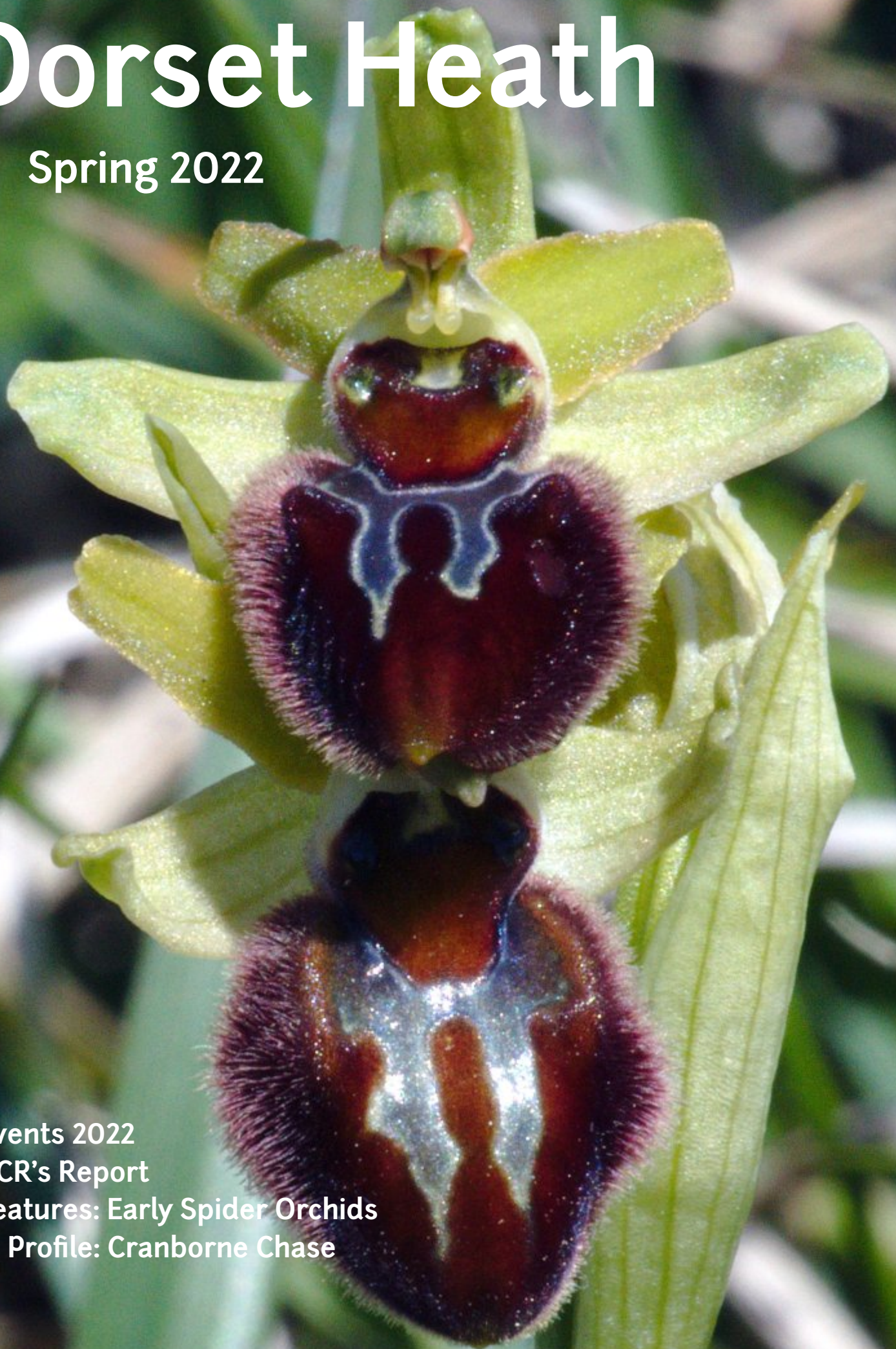


Dorset Heath

Spring 2022

Events 2022
VCR's Report
Features: Early Spider Orchids
In Profile: Cranborne Chase



Dorset Heath

Spring 2022

Foreword

Jon Crewe

View of Cat's Whiskers Wood at Fontmell [R Sharp]

Looking back, after the group's first field season in 2008 our earliest newsletter was produced in 2010, using Microsoft Publisher if anyone remembers that. I edited 2 more editions before John Newbould kindly took on the task at short notice in 2013. Then Andrew Branson produced four issues of Dorset Heath between 2015 and 2018 and then no more. So, we are very grateful to Robert Sharp for stepping in and giving us the benefit of a new approach.

Over the last 2 years we have been living in interesting times, with different challenges. We have all missed the chance to meet up at organised field trips, outdoor training sessions and so on. I'm not sure botanising was too difficult for individuals, apart from the first lock down where there was always the feeling that the police might rebuke you for parking "outside your area". Walking, alone, was possible, although there were stories that you might be challenged if for purposes other than exercise. Noting down a few plants might be OK, but quadrats were out of the question. There was the vexed question of what constituted your "local area". I live in Bournemouth, so was that local, or should I confine myself to Winton, or perhaps Winton East? More breath was wasted on these subjects than can easily be imagined, but there was always an uneasy background of genuine concern for health and life.

It is completely wonderful to be out of that stage of the pandemic, which continues, although we're officially allowed to ignore it now! I walked across Martin Down for an hour this morning, finding early dog-violet and dwarf sedge, with skylarks settling territorial disputes all around me. I felt pretty safe – and very cheerful. I hope that everyone can enjoy the spring and summer ahead in a similar spirit of relaxation and joy in the natural world. If you want to get down on your knees and count the rosettes of bee orchids in a metre square, or sit on

the grass trying to work your way through Stace's keys, only to find that you've keyed out a plant only found in Northern Scotland, or even sit in the pub telling tall tales of plants you've found and aim to find, you can.

We hope that you will find inspiration for your botanical summer in the pages that follow. The field events programme is here of course, with more opportunities to visit Sites of Nature Conservation Interest which are on private land, and usually inaccessible. There is a variety of articles and notes, with something in here for everyone; contributions cover subjects from Archaeobotany to Violet Helleborine, sites from Southbourne to Fontmell, events, VCR notes and much more. I hope you enjoy all of it; do send feedback to the editor, please join your committee and others in the field and most of all, enjoy the year ahead.



J Crewe

Contents

4	DFG Events 2022	49	Botanical Notes
6	Out and About in 2021	52	Dorset's Rare Plant Register
10	Feature: Early Spider Orchids	54	Bookshelf
12	Dr Rob McGibbon 1953-2020	55	End Matters
14	Surveying Dorset	56	Botanical Papers
22	In Profile: Cranborne Chase		
25	In Profile: Chettle Estate		
28	In Profile: Fontmell and Malbury		
33	In Profile: Down Farm		
35	In Profile: Places to Visit		
37	Opinion		
38	Bryology		
44	VCR Report		
48	BSBI Update		

Editor: Robert Sharp

All contributions for publication should be sent to the editor at dfg_heath@gmail.com. See End Matters for more details.

The views expressed by contributors are not necessarily those of the Dorset Flora Group.

All text and illustrations are copyright and no reproduction in any form may be made without written permission from the Editor.

Images credits are noted in the title in square brackets or imprinted on the image. Credits may cover more than one image on a page where the others are not marked. Front cover: R.Sharp

© Dorset Flora Group 2022

Editorial

Robert Sharp

Welcome to the latest edition of Dorset Heath. I expect some of you will be wondering what happened to the old style and I apologise if that is you. I have been on a steep learning curve the last couple of months and there is much that could be improved about this edition. But I am sure you will let me know.

I would like to draw your attention to Darren Cook's article about *Jasione montana* (Sheep's-bit). This is a great example of where work on one species benefits another. In this case the other is Scarce Clouded Knot-horn (*Homoeosoma nimbella*). The larvae feed on Sheep's-bit, and were found in numbers where Sheep's-bit occurred on the site. This was a great result that highlights the importance of the site and its abundance of Sheep's-bit for this moth. Incidentally, it also shows how much imagination goes into creating a convincing common name, and for some reason moths have many fine examples. Compare this to the less than inspiring

common names given to mosses, as I mention in my report on a visit to Holt Forest.

Bryophytes have not had a lot of attention in the past but there are good bryologists in the group and a fair bit of work across the county so I have included a section in the hope that come the autumn, some of you may be inspired to put on your wellingtons and waterproofs and venture out to see what all the fuss is about.

I hope everyone has a good botany season and please, whatever you do, write about it and send it to me so you can share it with everyone else. If you want to write a longer article please let me know in advance and I will send you a style guide to ease the process.

PS – I wonder why Jon put his post box half-way up a tree?

DFG Events 2022

Details of all events, including who to contact to attend, locations, dates and times, are provided by the DFG Committee to all DFG members. This information is also available on the DERC Website (see Links at the end of the article). In addition to these DFG run events, there are surveying programmes and opportunities as described in the section Surveying Dorset.

This section provides a little more background information about the event locations to help those attending and to entice undecideds to attend.

Chettle Estate, April (Already done!)

The estate is being brought into a new management regime that looks to balance wildlife and farming. There is an article on Chettle Estate in this edition of the newsletter.

DFG will be visiting the estate on 2nd April to carry out baseline recording. Jon Crewe will lead the group, meeting at Chettle Village Stores at 10am and ending at 4pm. If you forget to bring lunch you can pick up an award winning pie from the stores!

Avon Heath, April

This council-owned amenity is part of the St Leonards and St Ives Heaths SSSI, a dry heath on the edge of the ceremonial county of Dorset and actually part of VC11 – South Hampshire. Delights to be found include Deptford Pink and Small Adders Tongue. The site is within the Hampshire Basin, consisting largely of sedimentary sand, silt and clay stretching from the foot of the Purbeck Hills all the way round to Portsmouth. Further details are available on Dorset County Council's website.

