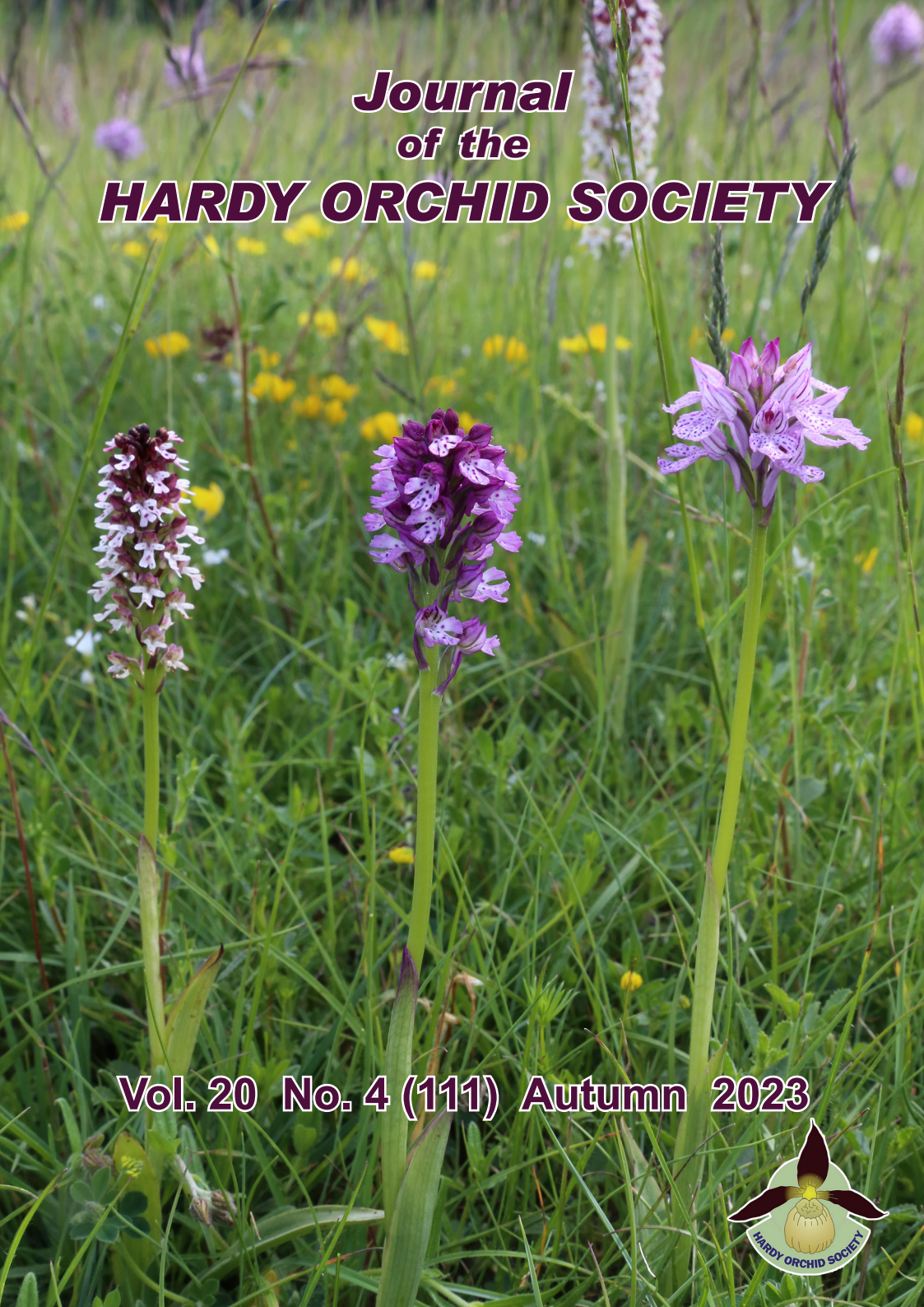

Journal of the HARDY ORCHID SOCIETY

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The Hardy Orchid Society Committee

President: Prof. Richard Bateman, Jodrell Laboratory, Royal Botanic Gardens Kew, Richmond, Surrey, TW9 3DS
Chairman: Celia Wright, The Windmill, Vennington, Westbury, Shrewsbury, Shropshire, SY5 9RG celia.wright@windmill.me.uk
Vice-Chairman: Simon Tarrant, Bumbys, Fox Road, Mashbury, Chelmsford, CM1 4TJ tarrant.simon@outlook.com
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Secretary: Hilary Pickersgill, Sissinghurst, Warrendene Road, Hughenden Valley, High Wycombe, Buckinghamshire, HP14 4LY hilaryp52@btinternet.com
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Publicity & Outreach Officer: Moira Tarrant, as above
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Conservation Officer: Bill Temple, Primrose Cottage, Hanney Road, Steventon, Oxon., OX13 6AP bill@billtemple.f9.co.uk
Field Trips Co-ordinator: Richard Kulczycki, 206 Blythe Road, London, W14 0HH richardkulczycki@gmail.com
Northern Field Trips Co-ordinator: charlie.philpotts@btinternet.com
Plant Show Secretary: Neil Hubbard: 30 Thirlmere Road, Barrow upon Soar, Leicestershire, LE12 8QQ neilhubbard@talktalk.net
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Speakers Secretary: Celia Wright, The Windmill, Vennington, Westbury, Shrewsbury, Shropshire, SY5 9RG celia.wright@windmill.me.uk
Southern Meetings Organiser: Simon Tarrant, Bumbys, Fox Road, Mashbury, Chelmsford, CM1 4TJ tarrant.simon@outlook.com
Northern Meeting Organiser: Philip Smith, Rantree Cottage, Birkwith Lane, Low Bentham, Lancaster, LA2 7DG philandelismith@gmail.com
Seed Bank Manager: John Haggar, 16 Cross Street, Hove, East Sussex, BN3 1AJ johnsorchids57@gmail.com
Journal Distributor: Nigel Johnson, Cassandene, Station Road, Soberton, Hampshire, S032 3QU cassandene@outlook.com

Cover Photographs: Front cover features *Neotinea ×dietrichiana* and parents *N. tridentata* and *N. ustulata* at Col Bacchus. 6th June. The rear cover features *Ophrys fuciflora* ('Mickey Mouse' monstrosity) at Rochefort Samson St-Gens, 12th May. See article on the Vercors by Clare & Johan Hermans on page 128.

