apex, 3-veined; fruit 2.5-3.2mm. Canals, ponds and marsh dykes. It appears to have a rather restricted distribution within the county.

Potamogeton acutifolius Link – *Sharp-leaved Pondweed*.

Stems strongly compressed; leaves all submerged, linear, 3.5-13.5cm long, 1.5-5.5mm wide, often brownish, acute to acuminate (mostly acuminate) at apex, with 3 main veins and many fine strands between them; fruit 3-4mm. Recorded from marsh dykes at Small Hythe (TQ82Z), The Dowels (TQ93Q) and Stodmarsh (TR26G). A rare plant, listed nationally as 'Critically Endangered'. Up from two to three tetrads in the county and is on Kent's **Rare Plant Register**.

Potamogeton crispus L. – *Curled Pondweed*.

Stem compressed; leaves all submerged, narrowly oblong-linear, 2.5-9.5cm long, (3)5-12(18)mm wide, acute to rounded at apex, usually closely undulate (and so easily recognized as crisped or curled) and minutely serrate along whole length, 3-5(7)-veined; fruit 4-6.2mm. In lakes, ponds, rivers, canals and dykes.

Potamogeton pectinatus L. – *Fennel Pondweed*.

Stem not compressed; leaves all submerged but often fanning out near the surface, linear, 0.2-4mm wide, narrowly acute to subacute and mucronate at apex, 3-5-veined but laterals very faint; with two large hollows in cross-section; fruit 3.3-4.7mm, with short neck-like style. In lakes, ponds, rivers, canals and dykes, and it will often be found in brackish waters.

Groenlandia densa (L.) Fourn. – *Opposite-leaved Pondweed*.

Leaves all opposite (or rarely some in whorls of 3), only the uppermost with 2 membranous stipules fused to edges of leaf-base; leaves all submerged, ovate to lanceolate, up to 4.2 x 1.3cm, acute to obtuse at apex, clasping stem; flowers bisexual, in spikes; perianth of 4 tepals; stamens 4; fruit 3-4mm with thin, papery pericarps. In streams, ponds, ditches and marsh dykes. Nationally listed as 'Vulnerable' and is on Kent's **Rare Plant Register**. Down to seven Kent tetrads.

Zannichellia palustris L. – *Horned Pondweed*.

Leaves mostly opposite (sometimes alternate on sterile shoots), with sheathing base ± free from leaf; leaves 2-10cm x 0.4-1(2)mm, entire, acute to obtuse at apex, 1(-3) veined with two large hollows in cross-section; flowers monoecious, solitary in leaf-axils; male flowers with 1-2 stamens naked, long-stalked; female flowers with (2)4(-8) carpels with 1 ovule and peltate to strap-shaped stigma on distinct style, in cup-shaped perianth; fruit 3-6mm including style, variably stalked, variably winged and toothed on dorsal and ventral edges, with hard pericarp. In shallow waters in rivers, streams, lakes and ponds, and it is found in both fresh and brackish habitats.

(a) **Subspecies palustris**. Stigmas peltate; style 0.5-1.5mm; achenes with stalks 0-1mm, without common peduncle, with ± toothed dorsal margins.

(b) **Subspecies pedicellata** (Fr.) Syme. Stigmas strap-shaped; style 2-2.5mm; achenes with stalks 1-2.5mm, often on common peduncle, usually with toothed dorsal and ventral margins. Less robust than (a) and may prefer brackish water.



Zannichellia palustris showing opposite leaves, flowers in leaf axils and cross-section of leaf



Zannichellia palustris ssp. *palustris* showing peltate stigmas and developing fruits

Ruppia maritima L. – *Beaked Tasselweed*.

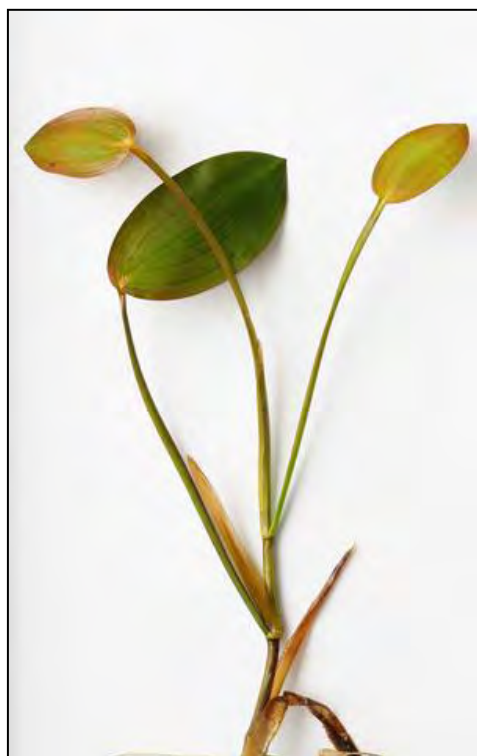
Peduncles straight to curved or flexuous in fruit; anthers ≤ 1 mm; drupelets 2-2.8mm, including beak 0.4-0.65mm, on stalks 0.3-3.5cm, asymmetrically pear-shaped. In brackish dykes, lagoons and ponds near the coast.