The first meeting will be held on Wednesday April 20th at the Avon Heath car park (SU121029) starting at 10am until 4pm and led by Jon Crewe. Parking should be free if you turn up on time.

Further dates for surveying the site will depend on the level of interest, and include Tuesday 24th May, Wednesday 22nd June and Wednesday 20th July.

Gillingham Royal Forest, May

This former Royal Forest covers a large area between Gillingham and Shaftesbury and bounded along the north and east by the county border. In 2019, DWT obtained funding for the Gillingham Royal Forest Project to work with the communities across the Forest in order to restore this historic landscape. The Forest was established by King John and King's Court Palace at the edge of the Forest is reputed to be his favourite

hunting lodge in Dorset. After John, the forest fell from favour and was deforested (lost its royal charter) in the mid 17th Century.

The Forest, based on Kimmeridge clay from the Jurassic period, is now a Site of Nature Conservation Interest (SNCI), designated in Dorset by the Dorset Wildlife Trust. The purpose of the visit will be to survey various parts of the Forest. The visit is planned for Saturday 7th May with details yet to be confirmed.

Hilfield Priory, May

Nestling under Batcombe Down, about half-way between Dorchester and Yeovil, is Hilfield Friary. Founded in 1921 this Franciscan community puts a particular emphasis on the environment and caring for the land. The grounds are divided into 18 compartments each with its own character. The jewel in Hilfield's crown is probably Camping Ground, unimproved grassland that is home to 9 different species of Orchid alone. It is also literally a camping ground in the summer and probably benefits from the trampling. Hilfield and DWT's Hendover Coppice are home to the rare and rather enigmatic Fly Orchid.

The site is largely based on Greensand at the foot of Batcombe Down. Full details of Hilfield are on their website including a detailed map of the 50-acre estate and summaries for each of the 18 compartments within.

Details of the visit, which is expected to be in late May, will be provided nearer the time.

Beaminster, June

This visit will involve grassland surveys on another SNCI in the Beaminster area. Details have yet to be finalised but the event is planned to be on Saturday 4th June.

Ryewater Farm, July

Not far from This intriguingly landscaped garden/nature reserve is part of the Holnest SSSI primarily because of the network of ponds on the site that are home to the Great Crested Newt. The site has been created by Clive Farrell, not for the newts but for butterflies. It is a private garden and not usually accessible.

The visit will be on Saturday 2nd July starting at 10am until 4pm and led by Jon Crewe. Participants should meet at a small car park at ST6651 1051 and should be prepared to share transport on to site.

DFG Events 2022

Continued

Turner's Puddle Heath (Bovington Camp), August

This visit is to the restricted Tank Training Area, an SSSI that has very difficult access due to its use by the MOD's Armour Centre, a training college for various armoured vehicles. DFG has already discussed a visit to the site but plans were delayed by Covid. The site is predominantly dry heath although there are likely to be a few wet spots supporting a more diverse flora and fauna. Vascular highlights are likely to include *Lycopodiella inundata*, *Illecebrum verticillatum*, *Galium parisiense* and *Senecio inaequidens*

The visit is planned for Saturday 6th August between 10am and 4pm. Details are not yet finalised, but there is likely to be a limit on the group size, so please book up early. Contact Robin to express an interest.

Fern Workshop, September

Dr Fred Rumsey, retired Senior Curator at the Natural History Museum, is a specialist in Cryptogramic plants – plants that produce spores, including Ferns, Mosses and Liverworts. Fred will be running a workshop on Ferns at DWT's Kingcombe Centre on Saturday 10th September from 10am to 4pm. Please contact Robin Walls to register for the workshop.

Links

DFG Events: http://www.derc.org.uk/local/dfg_files/dfg_events_summary_2022.pdf

Avon Heath: <https://www.dorsetcouncil.gov.uk/countryside-coast-parks/country-parks-and-visitor-centres/avon-heath-country-park/avon-heath-country-park>

Hilfield Priory: <https://www.hilfieldfriary.org.uk/conservatio-n/>

Bovington Camp: <https://www.army.mod.uk/who-we-are/our-schools-and-colleges/armour/>



Epipactis purpurata
in Horse Close, August 2021
(see next page) [A Branson]

Out and About in 2021

Meeting Reports

R Sharp

Re-finding Violet Helleborine - *Epipactis purpurata* Jean and Tom Smith

We were part of a small group of people looking for Violet Helleborine in Dorset in August 2021 at some Sites of Nature Conservation Interest (SNCI), which are sites containing features of substantive nature conservation value at a local level and are managed by the Dorset Wildlife Trust. *Epipactis purpurata* (Violet Helleborine) was targeted as part of Dorset Flora Group's work to update the Dorset Rare Plant Register (DRPR). Mariko Whyte, also a member of DFG and Conservation Officer at DWT arranged permissions for visiting the sites including Twisting Alders Coppice and Horse Close, near Buckland Newton.

On Friday 6th August we met Mariko at Manor Farm (The landowner of Twisting Alders Coppice) and walked a short distance to the site. The last record for this site dated back to 1996 so we didn't know if the target species would still be there. It didn't look immediately promising because there appeared to have been little management other than some rides associated with maintaining a pheasant enclosure. This is a wet wood, so in theory it might be suitable habitat given *Epipactis purpurata* favours ancient woodland which is densely shaded and slightly damp so little else can grow.

We spent just under three hours searching (the last 20 minutes in heavy rain) covering much of the wood and did not find any *Epipactis purpurata*, so reported a nil record. We took sufficient notes to update the SNCI condition survey, so not a wasted visit. The most interesting species we found was *Chrysosplenium oppositifolium* (Opposite-leaved Golden-Saxifrage), among several notable species that we re-found.

We dried off in the car and set off for our second site – Horse Close near Buckland Newton. Horse Close is owned by the Woodland Trust, but there is no public

access so we were grateful Mariko had arranged permission for our visit through Alton Common Farm. We arrived at the wood at 2.30 and searched until 4.30 covering only a small proportion of this large wood but finding nothing.

We thought that might have been our opportunity gone for this year, but were delighted to be contacted by fellow DFG member and our former Chairman Andrew Branson who suggested the three of us try a revisit to Horse Close. Andrew had a good record of finding *E. purpurata* this year having already found it with Jon Crewe at Dungeon Hill, with Carolyn Steele at Moots Copse and alone at Stoke Wake and Brooks Copse. The last records of Violet Helleborine at Horse Close were from 2004.

On Sunday 22nd August we met Andrew at a rendezvous point in nearby Mappowder and decanted in to our car to reach the remote Alton Common Farm down a quite uneven long farm track, scraping the bottom of the car at one point! As we approached the site from the southwest Andrew discovered a Purple Hairstreak butterfly on the ground that had apparently been washed off the oak canopy by rain before our visit. Fortunately, the weather stayed dry for us and this time, armed with grid references of where the plants were seen in 2004, we headed to check those areas.

It wasn't long before we re-found our first *E. purpurata*. Nearby we found eleven plants of *Paris quadrifolia* (Herb Paris) another notable species for this site. There was a single *E. purpurata* in the first compartment with historic records. Moving on to another compartment we noticed a strong smell which transpired to be from a dead deer. However, a short distance from here Andrew found a whole group of 14 *E. purpurata* plants. We were very pleased with our haul so far, but continued on



to check another compartment where we found a group of nine and a single plant at different grid references.

In total, we found 27 *E. purpurata* plants across the whole site. Other notable species found included: *Chrysosplenium oppositifolium* (Opposite-leaved Golden-Saxifrage), *Conopodium majus* (Pignut), *Galium odoratum* (Sweet Woodfuff), *Hyacinthoides non-scripta* (Bluebell), *Lamiasstrum galeobdolon* (Yellow Archangel), *Orchis mascula* (Early Purple-Orchid), *Veronica montana* (Wood Speedwell), *Viola riviniana* (Common Dog-Violet).

Mistletoe in Dorset

Jon Crewe

As far as I can see, scrolling back through the many posts on the Dorset Flora Group's WhatsApp thread, *Viscum album* (Mistletoe) was first mentioned by Mariko Whyte on December 9th, asking for "Any suggestions why Dorset should be largely devoid of native mistletoe populations?" This post was answered by several people, some of whom felt it was rare, others that it was quite common. I suggested that we organised a formal survey in January, but well before that could happen there was a big rush of spontaneous interest and records started pouring in! At least a dozen people were contributing to a very lively discussion, with notes about historical context, theories about suitable soil types and microclimates and links to the very large and impressive paper in *British & Irish Botany*, 3(4): 419-454, 2021; **Mistletoe, *Viscum album* (Santalaceae), in Britain and Ireland: a discussion and review of current status and trends** by Jonathan Briggs.

The Briggs paper has all sorts of fascinating content about host trees, birds as dispersal vectors, preferred altitude and climate, associated invertebrates, the seasonal Mistletoe trade (and the Cheltenham Mistletoe King), use as animal forage and as medicine, and the availability of mail order berries for starting your own colonies in the garden. It included the fascinating information that the Mistle Thrush, *Turdus viscivorus*, named for its love of the berries as food, is actually rubbish at spreading them to new hosts. This is because the bird uses a latrine post, where slimy packages are deposited, falling onto fence posts or the understorey at least as often as tree branches. When they do hit a branch they are just as likely to bounce off and hang in a sticky thread below, drying out slowly and failing to extend the plant's range in the area. Blackcaps by contrast like to wipe their sticky bill on a branch, giving a much higher chance of infection, but generally on the same tree.