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Password for Members' Area of HOS Website: monkey22

The Hardy Orchid Society

Our aim is to promote interest in the study of Native European Orchids and those from similar temperate climates throughout the world. We cover such varied aspects as field study, cultivation and propagation, photography, taxonomy and systematics, and practical conservation. We welcome articles relating to any of these subjects, which will be considered for publication by the editorial committee. Please send your submissions to the Editor, and please structure your text according to the "Advice to Authors" (see Members' Handbook, website www.hardyorchidsociety.org.uk, or contact the Editor). Views expressed in journal articles are those of their author(s) and may not reflect those of HOS.

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Editorial Note

Mike Gasson

Dave Trudgill's orchid meadow near Blairgowrie in eastern Scotland has stimulated a great deal of interest and discussion within HOS over several years and it is good now to publish a comprehensive account of its creation and maintenance. Clare and Johan Hermans have given us the second instalment of their holiday experiences in the Vercors with more of Johan's excellent photography, including images for both *JHOS* covers. With two major articles there was just enough space to include an interesting description from Richard and Geraldine Hogg of Narrow-lipped Helleborine which was newly discovered in Bedfordshire.

As always we need members to write articles for *JHOS*, short or long. At present our pool of submitted articles is smaller than of late so it is a good time to make a contribution, especially with the nights drawing in!

Chairman's Note

Celia Wright

The 2023 UK orchid season has been a busy one for many of us. In early July, Iain and I finally managed to go on the last HOS Field Trip of the season to Greywell Moors. It was a pleasure to see so many Marsh Helleborines at the height of their season interspersed with lots of Marsh Fragrant-orchids. We see these species at Sweeney Fen much nearer to home but never so many in near perfect condition in spite of the dry season. My thanks to Peter and Jane Vaughan.

Thank you also to those who offered talks to help complete the Kidlington meeting on Sunday 17th November. A revised booking form is enclosed with this *JHOS*. The programme for the day includes a short Extraordinary General Meeting. This has been included to start the process of updating the HOS Constitution so that it reflects current practice in HOS since the last update nearly 20 years ago. Notification of the EGM and the changes proposed to the 2005 Constitution by the Committee are set out on a separate sheet enclosed with this journal. Following this meeting, the Committee will be considering other changes needed to update the Constitution. These will be presented to the membership at a future General Meeting.

Following on from our successful HOS stand at Malvern International Orchid Show in June, we have been invited to take the display to the Scottish Orchid Society Show at Kibble Palace, Glasgow on 11th and 12th May next year. Over the years, there have been comments that HOS has few Scottish members and I hope that taking part in this popular event (open without charge to the public) will help us increase our presence north of the border.

In my role as HOS Speakers Secretary, as well as welcoming offers of talks at our HOS meetings, I want to update and improve the list of HOS members willing to give talks to other groups on hardy orchids. I receive requests from orchid or other plant societies wanting to book a speaker on hardy orchids, especially those in their local area. I give a few such talks each year but cannot fill all requests, especially if they are distant from where I live. Sometimes, but not always, I can find a willing volunteer from members I know but would appreciate contact from any member who might be willing to join the HOS Speakers List.

In 2024 I hope we can add some Open Greenhouse visits to the Field Trips list. At the recent Leeds meeting, one member who grows a lot of wonderful hardy orchids in his greenhouse, offered to do this and I hope there may be others. By their nature, such meetings are likely to be early in the season, so if you are interested please contact me or our Field Trip organisers – Richard Kulczycki or his northern counterpart, Charlie Philpotts as soon as possible.

Greenwings

Wildlife Holidays

Forthcoming spring 2024 botanical tours include:

Cyprus in Spring	3 - 11 Mar	£1,395

A visit to Cyprus, timed to experience orchids at their best, plus other flora, with highly experienced botanist & local Cypriot guide Yiannis Christofides.

Greece: Rhodes Orchid Odyssey	31 Mar - 7 Apr	£1,395

Exclusive tour to explore the Dodecanese capital, Rhodes, to discover the impressive array of orchids, particularly in the Ophrys genus. Lots of other spring flowers to see too, such as the beautiful endemic Peony & Fritillary.

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Creating an Orchid Meadow Using Seed

Dave and Jean Trudgill

In 2003 we started to convert a small (0.15ha) grass paddock by our house (near Blairgowrie in eastern Scotland) into a wildflower meadow. For several years before that it had been use to graze sheep (Fig. 1), and even further back it had been part of a field in an arable-grass rotation. Now, in 2022, it is full of wildflowers (Fig. 2), including 14 species of orchid, all of which have been grown from seed broadcast 'on the breeze'.

Creating and managing a meadow with orchids grown from seed is a long-term project. Many species will not flower until four years after spreading their seed, and some species will take longer. It is well worth planning ahead when starting a wildflower meadow with orchids and keeping a diary. To enable any plant introductions to be distinguished from natural spread it is essential to inform your local Botanical Society of Britain and Ireland (BSBI) vice-county plant recorder. The records collected by the recorders enable the BSBI to map the distributions of all plants in the British Isles (https://database.bsbi.org/maps).