Ruppia cirrhosa (Petagna) Grande (*R. spiralis* L. ex Dumort.) – *Spiral Tasselweed*.

Peduncles usually spiral in fruit; anthers > 1 mm; drupelets 2.7-3.4mm, including beak 0.5-0.95mm, on stalks 0.4-3.2cm, pear-shaped or slightly asymmetrically so. In brackish or saline ponds, lagoons and ditches. In recent years recorded from Allhallows (TQ87P), a dyke near Conyer (TQ96M), on MoD land near Lydd (TR01E & I, TQ91D) and Plumpudding Island (TR26U). Nationally listed as 'Near Threatened' and is on Kent's **Rare Plant Register**.



Ruppia cirrhosa showing fruits, long spiralling peduncle and inflated leaf sheaths



Potamogeton natans showing leaves and stipules



Potamogeton crispus showing leaf detail

Rare Plant Register

Rare Plant Register recording in 2012 will be reported in Kent Botany 2012.

New species accounts are progressing gradually, with Parts D and E more or less drafted.

Most of Part C was issued in March and this draft is now complete. There are so many plants beginning with C that it is now split into two Parts, Ca and Ce-Cy. Part Ca is going onto the KBRG webpage; Part Ce-Cy is being emailed to members for comment in conjunction with this newsletter.

What's in Part Ce-Cy?

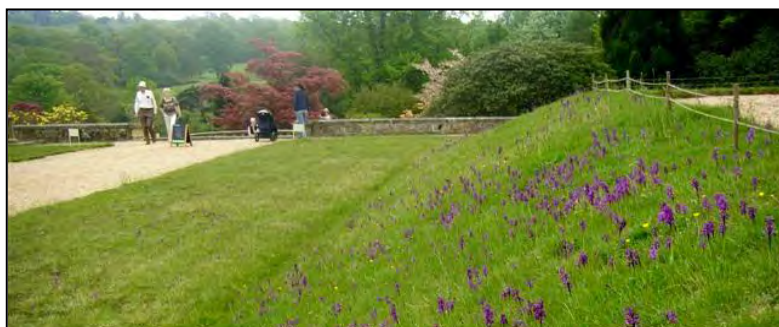
- As agreed at the 2012 AGM, *Chaenorhinum origanifolium* (Malling Toadflax) has been added to the RPR as a Kent heritage plant, although we have to dismiss the idea that it was introduced by mediaeval monks. One of the surprises about this plant is its ability to seed onto the top of tall buildings in West Malling.
- *Chamaemelum nobile* (Chamomile), down to one regular site and a casual in the *New Atlas of the Kent Flora*, is now back to three village green and commons locations.
- An attempt has been made to update *Chenopodium vulvaria* (Stinking Goosefoot) records and we now have a much fuller, illustrated account. Botanising was memorable, not least in that having tested a plant for smell, the odour lingers all day afterwards!
- *Clinopodium calamintha* (Lesser Calamint) was re-found in 2012 along a closed road which was probably part of the route along which Thomas Johnson first recorded it in Kent, in 1629.
- The reappearance of *Crassula tillaea* (Mossy Stonecrop) after over a century unrecorded in Kent has enabled us to add a new RPR account.
- The most substantial RPR account so far (7 pages) tracks the apparent extinction in the British Isles of *Crepis foetida* (Stinking Hawk's-beard), its failed re-introductions in Kent and the discovery that it was probably hanging unseen on all the time. Botanists should avoid being mown down by the miniature carriages and trains of the Romney, Hythe and Dymchurch railway!
- Read how the second Kent find of *Cynoglossum officinale* (Hound's-tongue) was made by declining a lift in a horse-drawn cart....



Threatened Plants Project

This was the final year of the BSBI Threatened Plant Project surveys, some of which have been incorporated into our meeting programmes. The surveys are intended to improve our understanding of the ecology and reasons for decline of various threatened species. In 2012, the designated species were *Alchemilla wichurae* (Rock Lady's-mantle – not a Kent plant), *Anacamptis morio* (= *Orchis morio*, Green-winged orchid), *Bupleurum tenuissimum* (Slender Hare's-ear), *Fumaria parviflora* (Fine-leaved Fumitory), *Hypochaeris glabra* (Smooth Cat's-ear), *Orchis anthropophora* (= *Aceras anthropophorum*, Man Orchid), *Persicaria minor* (Small Water-pepper), *Ranunculus arvensis* (Corn Buttercup), *Tephrosia integrifolia* subsp. *integrifolia* (Field Fleawort) and *Vicia parviflora* (Slender Tare). The BSBI selects a random sample of recorded sites for survey.

Our Kent sites for the Green-winged Orchid included the lawn of St Joseph's Church, Chestfield, where the species was flourishing, as surveyed by a KBRG meeting (see report in newsletter no. 4). Another site turned out to be in vc14, East Sussex, but was surveyed just the same. This was at Scotney Castle, which appeared in



both Atlases for Kent Flora because these were based on the administrative county boundaries. The National Trust advised that counting the population was best carried out when the property was closed to the public, in order to avoid bystanders interrupting – sound advice when a count of nearly 4000 spikes was involved!