Our own local studies have certainly upped the number of records on the DERC database, with more to follow

Out and About 2021

Continued

as people get all of their findings onto Living record. Three people recorded upwards of 70 separate infested host trees, with Phil Smith top scoring narrowly from Mariko Whyte and Daniel Hawthorne with 87 records. I found 46 locations within 2km of my house in Bournemouth, although I don't think any of these are in Vice County 9, botanical Dorset. With my records not showing on the Living Record summary this makes 290 new records since December 2021, which suggests that we do have a reasonable quantity of native populations. The distribution of our results is skewed though; there are many more records in the East, some in the North and West but low numbers along the coastal strip. This may be genuine but may also be reflective of where recorders live. However, Tom and Jean Smith have struggled to find any at all from their location East of

Dorchester and some parts of the county seem very short of clumps. Searching is going to become more difficult from now on as leaves appear on the trees, but I do encourage people to check out host trees that they weren't able to identify in winter, if passing the sites of records. We probably have least information on that part of the puzzle.

I think it would be well worth trying to continue this survey next winter, spreading into the West and South as much as possible. Perhaps we could cross compare mistletoe records with Mistle Thrush, Fieldfare and wintering Blackcap records? Perhaps some more formal mapping relating the mistletoe distribution to river valleys? There are a lot of interesting opportunities to learn more.

DFG New Year Plant Hunt (NYPH) 2022 – summary Jean and Tom Smith

This year was the second year the group has taken part in the New Year Plant Hunt (NYPH). Around thirty-three people took part compared to thirteen people in 2021, so it seems to be catching on in Dorset. Twenty-one participants were from two groups and the remainder were in pairs or recording singly.

In complete contrast to 2021, when we had woken to a hard frost after an overnight low of minus 3, we had abnormally high temperatures for New Years' Day (we recorded 12.5 degrees). For our own NYPH we had the problem of wet weather to contend with and no apparent dry day forecast during the 1st – 4th January period, so we decided to do our NYPH on 1st January.

Pete Forrest joined us in Puddletown (appropriately named) and we had to shelter in our cars for the first 15 minutes. Suitably equipped with umbrellas, we set off in lighter rain towards the schools. Alongside one of the schools was a good arable patch, partly consisting of a 'naturalised' seed mix including *Pimpinella saxifraga* (Burnet Saxifrage), *Phacelia tanacetifolia* (Tansyleaved Phacelia), and the more common *Veronica persica* (Common Field-Speedwell). We headed towards the centre of the village in now heavier rain and were thinking of curtailing our walk when the rain finally eased-off. We spent a fairly productive time around the church seeing *Geranium robertianum* (Herb Robert), *Achillea millefolium* (Yarrow), *Euphorbia peplus* (Petty Spurge) among other species. As the weather had improved, we were able to cover all the main areas of the village adding species such as *Mercurialis annua*



Lamium Album at Badbury Rings [R Bale]

(Annual Mercury) and *Lapsana communis* (Nipplewort).

In all we spent two hours forty minutes on our plant hunt.

When we got home, we started receiving reports from other DFG members. Jon Crewe reported 14 flowering plants including the widely naturalised *Campanula poscharskyana* (Trailing Bellflower) from the Winton area of Bournemouth (SZ0993 and SZ0994). Sigrid Osborne found 8 species in the Poole/Branksome area



Centaurea scabiosa at Hinton St Mary [S East]

including *Viola odorata* (Sweet Violet) see photo.

Mariko Whyte had a walk with her family and her favourite flower was *Erica ciliaris* (Dorset Heath).

There was much more activity on Sunday 2nd January. Alex Mills ran an NYPH for the Beaminster Area Eco-Group. There was a great turnout, with 18 people coming along to meet some of the plants they live alongside. Thanks to the enthusiasm, curiosity, and keen eyes of the group they notched up 43 taxa in flower.

Pete Forrest went to West Bay and saw 23 species flowering including *Crithmum maritimum* (Rock Samphire). Di Hall and John Winterbottom went to Stoborough (16 plants in flower) and the day before had been to Grange Heath finding just 3 plants in flower.

Rex Bale visited Badbury Rings on 2nd January and

Viola odorata in Poole [S Osborne]



visited 3 squares but found all the flowering plants in ST9702 which included *Lamium album* (White Dead-nettle) see photo and *Knautia arvensis* (Field Scabious) see photo.

Sue and John East went to Hinton St Mary ST7816 on 2nd January finding 20 species flowering in 90 minutes including *Centaurea scabiosa* (Greater Knapweed) see photo.

Pete Forrest was out again on Monday 3rd January (the third day in a row on NYPH) this time visiting Eype, where he found thirty-two species.

Jonathan Cox visited SY9185 (South-west of Stoborough) and found five species flowering including *Teucrium scorodonia* (Wood Sage).

On Tuesday 4th January Robin Walls and Carolyn Steele went to Dorchester and recorded an impressive 51 species of Dorchester, with a particularly good grassy area near Dorchester South station. Species seen included *Hypochaeris radicata* (Cat's ear), *Leucanthemum vulgare* (Oxeye Daisy), *Pseudofumaria lutea* (Yellow Corydalis) and *Polypogon viridis* (Water Bent).

Although we didn't specifically ask for species lists we received a number and as a whole the group saw 82 species in flower overall.

Knautia arvensis at Badbury Rings [R Bale]



If you attend any meetings this year, don't forget to take some photos and think about writing down your experiences to include in Dorset Heath.



R Sharp

Feature:

Early Spider Orchids

Early Spider Orchids
Steve Masters, Head Ecologist, DWT

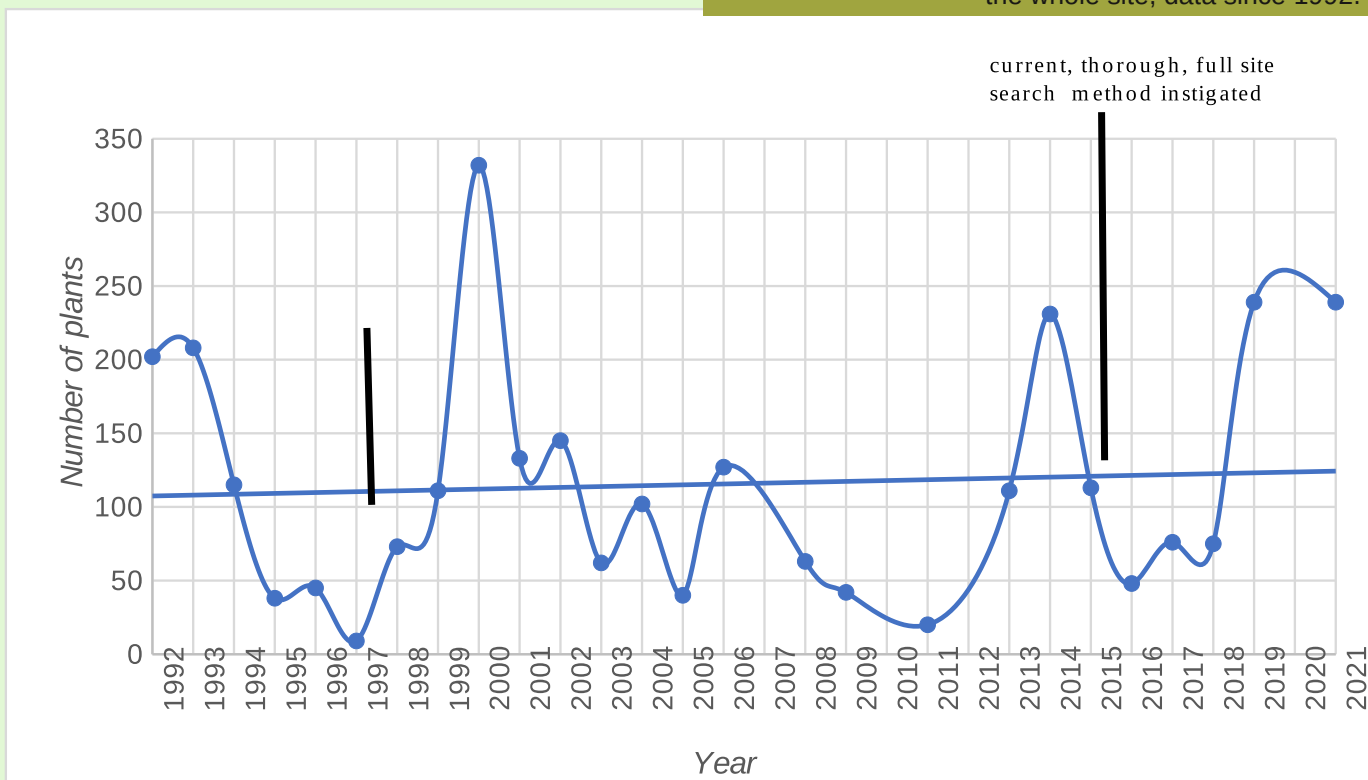
The Early Spider Orchid, *Ophrys sphegodes* is the logo of Dorset Wildlife Trust and has a very limited range in Dorset, only being found in the Purbeck on limestone grassland. DWT's Townsend nature reserve, a previous quarry, has one of these populations.

Here *Ophrys sphegodes* is monitored annually, through a combination of techniques: belt transects on areas of the site where there have historically been a strong population of the orchid, as well as walkover searches. Since 2012 a consistent approach to monitoring has been adopted, but counts have taken place since 1980 on the 'orchid bastion' area of the site and across the wider site

since the early 1990's.

The total *Ophrys sphegodes* count is shown in figure 1 below. Over time there has been a large variation in the total number found across the site, but in general there has been an upward trend across all years. Because it is a short-lived species, only 2.5 years on average (Hutchings 2010), then this demography is not unusual, with populations being susceptible to external perturbations.