Most orchid species found in meadows have specific ecological requirements, potentially limiting their distributions. They favour infertile soils and competition from grasses and other meadow plants needs to be minimised. Their flowers and seed capsules need to be protected from herbivores. If the site is to be grazed, this should be restricted to the autumn and winter – it is a question of getting a balance between minimising competition from other plants and minimising damage to the orchids by grazing and trampling. It is also important to avoid introducing orchid diseases. We have been troubled by *Dactylorhiza* 'Black Death' (Trudgill 2015, Scrace 2022) a lethal and highly infective fungal disease that will kill all species of *Dactylorhiza*. Our infection came from an infected plant introduced into the neighbouring garden. Hopefully, an effective fungicide has now been identified (Temple 2022).

Figure 1. Jean feeding calves in the early 1990s. The grass paddock that is to become the wildflower meadow is through the gate and to the right of the fence stretching into the distance. The field that once it was a part of is to the left of the fence.

Figure 2. Our wildflower meadow, looking north in the spring of 2020.

Photos by Dave Trudgill


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Starting to create an orchid meadow

There are many different potential starting points when seeking to create a wildflower meadow. These range from a small lawn to several hectares of agricultural land. Our meadow is c. 0.15 ha and our first step in 2003 was to dig a pond using a large, tracked excavator (Fig. 3). We then sprayed the whole area with the herbicide glyphosate (Roundup) to kill all the grasses and herbs and provide a clean base. About three months later we repeated this to kill any perennial weeds that subsequently emerged. Unless your site is already a wildflower meadow, a clean start has several advantages. These include the ability to initially determine the species of most of the plants present and, where desirable, to make physical modifications to the site.

It is useful to 'know' your soil and any physical peculiarities of the site. Over time, grassland can become progressively more acid, so soil pH (acidity) should be checked. All that is needed is a simple, cheap meter used to check the pH of fish tanks. Many species of orchids are calcicoles and prefer, or even require, soils with a pH >7.0. Adding lime to the soil should be considered for many sites. We have subsequently added large amounts (sometimes > 5.0 kg/m2) of agricultural lime, dolomitic limestone and limestone chippings to several areas in our meadow.

Wildflower seed mixtures.

We initially sowed our meadow with a wildflower seed mixture from a local producer (Scotia Seeds) that contained several grass species and sixteen species of herbs, all of local provenance. We also included seed from four seed-heads of Lesser Butterfly-orchid (*Platanthera bifolia*) and planted two birch and one willow tree in the south west corner. There were no legumes in our seed mixture as one of our long-term aims was to decrease soil fertility. We tried to avoid vigorous species that might become too dominant such as Ox-eye Daisy (*Leucanthemum vulgare*). Smaller, less competitive species that do well in our meadow include Cowslips (*Primula veris*) and Yellow Rattle (*Rhinanthus minor*), a hemiparasite of grasses. Since then we have spread seed of several other wildflowers to increase the biodiversity. We are now trying to grow Bird's-foot Trefoil (*Lotus corniculatus*) in the margins of our meadow to provide a food source for the larvae of Six-spot Burnet Moth (*Zygaena filipendulae*), a pollinator of some orchid species, particularly Pyramidal Orchid (*Anacamptis pyramidalis*).

Our seed mixture was incorporated by a light hand raking. It is, we suspect, desirable to minimise any subsequent disturbance of the soil because this may damage the

Figure 3. The pond after it was dug and then after filling. The surrounding land had been sprayed with glyphosate (RoundUp).

Photos by Dave Trudgill

hyphal networks of the mycorrhizal fungal on which the orchid seed rely for their germination. We obviously did something right because four years later we discovered a few plants of Lesser Butterfly-orchid.

Creating diversity

Creating a diverse habitat is important when trying to grow many different species of orchids. The digging of an unlined pond, fed with water from the adjacent Lunan Burn, was particularly valuable as the Lunan Burn has a pH sometimes as high as 8.0. Consequently, the ground bordering the pond never dries out and is slightly alkaline, making it suitable for several species of orchids with a preference for damp, alkaline soils. Seven of our fourteen orchid species grow exclusively, or mostly around the pond. These are, in order of flowering, Green-winged Orchid (*Anacamptis morio*), Early-purple Orchid (*Orchis mascula*), Heath Spotted-orchid (*Dactylorhiza maculata*), Early Marsh-orchid (*Dactylorhiza incarnata* var. *incarnata*), Southern Marsh-orchid (*Dactylorhiza praetermissa*), Greater Butterfly-orchid (*Platanthera chlorantha*), and Marsh Helleborine (*Epipactis palustris*).

The 'Pussy Willow' (*Salix* sp. Fig. 5) and two Birch Trees (*Betula utilis* and *B. pendula*) that we planted in the south-west corner of the meadow created conditions that favour several species, particularly Common Twayblade (*Neottia ovata*), and Broad-leaved Helleborine (*Epipactis helleborine*). The latter only grows under these trees. We think this is because the mycorrhizal fungi associated with the Helleborine roots have a close association with, and pass nutrients from the roots of the neighbouring trees to the developing orchids (Trudgill 2019). It is also the only place where White Helleborine (*Cephalanthera damasonium*) has established

Figure 4. One of nine White Helleborines (*Cephalanthera damasonium*) under the *Betula utilis* flowering in our meadow for the first time in 2022.

Figure 5. The 'Pussy Willow' in late spring. The blue arrow is pointing at a group of Early-purple Orchids (the pink spot), the only place under the trees where they grow.

Figure 6. Modifying an area by removing the turf and about 10cm of top soil and replacing with a mixture of agricultural lime, sub soil and leaf-mould.

Photos by Dave Trudgill (Figs. 5 & 6) & Graham Wood (Fig. 4)


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in our meadow. We spread a small amount of seeds in March 2016 and it flowered for the first time in 2022 (Fig. 4). This was a surprise because we did not see any sign of it prior to its flowering. Also, we thought it highly unlikely it would grow so far north as, except for an outlying population in Lincolnshire, it is totally confined to the south of England. It may be relevant that it is growing in an area where, in the summer of 2015, we had removed 5 to 10cm of the turf and top soil and replaced it with, and lightly incorporated a mixture of agricultural limestone, sub-soil and leaf-mould (Fig. 6). A few plants of Early-purple, Early Marsh-orchid, Greater Butterfly-orchid, and Marsh Helleborine (otherwise found only along the edge of the pond) also grow under these trees, perhaps because they are shaded and the transpiration demand is decreased.