Green-winged Orchid at Scotney Castle. Photograph by Lorna Holland, May 2010

Bupleurum tenuissimum is something of a north Kent / Essex speciality, and we were given five sites to investigate. In all of these it was present, in almost identical habitats: the flat area used for access, landward of sea or estuarial defence embankments, generally with a brackish drainage dyke on the other side. Exceptionally in one case, at Swanscombe peninsular, the flood bank was up to 500m inland; and the survey also produced a chance find of *Lathyrus hirsutus* (Hairy Vetchling), currently the only West Kent site. Unfortunately, the peninsular seems destined for development. However, there is much *B. tenuissimum* elsewhere: KBRG made 17 records in 2012 alone.

Five sites for *Fumaria parviflora* were specified, but in only one case, near Chillenden and Tilmanstone, was the species found. Intensive farming, spraying to the arable margins, rendered most of the sites unsuitable; although at Ashley / Studdal, there was a good weed flora, but simply lacking the *Fumaria*.

The random site selection gave us no sites for surveying *Hypochaeris glabra*, possibly because we had so few in Kent anyway. However, the position is now brighter, because the species was discovered in two new 1km squares at Lydd Ranges during the year.

Kent is the best county for *Orchis anthropophora* and, probably for this reason, we were allocated as many as 11 sites to investigate. One of these was at Godmersham Down, where a KBRG meeting (reported in this issue) failed to locate it. This is not to say that it is not still at Godmersham, maybe (Peter Gay advises) in woodland margin near the top of slopes (which is a habitat favoured elsewhere), but at any rate it was not seen. And this was also the tale, disappointingly, in three more of the six East Kent sites. One chalk quarry had become a landfill site, but otherwise the absences were somewhat mysterious. Fortunately, the species was being well cared for at Faversham golf course, although survey had to await a day when golfers were not expected. The five West Kent sites all had Man Orchid still present, so it is unclear from this whether there is a county-wide decline.

Records for *Persicaria minor* were supplied for tracing at Sandhurst and Sundridge. The high rainfall this year meant that germination would be difficult for an annual relying on receding water levels at the edge of a ditch or dyke at Sandhurst, so it was no surprise that it could not be found. Nor was it seen at Sundridge, not helped by the map reference for the original record being clearly wrong; but it may be questionable that the original record was actually for this species.

A blank was drawn with two out of three sites for *Ranunculus arvensis*. The field opposite Marden Meadow, however, was specified; and this, as it has for many years, still had Corn Buttercup present.

Tephrosia integrifolia subsp. *integrifolia* was monitored at Burham Down 1957-63, when Scarborough Spur was open downland, with the beginnings of scrub post-myxomatosis. With scrub development, the last record for Field Fleawort appears to have been 1979, so there were no expectations of finding it now. The site consists of ash-hazel woodland (mostly hazel-dominant), is completely over shaded and with very little ground cover. There are no chalk grassland species remaining, so the total transformation of the habitat over 50 years or so has effectively seen off Field Fleawort as a Kent plant.

With *Vicia parviflora* being on our 'perhaps extinct in Kent' list, finding it would have been almost as challenging; but in the event we were given no sites to investigate. The TPP surveys, 33 in all, were carried out by the KBRG membership at meetings, by Geoffrey and Sarah Kitchener, Liam Rooney and by Sue Buckingham. The exercise as a whole demonstrated how difficult it can be in a swathe of countryside to find a plant recorded at tetrad level, unless a more precise clue or recollection is available. We were fortunate that Eric Philp was able to pin-point several of the locations.

Records

If you have any 2012 records to send in to Geoffrey Kitchener, it will be helpful if they are despatched as soon as possible so that they can be input and reflected in annual reports. Just a reminder: records need date and grid reference (at least 1km ordnance survey square) as well as plant and location names!

Contributions and photographs for the next newsletter will be most welcome!

Contributions, letters, queries and thoughts, details of recommended and relevant books, and photographs etc, for the next newsletter are welcomed by the editor!

Whilst KRBG does not produce a research journal as such, there may also be scope to put articles of a substantial nature and other papers, onto the website by way of publication as an alternative.

If sending photographs for inclusion in the newsletter by e mail, 300dpi minimum, please!

All contributions should be sent to Geoffrey Kitchener, contact details below.

Thanks to Sarah Kitchener and Kate Kersey for reviewing this newsletter, to Liam Rooney for the Kent Pondweed key and to Sue Buckingham for several meeting reports. Also to the photographers credited above.

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The editor, Geoffrey Kitchener, wishes to draw attention to the fact that neither he, nor the Kent Botanical Recording Group, are answerable for opinions which contributors may express in their articles; each author is alone responsible for the contents and substance of their work.

Kent Botanical Recording Group website: hosted by the Botanical Society of the British Isles at

<http://www.bsbi.org.uk/kent.html>

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<http://www.facebook.com/pages/Kent-Botany/223421087698067>