Figure 1. Total *Ophrys sphegodes* full count, across the whole site, data since 1992.



Feature:

Early Spider Orchids

Continued

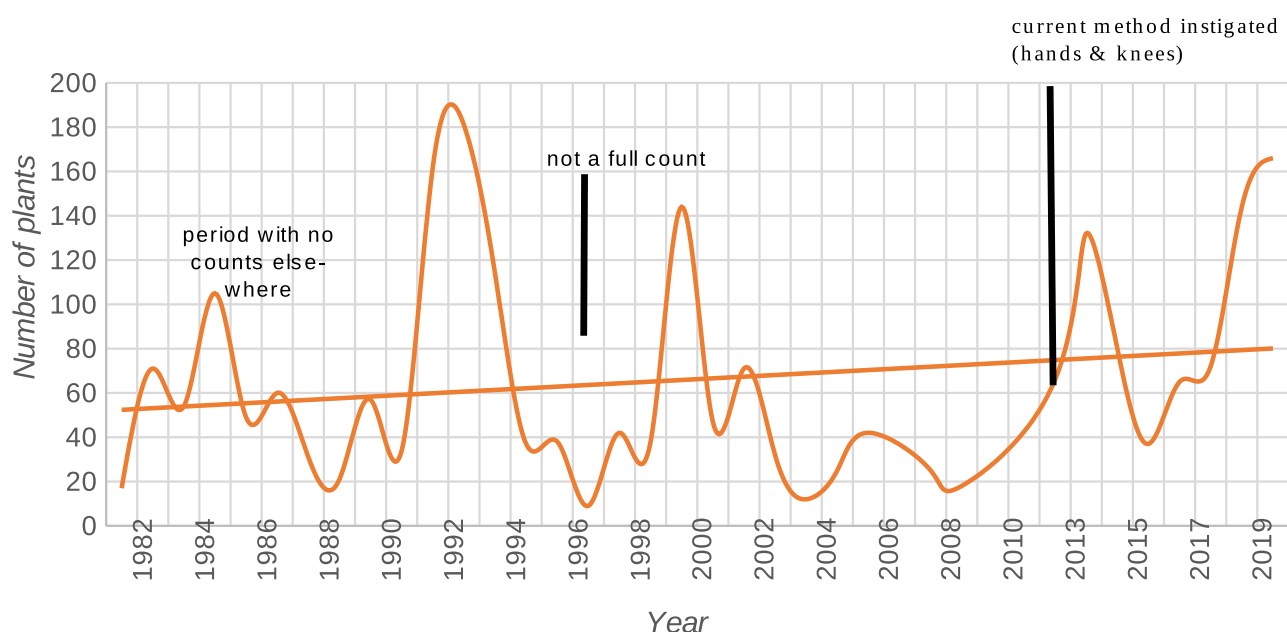


Figure 2. Total *Ophrys sphegodes* count for the 'orchid bastion' area only

We have also had concentrated survey efforts on the 'orchid bastion' area, a stronghold for the species on site. Again, the trend, shown in figure 2, is much the same across site as a whole. So, what influences have been taking place across the site that could affect *O. sphegodes*?

Grazing

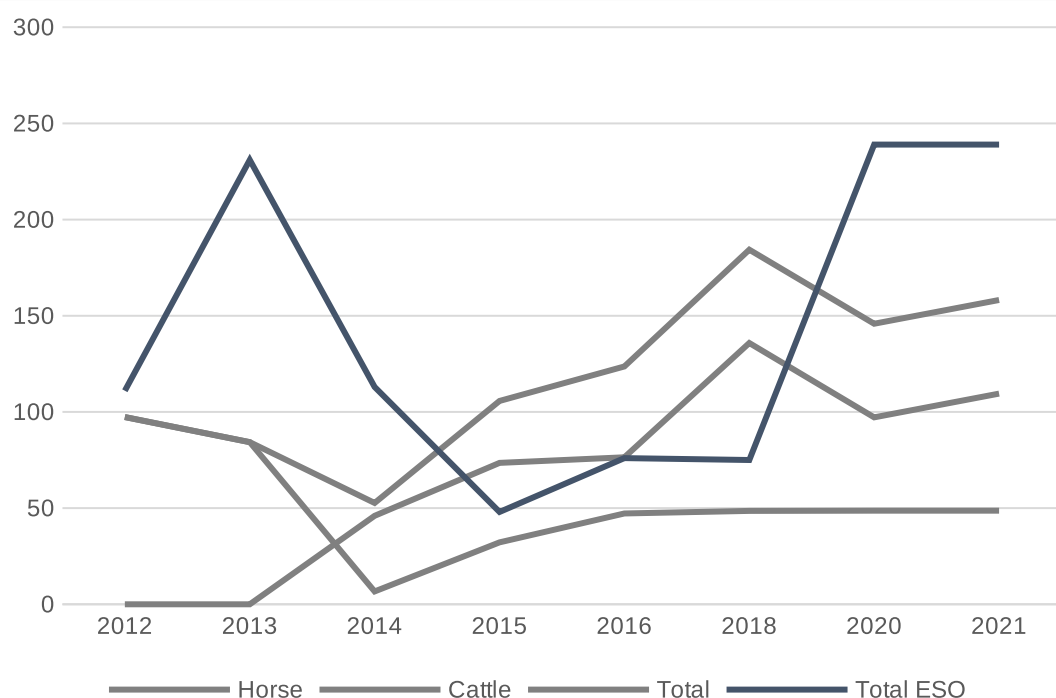
Since 2013, we have implemented cattle grazing on site to complement the horse grazing already taking place, and correspondingly the total grazing effort has gone up (see figure 3 below). This change in grazing animal and pressure looks as though it could be having an effect, albeit with the limited data

gathered so far. In a study by Hutchings (2010), where grazing changed from cattle to sheep, it was implied that the mechanics of cattle, inflicted greater damage on the *Ophrys sphegodes* population. However, this study did not give data on grazing intensity, dates or length of time on site, so

conclusions are difficult to draw.

The current grazing regime could well be quite favourable for *O. sphegodes* because the cattle don't come onto site until after flowering has taken place and are on site at a time when gap creation for germination is needed. The later grazing period should also remove vegetation build up and, in conjunction with horse

Figure 3. Grazing LSU/ha on site per years with total *O. sphegodes* numbers.



Feature:

Early Spider Orchids

Continued

grazing keeping areas shorter throughout spring, should enable the winter vegetative plant to be more productive.

Environmental

In the study by Hutchings (2010), winters with fewer frosts were positively correlated with *O. sphegodes* recruitment in the follow year. The most recent decade data shows there have been 16% fewer ground and air frost days compared to 1961-1990. This could be having a positive effect on numbers of the plant on site.

Rainfall data is available locally from Durlston Country Park, but there seems little correlation to number of *O. sphegodes*. It would be good to compare temperature data but this is currently not in a format which is usable.

Geology

The site is on limestone bedrock and has been mined, leaving behind spoil heaps. The type of soils present on site are likely to be less retentive of moisture than are the chalk soils from which other studies come. This lack

of moisture retention will undoubtedly be a contributing factor to population dynamics, affecting flowering, recruitment, and survival. It will also be affecting and likely suppressing, the competitiveness of other plants within the sward.

It will be interesting to see what trends occur over subsequent years with continued cattle grazing and to investigate how to compare other environmental variables.

References

Hutchings, MJ 2010. "The population biology of the early spider orchid *Ophrys sphegodes* Mill. III. Demography over three decades", *Journal of Ecology* 2010, 98, 867–878.

Kendon M, McCarthy M, Jevrejeva S, Matthews A, Sparks T, Garforth J (2020). "State of the UK Climate 2019.", *International Journal of Climatology*, Vol 40 Supplement 1 pages 1-69.

Dr Rob McGibbon 1953 – 2020

Jim White

It is easy to forget, or not even be aware of, the condition of siege in which nature conservation existed in Dorset during the 1980s and before. Sites constantly were being threatened, and many lost, to agricultural improvement and development, and at least one major public inquiry about a housing or road proposal was fought every year throughout the decade. It was against this background that Rob McGibbon came to work in Dorset in 1982, on a series of short-term contracts with the Nature Conservancy Council, carrying out habitat survey for the enormous job of notifying Sites of Special Scientific Interest under the 1981 Wildlife & Countryside Act. He worked enormously hard and passionately in this role and many of the important sites for nature conservation in Dorset were identified by Rob, and his groundwork in defining their specialness, often forging the first links with site owners, and advising on management, was of fundamental importance. His detailed field notes and site assessments, made long before the time of digital images, maps and GPS, are remarkable and still in use today. Many sites in Dorset were discovered, described, or saved because of Rob's tireless and skilled fieldwork; for instance, Kingcombe, Melbury Downs, Aunt Mary's Bottom, Canford Heath, Turbury Common, Talbot

Heath, Hogcliff - and many more.

Rob's passion for nature was life-long but his formal academic background was not quite along that road. He had taken a BSc from Newcastle University in Agricultural Botany and then went on to gain a PhD from Reading University in 1978, on the fatty acid content of lupin seed and thus its potential as a source of oilseed. He remained a short time in the Dept at Reading, helping with research, then had a while doing habitat survey for the Berks, Bucks & Oxfordshire Wildlife Trust from 1979 on a job creation scheme. In the spring of 1980 and 1981 he spent 2-3 months accompanying another lupin researcher on extensive trips to Spain and Portugal, and to Yugoslavia and Greece, searching for and collecting lupin seed of various genetic varieties, to further the lupin breeding they were undertaking at Reading. This required travel way off normal tourist routes, and interaction with farmers and small holders with no English, so Rob taught himself at least the basics of the languages of those countries. He clearly had a flair for languages with more than a passing competence in many - Dutch, Spanish, French, Greek, Portuguese, even Romanian!