The majority of our meadow could be best described as 'open grassland'. The orchids that grow here appear to be less specific regarding their habitat requirements as they also grow around the pond and under the trees. They include Common Spotted-orchid (*Dactylorhiza fuchsii*), Northern Marsh-orchid (*Dactylorhiza purpurella*) and Pyramidal Orchid (*Anacamptis pyramidalis*). These three species are widespread and numerous in our meadow, with many hundreds flowering each summer. Lesser Butterfly-orchid also grows well across much of the meadow with more than 60 plants flowering each year, some every summer since 2007. However, there is no overlap between the areas where Lesser Butterfly-orchids and Greater Butterfly-orchids grow. Several plants of Heath Fragrant-orchid (*Gymnadenia borealis*), a fifteenth species, appeared in 2012 in an arc across the middle of the meadow but, just before they flowered for the first time, some 'numpty' applied the herbicide glyphosate to several small patches to kill a creeping vetch and, in the process, unintentionally killed all the Fragrant-orchids.

Introducing orchids as seed or plants

We always introduced our orchids as seed that we spread across the meadow (Fig. 7). There is no time-limit on when to spread orchid seed – we are still doing so 20 years after we first established our meadow. Typically we try to use the seed from at least four seed heads. We have never introduced orchids as plants (it is illegal to dig-up wild plants without the land owner's permission). Although some people have been successful in transplanting orchids, we have had relatively poor survival rates when we have moved plants from the paths to other parts of the meadow, despite taking a ball of soil 12 to 15cm in diameter. Instead, we now move such plants into pots

Figure 7. Spreading seed in the autumn by opening seed capsules whilst moving up-wind.

Figure 8. Seed of Lesser-butterfly-orchid (*Platanthera bifolia*).

Photos by Dave Trudgill

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where they can be readily watered and suffer less competition. We have used these pot-plants as a source of further seed and for experiments involving *Dactylorhiza* 'Black Death' and vernalization requirements. We also have grown micropropagated plants of Green-winged Orchid to maturity in pots and used the seed from them to establish it in our meadow. We have failed to establish Dark-red Helleborine (*Epipactis atrorubens*) and Bee Orchid (*Ophrys apifera*) in our meadow, but one plant of Bee Orchid has appeared in the edge of a gravel drive and, in 2022, another appeared in our small glasshouse, the seed for both coming from a plant in a pot.

Introducing seed has several advantages compared with introducing plants. Seed is usually free, it does not carry diseases and it can be obtained in relatively huge numbers. Seed is also much more likely to 'find' the parts of the meadow with suitable biotic and abiotic conditions and the appropriate mycorrhizal fungi for its germination and subsequent development and growth. Any plants that grow from seed and survive to flowering must, almost by definition, be in the 'right' place where they, and their progeny, are likely to prosper.

We usually distribute orchid seed in the autumn after the meadow has been mown. Previously, we spread the seed by carefully and progressively opening the capsules in a light breeze whilst we moved from side to side across the whole of the meadow (Fig. 7). Now we gently mix the seed with a much larger volume of dry, fine organic material such as sieved leaf-mould. Orchid seed is tiny and lacks food reserves (the endosperm) – hence the need for the involvement of a mycorrhizal fungus to supply the embryo with nutrients. Also, it lacks a hard outer shell (testa) and is easily damaged (Fig. 8), so it must be handled gently and protected from crushing when being sent through the post (Bill Temple, pers. comm.).

Guidelines for obtaining seed.

These include seeking the land owner's permission, only taking seed from British populations of known provenance (preferably local populations) and from populations where the loss of seed is unlikely to have an adverse impact. It is not illegal to collect seed, except that of rare species that are totally protected (Schedule 8, Wildlife Countryside Act 1981) and from SSSIs and areas such as Nature Reserves that have additional legal protection.

Management

The importance of appropriate management cannot be overstated. Its main aims are 1) to decrease competition for the orchids from the other plants in the meadow, 2) to prevent successional changes to scrub and then woodland, 3) to protect the orchid plants from harm, and 4) to maximise orchid longevity and seed production. To achieve these objectives we mow our meadow each year, starting in mid-August as the orchid capsules mature. We do this using a light-weight, self-propelled mower

with a cutter bar at the front. We dry the mowings to produce a crop of hay. This is often followed three or four weeks later by a further mowing using a ride-on mower. The hay and all other mowings are removed to try to decrease soil fertility. We do not now use herbicides (after accidently killing all the Heath Fragrant-orchid) and we avoid the use of heavy machines or live-stock that will compact the soil and damage the orchid plants. Our meadow is fenced and rabbit-netted on three sides to protect the orchids from herbivore damage (except for Voles that occasionally take the seed-heads). The fourth side is bordered by the Lunan Burn and now Beavers are becoming a problem.

Decreasing soil fertility can be a slow process in ex agricultural land that has a history of inorganic fertiliser inputs – there is still a substantial crop of hay in our meadow (Fig. 10), despite not adding any fertilizer since 2001 and having removed a crop of hay every year for the last 18 years. In November 2021 we took soil samples (each made up of 50 cores) from either side of the fence (see Fig. 1) that separates our meadow from the adjacent field (of which it was a part prior to 1993). A third sample was taken from across the central area of our meadow. These samples were professionally processed to determine levels of extractable soil nutrients. The amount of readily extractable phosphate (P) in the soil from our meadow had not decreased (Table 1) compared with that in the sample from the adjacent field (that had continued to be conventionally fertilized). Levels of extractable potassium (K) and magnesium (Mg) had decreased, and calcium (Ca) and the pH were slightly lower than in the field. Nitrogen levels were not determined, but rates of deposition from the atmosphere are probably close to 10kg/ha (Tomlinson *et al*. 2021). It was noticeable during soil sampling that the soil in the adjacent field was very compacted compared with that in our meadow.

	pH	P	K	Mg	Ca
Field	6.2	9.9	88	272	1700
Meadow - fence line	5.9	12.0	66	197	1600
Meadow - centre	5.9	10.6	45	168	1400

Table 1. Extractable* soil nutrients (mg/l) in November 2021 for a combined sample of 50 cores taken from just inside the fence line of the adjacent field, the opposite side of the fence within our meadow and the central part of our meadow.