Dr Rob McGibbon 1953 – 2020

He got a permanent job as a plant breeder with a Sugar Beet grower in Lincolnshire but became increasingly disillusioned with the world of commercial sugar production, and happily it was later in 1982 he came to live and work in Dorset.

Rob was given a permanent job from the end of 1986 as the NCC County Officer for Nottinghamshire. He stayed in this role for three years but was never truly comfortable with the political elements of the work, for a Govt Agency, and so was pleased to secure the much more 'hands-on' role of Project Manager for the newly created Surrey Heathlands Project in 1989. He established this project – a partnership role led by Surrey County Council and involving all the Local Authorities in Surrey with heathland sites, as well as many other agencies and organisations (MoD, NT, NCC, Wildlife Trust etc) with an involvement in their conservation, and of course a very large number of private owners.

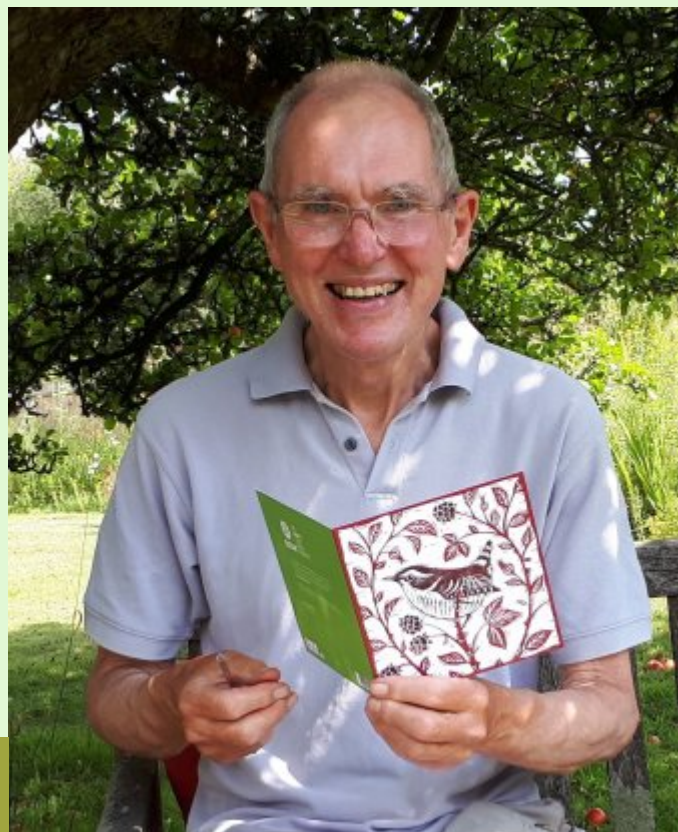
His wide knowledge and understanding of nature and ecology, his grasp of site management requirements for conservation, his empathetic and engaging way with people and his artistic abilities for interpreting and popularising the cause of heathland conservation meant that the project was enormously successful. This wasn't an easy task, as restoration meant change – the extensive felling of invaded pine trees and Rhododendron and the bringing in of livestock. Just with his one assistant, and a band of keen volunteers he naturally accumulated, he brought about the restoration of very many heathland sites within the Thames Basin and Surrey Weald heaths, forging lasting relationships with owners, volunteers, officers, and councillors. He re-established livestock grazing (ponies, cattle, goats) on some sites, after decades of neglect, helped by his intuitive understanding of animals and husbandry. He remained in this pivotal role until he retired in 2008, then moving to live in Dorset, where as well as enthusiastically volunteering with NT and DWT on botanical surveys, taking on a $\frac{3}{4}$ acre garden in Purbeck became a major task. He was a skilled plantsman, and his creative blend of well-chosen ornamental and wild plants became a delight both for visitors and abundant nature.

Rob was a talented artist, and his delicate watercolour paintings of plants and wildlife unfailingly managed to capture an essence of the liveliness and character of the subjects. Always modest to a fault, he needed to be pushed to make more of his work but painting a special Christmas Card became a tradition from 2010, with a mailout to close on 100 friends. He also painted individual birthday and anniversary cards and many

recipients have treasured these quietly beautiful pictures.

Rob was diagnosed with a brain lymphoma in early Sept 2019 and underwent four week-long punishing rounds of chemotherapy with many unpleasant side effects. This gained him some months of remission and he was able to have a reasonable summer in 2020, pottering in the garden, and making short walks from the house or locally in our lovely area, always keenly observing and recording wildlife.

Very sadly by August a brain scan showed his cancer had returned and although he underwent two more bouts of another chemotherapy regime, there were to be no positive effects on the cancer this time. From mid-October 2020 it had become clear that palliative care was probably the only outlook and Rob was uncomplainingly resigned to this. He suffered a major seizure on the evening of 31st October and was taken into Critical Care at Poole and then to Forest Holme Hospice, where he spent his last 8 days. He finally passed away peacefully on the evening of 10th November. He was 67 but given the long lifespan of all his immediate family this seems unfairly young. He might have reasonably anticipated another two or even three decades of active life, and for all of us the benefit of his generous, joyful company and outstanding natural history abilities. For all of us that knew anything of his endearing character and talents, his untimely death has left an unfathomable gap, but his legacy for nature conservation in Dorset and beyond, typically understated, is simply massive.



Rob in August 2020
[J White]



Surveying Dorset

R Sharp

This section provides information about the various projects across Dorset that involve botanical surveys. Many of these are opportunities for getting involved

either as a volunteer or on your own. Details of who to contact are provided in each section

National Trust Botany Group Darren Cook

The wondrous sight of a nice square quadrat is one of life's true pleasures. Or so the National Trust's Purbeck botany group are frequently told. That is because quadrats have been a fundamental, but sometimes under-loved, aspect of the group's activities for the last 5 years while they have carried out botanical surveys that inform the assessment of our priority habitats.

The National Trust manages a little over 3400 hectares of land in Purbeck. Of this, around 1800 hectares are classed as priority habitat. These are habitats that have been identified as being of principal importance by Section 41 of the Natural Environment and Rural Communities Act (2006). We are required to assess the condition of it all and submit that to the national inventory. It is an endeavour that began in 2017 and has proceeded steadily every year since, with the exception of 2020. More importantly to us locally, the surveys provide valuable feedback and evidence to inform and

evaluate management of the land.

Surveys use a rigorous protocol, with specific locations for quadrats marked on aerial maps and provided to surveyors. Within each quadrat, all species and their abundance are recorded along with structural information such as the sward height, and the overall percentage cover of bare ground, herbaceous plants, grasses or heathers. Across the whole survey area, broader information is recorded such as the amount of scrub, bracken, and the impact of animals and grazing. To finish, some descriptive comments are noted down to give qualitative context to the records and to help with subsequent interpretation. Putting aside jokes about quadrats and precision, using such structured methods leads to an interpretation that is robust and defensible, and results in surveys that are repeatable and comparable.

During 2021, from May through to October, the botany

Surveying Dorset

Continued

group spent a total of 17 days surveying across an estimated 310 hectares of land. The group ranged far and wide, visiting the dune grassland of the frontal ridge of the Studland Peninsula (Coastal Sand Dunes), the grasslands of the South Purbeck Coast around Seacombe Valley and inland around Acton (Calcareous Grassland), the heaths of Slepe and south Godlingston (Lowland Heathland), and the valley mire of west Godlingston Heath (Lowland Fens).

Of these habitats, the calcareous grassland is the richest in species, which also often presents the hardest challenges in identification. Typically, we would expect to discover between 20 and 30 species in a 1-metre quadrat. Consequently, progress across this land is not fast. By contrast, the heaths are far less rich in species (some even say 'boring'!), where only 5 or 6 species might appear in a 2-metre quadrat. However, progress is more rapid here, and occasional delights do appear.

The process sometimes brings to light some mistakes, such as a patch that has the wrong habitat type assigned to it in the inventory, or, disappointingly, should not be recorded as priority habitat at all. Sometimes, though, we have looked at an area that has been under restoration or reversion, and not classed as priority habitat but is now in a good enough condition to qualify, which is a much more pleasing outcome.

Of course, the glorious days in the field are only part of the process, but the surveys underpin our assessments, and we are very grateful to the enthusiastic and dedicated team of volunteers that carry them out. Despite the challenges of identification and some tricky terrain, there are two true pleasures in working with this group: being out in wonderful countryside and being out with wonderful people.

If you would like to get involved, please contact Darren via email: darren.cook@nationaltrust.org.uk

NT Weekly Reports by Jim White

Below are a mere handful of the unedited weekly reports produced by the NT Botany Group.

17th June 2021

A forecast, including a weather warning, for possible torrential downpours and thunderstorms seemed highly improbable when the six vols who joined Darren this week set off from Spyway carpark. Rather, it was a case of warm or somewhat humid if cloudy conditions, but taking waterproof layers, just in case; a prudent precaution.

It was a long walk to the monitoring site - two cpts close to Hedbury Quarry. The swards we recorded though are well worth that effort; they are splendid. Tor-grass is the most frequent grass throughout the turf but it is well grazed by cattle. In contrast to the sheep-grazed grassland of the previous weeks, there is little trace here of rank or tussocky tor-grass. A good number of other grasses is present, including quaking grass, red and sheep's fescues, crested dog'-tail, meadow oat-grass, crested hair-grass and small quantities of cock's-foot and rye-grass. Glaucous sedge is always present and the ratio of herbs and sedges to grasses in these swards is very good throughout.