*Reflects the amounts available to the growing plants, not the total in the soil much of which, especially for P, is not immediately available.

Value of creating an orchid meadow

Our orchid meadow has had an impact at several levels. At one level it could be regarded as an experiment. We have demonstrated that southerly distributed species such as White Helleborine, Southern Marsh-orchid (current natural northern distribution limit c. 30 km north of Newcastle-upon-Tyne), and Green-winged Orchid (northerly limit in Ayrshire – see https://database.bsbi.org/maps) are able to grow, from seed, much further north in our meadow near Blairgowrie. Our meadow has also provided new insights into the development of orchids. We know, for example that Broad-leaved Helleborine (BLH) can develop from seed to large, mature plants in just three years (Trudgill 2019), whereas White Helleborine took six years. We know this because we know when the seed was first spread. And we know that BLH has a preference for growing near trees because this is the only place where it grows although the seed was initially spread across the whole of the meadow. Also, the development of the BLH to a plant large enough to flower appears to have been entirely below ground.

Our meadow has also increased our knowledge about species longevity e.g. some plants of Lesser Butterfly-orchid in our meadow have flowered every year since 2007 (Trudgill 2016) and, during that time have increased (apparently) vegetatively (Fig. 11). The localised distribution of some species but not others is also of interest. Early-purple Orchid grows in only two small areas, one to the north of the pond and the other under the Willow Tree where several plants are crammed together in an area only the size of a tea-plate (Fig. 9). Pyramidal orchid has increased greatly so that in 2022 we counted more than 700 plants. But, again, it tends to be aggregated – where there is one plant there are nearly always others close by.

Figure 9. Three mature *Orchis mascula* growing in one small area under the Willow Tree (also see Fig. 5).

Figure 10. Starting to take a hay crop off part of our meadow in late August 2019.

Figure 11. A plant of *Platanthera bifolia* that has flowered every year since 2007 and appears to have increased vegetatively.

Photos by Dave Trudgill

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Our meadow has also been a productive source of seed, much of which we have supplied to others with an interest in growing orchids in their meadows. We know of two meadows in Scotland with LBO grown from seed supplied by us. In 2021 we supplied to the HOS seed bank c.35g of seed of BLH and c.15g of seed of Common Spotted-orchid and in 2022 we supplied ten HOS members with a mixture containing seed from several orchid species for spreading across their own meadows. However, whilst orchids may produce large numbers of seeds, even where conditions are suitable it also usually requires a large number to establish each plant. Experience suggests that, in our meadow, one new plant per seed head would be a good return. Furthermore, there is one area in our meadow that, since we started, has never produced an orchid plant despite having received many 1000's of seeds of several species.

Final thoughts

Wildflower meadows are a delight that can provide interest and colour throughout much of the year. It is important, therefore, to include herbs and trees with other desirable features. Each spring there is a succession of plants flowering, starting with Wood Anemone (*Anemone nemorosa*), Snake's Head Fritillary (*Fritillaria meleagris*), Cuckoo Flower/Lady's Smock (*Cardamine pratensis*) and thousands of Cowslips. This is finished in late summer with Devil's-bit Scabious (*Succisa pratensis*). In the spring the Pussy Willow in our meadow hums with the sound of hundreds of bees collecting pollen and nectar. In early spring the pond is alive with frogs and toads and, later in the year, with damselflies and dragonflies. It also attracts visitors such as herons and, occasionally, otters. Orchids are a bonus, but one that provides year-round interest. In the winter and early spring we are busy finding and marking the leaf rosettes of Green-winged Orchid, Pyramidal Orchid, and Early-purple Orchid. The spring and summer finds us looking for problems (e.g. plants with *Dactylorhiza* 'Black-death': Scrace 2022; Temple 2022; Trudgill 2015) and for the first appearance of any new species. There is great rejoicing in the Trudgill household when we find that yet another new species has established in our meadow. Many people visit our meadow and it is a pleasure to show them around. In the late summer there is seed to be collected and mowing to be done.

The success we have had growing orchids from seed in our meadow is, we suggest, important with regard to future orchid conservation. In Britain, the numbers of sites where orchids occur is decreasing for most species (Trudgill, 2022a,b,c; Trudgill 2023). Our meadow demonstrates that, with appropriate interventions, this decline could be reversed. We suspect that, provided they are appropriately managed, sites suitable for orchids are relatively wide-spread (e.g. the banks of many roads and motorways) but orchids are absent because they have not received sufficient seed. Colonization by rare species is especially unlikely as the probability of a site being colonised decreases rapidly with increasing distance from a source of seed (Trudgill

2015). In our meadow, only Common Twayblade has arrived unaided and this was initially a single, small non-flowering plant first found in 2015, more than 10 years after the meadow had been established. Only Northern Marsh-orchid and Common Spotted-orchid have spread from our meadow, mainly into our garden but a few plants have appeared in grassy areas within 300m of the meadow. Consequently, to make best use of suitable sites generally requires the introduction of orchid seeds, as we have done. The HOS has already made a start in providing seed for such purposes, but more needs to be done.

Footnote

A video that shows our orchid meadow and its management can be access through https//youtu.be/Gqq6C-GQ4aU or search YouTube for 'Newmill – Creating and managing an orchid meadow'.