Frequent herbs include bird's-foot trefoil, salad burnet, ladies bedstraw, squinancy-wort, black medick, bulbous buttercup, horseshoe vetch, dwarf thistle, rough hawkbit and wild carrot, the latter much more frequent in the eastern of the two areas (Scratch Arse Ware). Thyme is

generally present too, but especially showy when it occurs on anthills, where the diminutive fern-grass also typically grows. More thinly scattered but widespread are many other herbs, including hoary plantain, yellow-wort, common and lesser centaury, kidney vetch, pyramidal orchid, bee orchid, carline thistle and a strikingly plentiful amount of the scarce bastard toadflax, especially in the western cpt (Hedbury). Restharrow is patchy and also, in slightly longer areas, for instance along fences or the edges of tracks, knotted hedge-parsley.

Butterflies were quite active, despite the lack of direct sun, with a good showing of adonis blues in particular. Rain crept in gradually from early afternoon, but not early or heavy enough to stop us successfully recording the eight quadrats that had been today's target.

22nd July 2021

The prospect of an exceptionally warm day in what was trailed as partly semi-improved grassland, didn't engender many enticing expectations. In the event, the five vols who could meet (without Darren who had to be isolating), was much more interesting and pleasant than suspected.

Our target was to record seven quadrats in two cpts to the NE of Dancing Ledge, in order to complete that area. The upper field, where four quads were taken, is indeed S/I but only the position nearest the west gate is poor. This has rather few, general, herbs and is predominantly



Godlingston Heath [R Sharp]

grassy, with rye-grass and crested dog's-tail making up most of the sward. Elsewhere in this cpt there is more of a showing of calcicoles, although tor-grass and glaucous sedge among others, remain at a low cover; sure indication of past agricultural improvement. Herbs that start to appear here include dwarf thistle, greater knapweed, field scabious, and rough, lesser and autumnal hawkbits.

The second field, where three quads were required, forms the west-facing slope of a dry valley just to the east of Dancing Ledge. It is very herb-rich and the sward is well (indeed actively!) grazed by exceptionally docile and unconcerned cattle. Tor-grass is the most frequent turf component but it is under good control; never dominant. Other grasses include meadow oat-grass, quaking-grass, sweet vernal-grass, red and sometimes sheep's fescues, heath-grass and a regular but very slight presence of cock's-foot. Glaucous sedge is frequent. Herbs present in this rich sward include dwarf thistle (ever-present!), Salad-burnet, Horseshoe Vetch, Common Knapweed, Black Medick, Ox-eye Daisy, Rough Hawkbit, Agrimony, Hairy Violet, Small Scabious, Slender Centaury and a notable frequency of Bastard Toadflax.

The coastal location and a gentle sea-breeze took the edge off the otherwise very hot conditions. (We should be careful what we wish for though; this week looks far less settled). Although seven quads wasn't a remarkable tally for last Thursday, the small group felt well-satisfied that this section of recording had been completed.

2nd September 2021

A dry, cloudy and breezy day, and a return to Godlingston Heath to continue the recording of the wet heath/mire around Lower Western Valley, for five volunteers who joined Darren this week. The main target was the mire units but the intimate mix of communities means that within a few paces the change from wet

heath, or even dry heath, into pockets of mire is striking. This feature is probably enhanced by the relatively sharp topographical relief exhibited by Godlingston. No other Dorset heath block has such marked and dramatic relief; most mire areas elsewhere occupy flatter terrain with a more gradual transition between communities. The landscape of Godlingston is truly impressive, with deeply incised valleys, fast-flowing water-courses and broad expanses of drier slopes; the whole enhanced by the skyline of the Purbeck ridge to the south and Poole Harbour and the islands to the south. No other lowland heath shows such a dramatic and rapid habitat transition.

The mire is often dominated by tussocky Purple Moor-grass and Bog Myrtle is sometimes frequent, the latter mainly in the lower (N) sections. Cross-leaved Heath is constant, with quadrats in slightly drier spots having a little Ling and even Dwarf Gorse, while the wetter areas have more typical mire associates including Common Cotton-grass, White-beak-sedge, Star Sedge and Bog Asphodel. A carpet of bog-moss is not universal, usually being more apparent in the open, wetter mire patches. Near the central watercourse there are indications of some base-rich influence with the occurrence of plants such as Bog Pimpernel, Marsh Pennywort and Bog-Bean, and a scatter of Black Bog-rush, the latter becoming a more continuous and very obvious feature slightly further upstream (S).

Evidence of grazing is light in the mire areas, being more obvious once the community shifts to wet heath. In this wet heath zone there is often a very good number of Marsh Gentians.

It is a long walk to and from the sampling areas but the grasslands of Greenlands are also of interest, with a good view of a couple of wheatears today as we passed, and a remarkably large population of Autumn Lady's-tresses; well over 100 spikes noted just along our route, so perhaps a thousand or more throughout the grassland.

Surveying Dorset

Continued

Kingcombe Steve Masters

Dorset Wildlife Trust's Kingcombe Meadows nature reserve, part of the greater Kingcombe National Nature Reserve, is 200 hectares in size. It is made up of a variety of habitats, but primarily is important for its lowland unimproved grassland. With a large diversity of grassland communities across the site as a result of the varied geology.

It is important for us as land managers to understand how our species and habitats on our sites maybe changing. This is especially true for priority grassland habitats where we are essentially trying to control the perturbations and stabilise the ecosystem, stopping succession. Coupled with an ever-changing climate, bringing with it, on average a 29-day longer growing period than between 1961-1990 (Kendon M et al 2020), means we need to monitoring what is happening. One way in which we can do this is by looking at the floristic communities present and comparing them to previous assessments.

Our aim each year is to cover roughly 1/5 of the site at Kingcombe, so we have a rolling programme of monitoring from which to draw our data. We survey

areas of contiguous communities through 1m x 1m quadrats, placed across the area, usually between 1-5 quadrat per community. This is to ensure a representative sample of the community based on its extent. The aim being to compare these to the previous NVC assessment from 2000, and then in the future to recent surveys. We have also re-surveyed parts of permanent quadrats which were set up in the 2003.

The re-survey of permanent quadrats on one part of the site, for example, has revealed how the floral community is changing with the increased dampness on site, a result of drainage changes. We were able to look at the dominant floristic species components, one in this case being *Juncus acutiflorus* and compare the differences over time.

The surveys are led by myself, Jim White and Robin Walls and take place from the beginning of June, every Friday until August when we often change our attention to other DWT reserves for a bit more variety. If you would like to get involved, then please email smasters@dorsetwildlifetrust.org.uk and you can be added to the distribution list.



Volunteers
surveying
invisible
quadrat
[S Masters]

Surveying Dorset

Continued

Space for Species

Sophie Lake

Did you know that nearly half of the vascular plant species considered a priority for conservation are dependent on some form of disturbance that creates early successional habitat? Recent work for Creating Spaces for Species [1], a new partnership species recovery project led by Natural England, has estimated that over 48% of the 194 “priority” vascular plant species listed under Section 41 of the 2006 Natural Environment and Rural Communities (NERC) Act 2006 [2] are either wholly dependent on significant and ongoing disturbance or benefit from occasional disturbance, for example, to allow the establishment of seedlings of long-lived perennials.

In the past, the bare space required by these species was created as an unintentional result of the myriad activities that accompanied rural subsistence livelihoods – for example, small borrow pits for sand, gravel and clay, trackways for carts across wet heathland and steep downland, muddied areas where cattle congregated at fords and turf cutting on bogs. The resulting bare, open conditions provided niches for small species unable to compete with more vigorous plants, such as *Lycopodiella inundata* (Marsh Clubmoss) and *Cicendia filiformis* (Yellow Centaury). It also favoured some longer-lived perennials such as *Juniperus communis* (Juniper), which requires disturbed ground to regenerate, but can then persist in more stable conditions for decades. Open conditions are not just important for plants, but also provide bare substrate and microclimates suitable for a range of other species – invertebrates like the Purbeck Mason Wasp *Pseudepipona herrichii*, which likes exposed clay for its “masonry” or the Sand Lizard

Lacerta agilis, which requires warm, bare sand for egg-laying.

Almost all habitats in the UK are semi-natural, having evolved through the interactions between people and their environment over millennia. Many open habitats, including heathland, grassland, wood pasture, wetland and coastal habitats, are managed to halt the ongoing process of succession, for example through domestic livestock grazing. However, it seems that livestock grazing alone is not necessarily able to create the degree of structural complexity that is required to support a wide diversity of species. Before prehistoric humans started to significantly alter the environment, such complexity may have been created by the diverse actions of wild animals such as Wild Boar *Sus scrofa* and Aurochs (wild ox) *Bos primigenius*. Human activities as described above replaced these natural vectors of change, but now, in the absence of these factors, conservationists have been looking to recreate early successional habitat through deliberate interventions - often involving large machinery.

Dorset’s Heathland Heart was a four-year partnership project led by Plantlife that focussed on early successional species on the Dorset Heaths. Part of the ground-breaking Back from the Brink [3] (BftB) programme, it sought to recreate a variety of bare ground habitats including bare sand, winter-wet tracks, peaty turf-stripped areas, poached pond margins and exposed clay for specific rare and threatened species. Of the 36 species targeted by the project, 11 were vascular plants.



Yellow Centaury in the sunshine; BftB volunteers monitoring an old site following gorse clearance; a re-rutted track [S Lake]



Surveying Dorset

Continued

One of these species is Yellow Centaury. A diminutive member of the gentian family, this is a summer annual that flowers around July in Dorset. Often just a couple of centimetres in height, it has delicate, four-petalled flowers at the end of each stem, which may be branched, forming distinctive “candelabras”. The flowers are just millimetres across and tend to open only in sunshine. The fleshy stems are green, becoming reddish in droughty conditions, and the ripe seed capsule is also often orangey-red. A careful look will reveal a tiny rosette of slender leaves at the base of the stem.