Acknowledgments

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The Fabulous Orchids of the Vercors, South-east France
Part 2 Mickey and His Promiscuous Friends

Clare & Johan Hermans

Over subsequent years between the end of April and the second week of June we expanded our horizons in SE France, using the same Gîte as a base. We took the opportunity to travel west on *Ophrys* hunts, especially earlier in the season. One good site was along the banks of the Roubion River. Parking at the conveniently located Charols sewage works the path led through woods and onto the gravel banks of the river where we found *Ophrys apifera* and *Ophrys fuciflora* subsp. *montiliensis*, a subspecies with larger flowers. We hoped to find *Himatoglossum robertianum* although it was nearing the end of its season; we were lucky and the tall pink-purple spikes were still magnificent and made the day. Further west in the Ardèche on the terraces of Saint-Pons numerous *Ophrys lutea* were outstanding and the ruins of Château de Crussol opposite Valence provided stunning backdrops for more *Ophrys* as well as *Orchis provincialis*, *Orchis mascula* and *Neotinea tridentata*, together with its hybrid with *Neotinea ustulata*, named as *Neotinea ×dietrichiana*.

Yet one place we never visited was Rochefort-Samson, located fifty miles north of the Gîte and east of Valence. What we had missed was revealed in the second week of May 2022. By chance our friends Jean-Michel and Chantal Hervouet, president and treasurer of the French Orchid Society, were staying with relatives nearby. Jean-Michel arranged to spend a day with Jacques Brey, who oversees Orchisauvage (https://www.orchisauvage.fr/), the FFO website devoted to mapping France's terrestrial orchids. So, it was an early start to get us to the 9.30 am rendezvous at the church car park. There we piled into two small cars leaving ours behind. By the time we returned at 4.00 pm the weekly market was in full swing with the UK car looking slightly incongruous nestled amongst the stalls. Luckily no one seemed to be bothered by its presence.

We drove off with rucksacks bulging, loaded with cameras, lunch, hats, suncream and plenty of water down the narrow lane along the Saint-Genis valley. It soon became apparent why we needed to double up on cars and opt for smaller ones; many were tightly parked along the verges and a small parking area was already full. Finding a space was a challenge but successfully parked we piled out and wondered

Fig.1: *Orchis provincialis*, Ardèche, Le château de Crussol near Valence. 30th April
Fig. 2: *Ophrys fuciflora* subsp. *montiliensis*, Drôme, near the Roubion River. 6th June.
Fig. 3: *Ophrys lutea*, Ardèche, terrasses of Saint-Pons. 29th April.

All photos by Johan Hermans


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why half of Europe's orchid aficionados were here. This was soon explained by the dramatic scenery with impressive limestone outcrops of the Vercors massif against a cloudless blue sky, lush meadows stretched out below and greeting us at eye level on a bank were a multitude of *Orchis anthropophora* and *Orchis simia* in full bloom. The prospect for the day was looking good.

We set off downhill in the warm sunshine after our leader, Jacques who had two GPS machines loaded with Orchisauvage locations enabling him to reveal the area's treasures. It would turn out to be quite a day with 35 different orchids including 11 hybrids seen during the next six hours. In the first meadow on a gently sloping bank were plentiful *Ophrys araneola* and *Ophrys drumana*, a pretty species with a mauve lip which is common in the area although experts differ on whether it is a valid species. Given we were with local specialists we have kept the names used on the day and in the FFO books.

After that, on Jacques' advice, we embarked on some serious study of the *Op. drumana* flowers. On closer inspection several had larger lips and were more yellow green in colour, they were *Op. araneola* × *Op. drumana* hybrids. Further along in the shade of some trees was the very attractive *Orchis* ×*bergonii* (*O. anthropophora* × *O. simia*) first described in 1887 by De Nanteuil, the mauve of the *O. simia* influence enhanced their appeal although there were also paler duller forms around. New discoveries came thick and fast and we soon spread-out taking photos, noting down names and orchid characteristics, and most importantly keeping track of where Jacques and his GPS had got to. In quick succession we found plentiful *Ophrys fuciflora* ssp. *demangei* with

Fig. 4: *Orchis* ×*bergonii* (*Orchis anthropophora* × *simia*), Rochefort Samson St-Gens, 12th May.
Fig. 5: *Neotinea tridentata*, Ardèche, Le château de Crussol near Valence, 10th May.
Fig. 6: *Orchis simia*, Ardèche, Le château de Crussol near Valence, 30th April.
Fig. 7: *Orchis anthropophora*, Col de Menée, 1st June.
Fig. 8: *Ophrys araneola*, Marais des Bouligons, 6th May.


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Fig. 9: *Orchis* ×*angusticruris* (*Orchis purpurea* × *simia*). Col du Prayet, 10th June.

a splendid lip (the subspecies is smaller) as well as the hybrid *Op. fuciflora* ssp. *demangei* × *Op. drumana*. This had the colours and markings of the *Op. drumana* lip. Then we had much prettier find; a yellow-albinistic form of *Op. drumana*.

Following the path, we were then shown the scarce *Orchis* ×*angusticruris* (*Orchis purpurea* × *O. simia*) and the more common *Orchis* ×*hybrida* (*Orchis militaris* × *O. purpurea*) which we had previously seen at Col de Ménee, both with taller and looser spikes than their parents. Helpfully for us a nice clump of *O. purpurea* was located close by. *O.* ×*hybrida* was first described by John Lindley in 1835 in his '*Genera and Species of Orchidaceous Plants*' and can occur in hybrid swarms. *O.* ×*angusticruris* was named later by Adrien Franchet in 1865 and both are uncommon in the UK. In all it was a dazzling array of orchids and it was not even mid-day.

Next Jacques found a few spikes of the hybrid *Orchis* ×*penzigiana* (*O. mascula* × *Orchis provincialis*) located on a nearby shady bank interspersed with *Orchis provincialis*. It is another French first, described by Aimée Antoinette Camus in 1928 with pale mauve flowers and a spotted lip. It is one of the rarest *Orchis* hybrids and only occasionally found; it would have been easily missed. An identification which provoked much discussion was a spike of *Platanthera fornicata*, smaller than P*latanthera bifolia* and growing on limestone substrate beside the path. It was first described as Habenaria fornicata by Charles Babington, Professor of Botany at Cambridge in 1836 and later re-classified as a *Platanthera* by Karl Butler in 2011. However, for many it is simply *P. bifolia*.

As the path steadily made its way up the now wide valley, orchids were still plentiful especially *Op. fuciflora* ssp. *demangei* and *O.* ×*bergonii* in various hues. So far, we had been on our own but now we could see occasional groups, of sometimes up to

Fig. 10: *Ophrys drumana*, Col Bacchus, 6th June.
Fig. 11: *Ophrys araneola* × *drumana*, Rochefort Samson St-Gens, 12th May.
Fig. 12: *Ophrys fuciflora* var. *demangei* Rochefort Samson St-Gens, 12th May.
Fig. 13: An albinistic form of *Ophrys drumana*, Rochefort Samson St-Gens, 12th May.


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twelve people, walking purposefully in the same direction but higher along the ridges. Conscious of the time we settled for a picnic beneath a large pine tree and realised everyone was congregating in the same area for lunch. Eating was accompanied by keeping an eagle eye out for ticks (*Ixodida*) trying to make their way onto us; the highest score was three for Jean-Michel. The local cows had obviously previously enjoyed the same shade. Following lunch, a single spike of an almost completely white *N. ustulata* nearby did not seem to be exciting anyone's attention apart from ours but it was obvious something else a little way up on a bank was. Jacques led the way and it turned out to be a special clump of *Op. fuciflora* ssp. *demangei* which years ago had been christened 'Mickey Mouse'. The name was very appropriate after taking one look at the peloric flowers. The deep red of the petals/ears enhanced the colours of the lip but was less striking in the second group with paler flowers. Jacques informed us there were usually thirty spikes but only ten appeared this year due to the lack of rain. Both clumps have been monitored over many years and flower consistently. For added interest nearby were *Ophrys fuciflora* ssp. *fuciflora* which has bigger flowers by a quarter and a larger, more spread-out lip. No wonder we were confused by all those *Ophrys*.

We took a different route back to the cars, along the way finding a white *O. militaris* and the equally pretty *Orchis* ×*beyrichii* (*O. simia* × *O. militaris*) described by Reichenbach f. in 1850. In addition, and reflecting the importance of the area, we met Jean Claessens, author of '*The Flower of the European Orchid'* and his wife on one of their regular trips; it was the location of many of the excellent photographs in the book.

We thought that was the end of the visit but Jacques had other ideas. He led us up the steep hill above the parking to find two more hybrids; *Ophrys insectifera* × Op. *drumana*

Fig. 14: *Orchis* ×*beyrichii* (*Orchis simia* × *militaris*). Rochefort Samson St-Gens, 12th May.
Fig. 15: *Orchis* ×*penzigiana* (*Orchis mascula* × *provincialis*), Rochefort Samson St-Gens, 12th May.
Fig. 16: *Platanthera fornicata*, Rochefort Samson St-Gens, 12th May.
Fig. 17: An albinistic form of *Neotinea ustulata*, Rochefort Samson St-Gens, 12th May.
Fig. 18: *Ophrys fuciflora* 'Mickey Mouse' monstrosity, Rochefort Samson St-Gens, 12th May (also see back cover).


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and *Ophrys insectifera* × *Op. fuciflora* ssp. *demangei*. They were growing on an exposed, sandy slope with low shrubs. Due to their subdued colours against the beige background, looking for a needle in a haystack came to mind, especially as this time the GPS coordinates were not as precise. Consequently, we spent a good quarter of an hour getting hot whilst searching for them. Once all the photographs were taken it was a brisk walk down to the cars and off to a different site.

We drove back to Rochefort-Samson and took the road a few miles north to Beauregard and followed the track to Wolf Pass. It was obviously part of a long-distance walking route but we went only a short way. On a bank was a colony of pale *Ophrys scolopax* and some more *Op. fuciflora* ssp. *demangei* × *Op. drumana*. By now we were thoroughly saturated with orchids and *Ophrys* in particular, so decided to make our way back to the Gîte. The day's events had not quite finished as on the return journey we learnt the hard way about French stop signs which are much more numerous than in the UK. After inching out at a T-junction to turn on an empty road, we were flagged down by a couple of Gendarmes and directed to a convenient parking space for a lecture and the threat of a €90 fine for not coming to a complete stop.

According to the books the second fortnight in May is best for Rochefort-Samson known as one of the 'orchidophile hotspots of France'. It is no wonder that nature and orchid lovers flock to see its treasures and to admire 'Mickey' and his friends. We for one will be back.

For additional information please see the Collectif de la Société Française d'Orhidophilie Rhône-Alpes publications and https://www.orchisauvage.fr/

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Fig. 19: *Ophrys insectifera* × *fuciflora*, Rochefort Samson St-Gens, 12th May.
Fig. 20: *Ophrys insectifera* × *drumana*, Rochefort Samson St-Gens, 12th May.
Fig. 21: *Ophrys fuciflora*, Rochefort Samson St-Gens, 12th May.
Fig. 22: *Ophrys fuciflora* × *drumana*, Rochefort Samson St-Gens, 12th May.


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Narrow-lipped Helleborine (*Epipactis leptochila*): a Newly Discovered Orchid Species for Bedfordshire

Richard and Geraldine Hogg

In 2021, Violet Helleborines (*Epipactis purpurata*) were discovered in a large central Bedfordshire wood, growing under beech trees and situated on top of the Greensand Ridge. There were also other helleborines nearby which were assumed to be Broad-leaved Helleborines (*Epipactis helleborine*). The area in the woodland where both species of helleborine were growing is on a soil with underlying Chalky Boulder Clay (see Barron *et al*. 2010). The clay is a glacial till deposit, and is very variable in composition with abundant clasts of chalk, limestone, and other rock types.