A southern species, Yellow Centaury is now limited to the New Forest, the Dorset Heaths, The Lizard in Cornwall and Pembrokeshire. It is generally found in a heathland context in areas of sparse vegetation where the ground is inundated in the winter (for example in livestock hoofprints or on a rutted track) and is dependent on some measure of disturbance maintaining open conditions. It creates an abundant seed bank, from which it appears to regenerate readily, including after periods of adverse management including afforestation, lack of grazing and drying out. In favourable conditions it can be present in 10,000s (for example following a significant disturbance event), before gradually decreasing and in some cases only persisting in the seed bank for periods of time or at very low levels.

On the Dorset Heaths, Yellow Centaury has been recorded from 21 sites since around 1930, although only 12 at any one time. Between 1992 and 2017, it was recorded from seven sites but by 2017 it was no longer recorded from four of these sites and was present in very

small numbers at three more. Through BftB, carefully planned deliberate disturbance was carried out at four sites with old records - two where the plant was absent above ground and two where it was still present in tiny numbers. After a combination of scrub cutting and the mechanised raking-out of roots, a tractor was used to “rut up” the wet ground to exposing the residual seed bank while at the same time creating hollows that would hold water over winter. Just under 1500m of suitable habitat was created at Grange Heath, Stoborough Heath, Arne and Godlingston Heath and to our delight, the overall population across the four sites increased from just 7 plants in 2018 to over 430 in 2021, with at least 50 plants at each site. The site managers now ensure that the tracks are sufficiently used in the winter to maintain open conditions, and it is hoped that grazing livestock will contribute to maintaining early-successional habitats. However, the case of Yellow Centaury raises some interesting questions about how to maintain populations of annual species that are naturally dynamic within the fenced boundary of a nature reserve. Unfortunately, the new joined-up grazing unit that is a feature of the new Purbeck Heaths NNR doesn’t yet include most of the populations - but it is certainly a step in the right direction, and may allow the species to disperse more widely from at least one of the sites through the actions of livestock (and possibly vehicles).

BftB focussed on a number of other plants, and for several of these, including the tiny, grass-like fern *Pilularia globulifera* (Pillwort), the lovely *Viola lactea* (Pale Dog Violet) and *Platanthera bifolia* (Lesser

Brown Galingale at its only Dorset site; Alaska's amphibious excavator opening up spaces for Bog Sedge; Site manager Mike Fussell sowing a scrape with Juniper berries [S Lake]



Surveying Dorset

Continued

Butterfly Orchid), the restoration of early successional habitat through a variety of mechanisms including scrub clearance, control of alien invasive species and prescribed heathland burning proved successful in restoring “lost” populations from the seed bank or boosting existing populations. Sadly, it was not successful in expanding the one remaining Purbeck population of *Scleranthus annuus* (Annual Knawel) – further action is needed for this species.

It is hoped that volunteers will be able to continue to survey the populations under the umbrella of the new Purbeck Natural History Forum (see below) and that site managers, having seen the results, will be keen to continue to create patches of early successional habitat – at least until the day that Bison and Wild Boar roam the Purbeck Heaths!

Building on the success of BftB, a new partnership project led by Natural England has been looking at

creating early successional habitat for assemblages of species. Work achieved over the winter of 2021/22 includes scraping out *Molinia caerulea* (Purple Moor-grass) tussocks for *Carex limosa* (Bog Sedge) in Morden Bog, creating chalk scrapes for *Juniperus communis* (Juniper) in Cranborne Chase, and opening up an old, flooded track and increasing livestock access for *Cyperus fuscus* (Brown Galingale).

[1] Creating Spaces for Species: A project plan to save threatened species of early successional and bare ground habitats in Dorset, Hampshire & the Isle of Wight. A report to Natural England by Plantlife, the Dorset Environmental Record Centre and Buglife (2021)

[2] Species considered to be of principle importance for the conservation of biodiversity and for which public bodies must have regard when discharging their duties.

[3] <https://naturebftb.co.uk/>

Purbeck Natural History Forum and the Super NNR

Back in March 2020, Stoborough Heath, Hartland Moor, and Studland and Godlingston Heath National Nature Reserves were merged and extended to form the Purbeck Heaths National Nature Reserve, sometimes referred to as the new Super NNR.

The combined land has a total area of 3,300 hectares, across the Parishes of Studland, Corfe Castle, Arne, Church Knowle and Steeple with Tyneham. The land is held by the National Trust, Royal Society for the Protection of Birds, Amphibian and Reptile Conservation Trust, Dorset Wildlife Trust, Forestry England and Rempstone Estate Trust.

In March 2022, these partners, including Natural England, established the Purbeck Natural History Forum

as a way for all recorders, groups or individuals, working not only on the Purbeck Heaths NNR but elsewhere in Purbeck on the partners’ sites to be provided with support. Anyone involved in these activities is encouraged to register with the Forum. This has the benefit of being included in the Forum’s insurance scheme covering any work carried out in the area.

Information about the Purbeck Heath NNR can be found at <https://purbeckheaths.org.uk/>. To find out more about the PNHF, please email info@footprint-ecology.co.uk and keep an eye out for on the website above for more information as it becomes available.

Do It Yourself Surveying

As well as joining a volunteering group, you can do your own surveys. Here are some ideas.

BSBI Atlas 2040

But we have only just finished the 2020 Atlas, you say! Well? Why not start working on the next one today! There are still many squares in Dorset with few or no records at all and spreading out the load across the next two decades could mean our children can enjoy Dorset’s flora a little more easily. To find empty or nearly empty squares, log into Living Record and take a look at

Distribution Maps for All Species. Then grab a checklist, a GPS device and go survey your squares. Don’t forget to enter your results into Living Record. Don’t have a Living Record account? See below for how to get one.

Survey a Hedgerow

If you live in the country, why not adopt a stretch of hedge and survey it this year. There are details about how to conduct a hedgerow survey at the website below. There is a great guide to download from the website.

Surveying Dorset

Continued

You will need to register with the site to upload your own results. Don't forget to enter the species you find onto Living Record as well.

Survey a Street

If you live in a town, why not adopt a street and survey it through this year. Just walk up and down it now and every month or two until the end of the growing season and enter your findings onto Living Record.

Survey a Wasteground

It's amazing how many interesting plants you can find growing on bits of waste-ground, either in the town or country or in Industrial estates between the two. I have found fascinating assemblages of plants on scrubby patches of land in several villages. If you live nearby perhaps keep an eye on your waste-ground as the season develops. Again, record your findings and upload the results onto Living Record.

Taraxacology

Why not grab yourself the latest copy of the BSBI Handbook on Dandelions and give it a test run? The season has already started and usually runs to the end of May. After that Dandelions generally become too unreliable to identify. If you want to get serious then you probably need to be thinking of several years of work – it's not an easy subject. Why bother, you may ask? If you get the book, there is a map of all the official Taraxacum records. Run your eye along the south coast until you get to a big blank area. That's Dorset. We need to get recording.

Veteran and Ancient Trees

A lot of work has been done over the years on recording veteran trees but it is never enough. If you are interested in these trees then why not take a look at the Ancient Tree Inventory on the Woodland Trust website. There is very detailed map of the 180,000+ records in the database, with notes and field guides to help measure a veteran, and webpages to help you add your records to the inventory. You need to register with the website but it is all free. The search facility allows you to select records by species, veteran status, special interest (such as Trees of National Special Interest) plus plenty of other parameters. The map facility is brilliant either for planning trips or finding veterans and ancients. If you are new to this sport, why not head over the The Oaks, just north of Badbury Rings and prepared to be amazed. Unfortunately you can't hug these ones.

Living Record

Whatever you do, don't forget to enter all you results into Living Record! If you do not have an account, then

go to the website below and click on the "Join" button. All you need is your name and an email address. Once records are uploaded to Living Record then they will be included in distribution maps and species lists. The Vice County Recorder verifies and collates all the results and then uploads these into the BSBI database once a year. Be aware that although you may identify plants in the County of Dorset, you may not be in the "Watsonian" Vice County of Dorset (VC9). For example, Bournemouth is in the Vice County of South Hampshire (VC11). This shouldn't be a problem (the VCR for VC11 uses Living Record as well) but there are times when you need to send your records to a VCR separately. For example, Bryophyte records for VC11 need to be submitted by email.

Don't Take Unnecessary Risks

Doing a survey in the middle of a dual carriageway would definitely be interesting, but it would also be risky and you could end up surveying the inside of a police car as they escort you to safety. If you are going to survey on a road then consider wearing a hi-viz jacket, but avoid surveying in narrow country lanes. Think about the risks you may face if you are going into the country, especially if you are alone, and take precautions where possible. Let someone know where you are going, and if you change your plans, let them know that. Consider registering with the Emergency SMS service – mobile phone reception can be limited in the countryside but text messages can still get through and this will enable you to get help if you have a real emergency. Protect yourself from ticks and take hand sanitizer if you may come into contact with animal waste (dog and rats). Take sunblock and consider buying a first aid kit. Make sure you have a map, or mapping app or GPS with mapping in case you get lost or need help. Be very careful around water, bogs and mires. Don't wear waders if you are alone – they are a lot more difficult to get out of if full of water than boots.