A year later in early August 2022, a visit was again made to the wood to have a look at the Violet Helleborines which were in flower. Plants of the other species of helleborine nearby were also examined. They had very few leaves which were arranged alternately and widely-spaced up the stem. This is not typical of Broad-leaved Helleborines where the leaves grow spirally up the stem. As the flowers had dried out and turned brown, it was impossible to identify the species.

In mid-July 2023, similar helleborine plants were found by the authors, including three close-together flowering stems (Fig. 1). The plants, on closer examination, showed some interesting features indicative of Narrow-lipped Helleborine, a nationally scarce orchid, which has been recorded in other nearby counties along the Chilterns, including Hertfordshire, Oxfordshire and Buckinghamshire. The flowers had a narrow pointed epichile, coloured green and pink. Many of the flowers were drooping (Fig. 2) much like a Green-flowered Helleborine (*Epipactis phyllanthes*). However, the colour at the back of the hypochile was red, unlike Green-flowered Helleborines where it is green.

Fig. 1 (opposite): Three stems of Narrow-lipped Helleborine.
Fig. 2: (above) Close-up of a Narrow-lipped Helleborine stem. Note the nodding flowers. The epichile can just be seen on some of the flowers.

All photographs by Richard Hogg

The only record of Narrow-lipped Helleborines in Bedfordshire, was reported by Dony (1947), but this was found to be erroneous and he mentions this in his book the '*Flora of Bedfordshire*' a few years later in 1953.

News of the possibility of Narrow-lipped Helleborines in Bedfordshire was passed on to other orchid enthusiasts and experts, and a visit was arranged to the wood to have a closer look at the orchids. The visit commenced with a look at the Violet Helleborine plants that had a total of 21 stems, with one or two of them just starting to flower. There were a few other helleborines close-by with eaten stems, or browned stem tops. One very tall plant was seen but this was still in bud. The focus of the visit was on the three flowering stems which were in the shade beneath beech trees, with very little other vegetation around them. All three stems had small flowers which did not open widely, with many already pollinated. It is known that Narrow-lipped Helleborines are usually self-pollinated (autogamous), and the flowering period is short. Many photographs were taken, and the plant stems and leaves were measured.

The petals and sepals were stripped back on one flower to expose the anther. A close-up photograph (Fig. 3) was then taken of the stripped-down flower, and it was found that the anther had a short stalk, another diagnostic feature of Narrow-lipped Helleborine, and therefore not a Broad-leaved Helleborine which is unstalked (see Cole & Waller 2020).

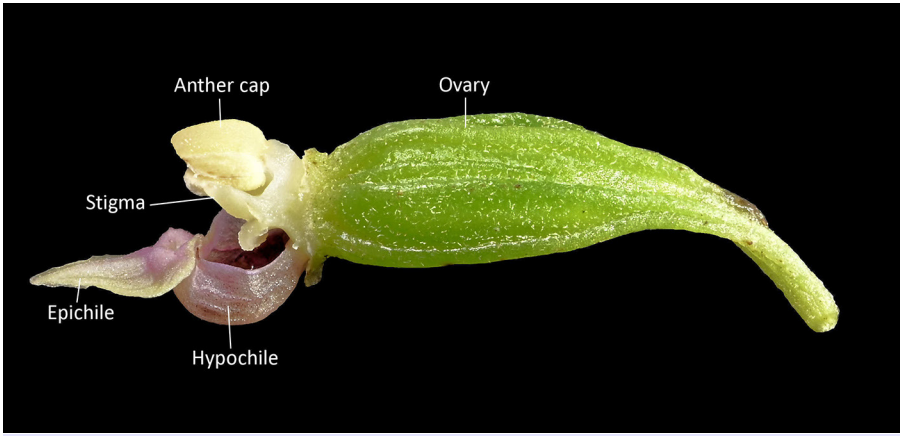

Fig. 3: Close-up of a Narrow-lipped Helleborine flower with the sepals and petals removed.

The gathered information, and some of the authors' photographs of the three stems, were sent off to Prof. Richard Bateman. Part of his response confirming the occurrence of Narrow-lipped Helleborines in Bedfordshire, questions the soil type:

"Obviously, the boulder clay soil raises an eyebrow, but the beech tree fits (the orchid and tree share mycorrhizal fungi)."

Normally, Narrow-lipped Helleborines grow on limestone or chalk soils. With Chalky Boulder Clay the amount of chalk or limestone can be very variable. Richard also notes: "The lip shape, colour, posture of the flowers, and vegetative characters are all consistent with *leptochila* (though I'd tend to view this occurrence as being three plants rather than one, while recognising that the three stems might originally have shared the same rhizome)." A later email from Richard also notes that in the new UK plant atlas *Epipactis leptochila* is rapidly declining post-1987.

Fig. 4: Close-up of one of the Narrow-lipped Helleborine flowers, with the pollen just starting to crumble onto the stigma.

After Richard Bateman's confirmation of the species, further visits were made to the wood. More photographs were taken to show further features of the plants. A total of nine Narrow-lipped Helleborine stems were counted. Five had flowers (one stem with a partially eaten top), two had browned stem tops, and the other two had their stem tops eaten, probably by deer. The very tall plant that had been seen in bud in late July, started to flower in early August, and was confirmed to be a Narrow-lipped Helleborine. This was a slender plant with five leaves, 18 flowers/buds, and was 58cm high. A recently opened flower on the plant showed no viscidium, with the pollen already starting to crumble onto the stigma (Fig. 4). By mid-August all the stems that previously held flowers, had developed or were developing nicely swollen fruit capsules. The Narrow-lipped Helleborines are certainly a most welcome find and addition to Bedfordshire's flora.

Acknowledgements:
Thanks go to Prof. Richard Bateman for confirming that the plants were Narrow-lipped Helleborines. Also, thanks go to Graham Bellamy and Richard Revels for their help and advice.

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