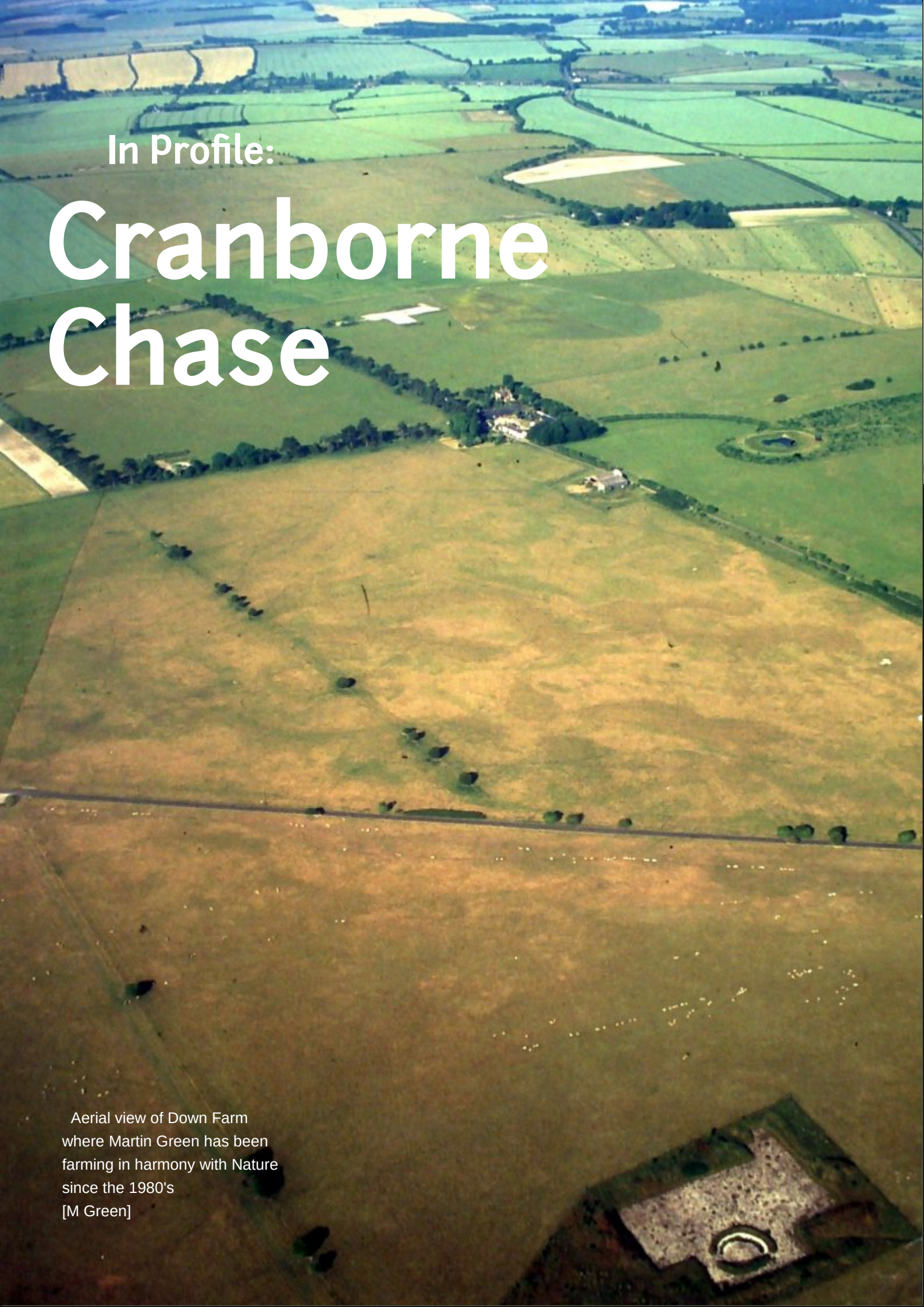
Links

National Hedgerow website: <https://hedgerowsurvey.ptes.org/the-great-british-hedgerow-survey>

Ancient Tree Inventory: <https://ati.woodlandtrust.org.uk/>

Living Record: <https://ati.woodlandtrust.org.uk/>

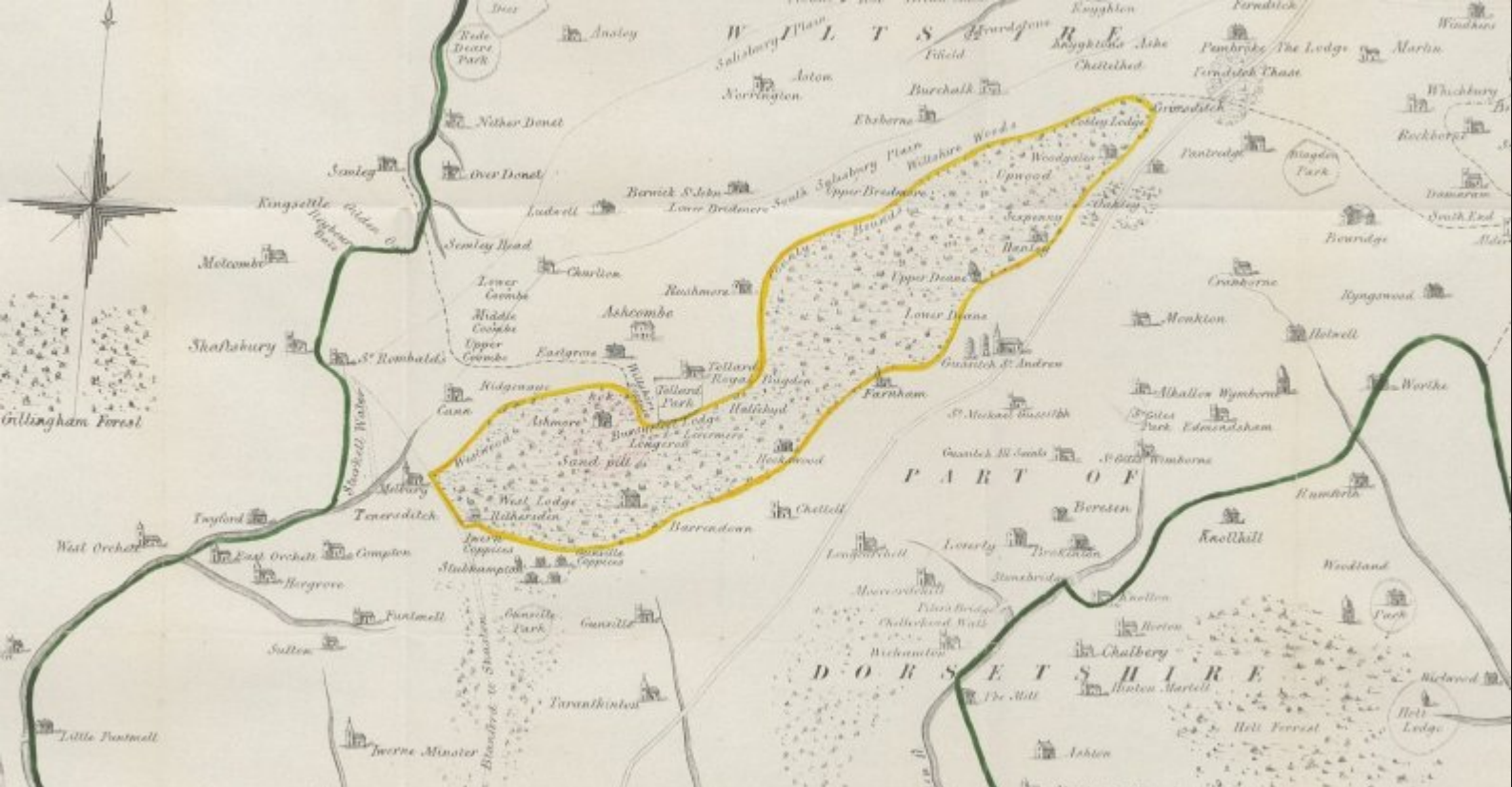
Emergency SMS Service: <http://www.emergencysms.net/>



In Profile:

Cranborne Chase

Aerial view of Down Farm
where Martin Green has been
farming in harmony with Nature
since the 1980's
[M Green]



Map of Cranborne Chase dating back to 1670's [British Library]

Cranborne Chase Introduction

Welcome to “In Profile”, a collection of articles about a particular part of Dorset intended to provide a little more depth to your floral investigations. This edition is focused on Cranborne Chase, perhaps an area of Dorset that gets less attention than it deserves? In modern times it has been largely agricultural and nature reserves occupy pockets in the wider landscape, but recently there has been a shift in the attitudes of some farmers that offers a lifeline for nature. In the first article, on the Chettle Estate, Alice Favre is taking the first steps on a journey that Martin Green, at Down Farm, started nearly forty years ago, as he describes in his article. But before we get down to business, a word about the history and geology of the Chase.

History

The history of the Chase shows how the management of this land has shaped its landscape and ecology over the last 1,000 years. It was, essentially, a giant Deer Park and every aspect of the land was tuned towards the benefit of the deer and therefore its hunters. And if deer husbandry shaped most of the land, then lesser sports shaped pretty much the rest of it.

Spread across 125,000 acres or more, the chase lies across rolling chalk hills, bounded to the north by the river Nadder in Wiltshire, to the west by the Stour and Iwerne, to the southeast by the River Allen, and by the Avon on the east. Like many other Forests, the Chase lies in borderlands, the borders between Dorset and Wiltshire and Dorset and Hampshire. These lands were

and still are sparsely populated (just 33,000 residents across the whole of the modern AONB).

The Royal Forest was first officially granted by William Rufus to a cousin. Such a grant meant it was no longer a Forest but rather a Chase. The sometimes draconian forest laws were replaced by more specific laws mainly concerning the rights to hunt deer across the whole chase and the rights to control the management of deer and the rural population within a smaller area. This was called the in-bounds while the larger area, the out-bounds. The Chase continued to be franchised to various court officials and favourites until James I sold it to the Earl of Salisbury in the early 17th century, at which point the rights of chase became hereditary.

Everything was focused on the management of deer. Within the in-bounds all of the woods were Hazel coppice under strict controls. Newly coppiced woods had to be enclosed with high wattle fences to keep the deer and cattle out so that the young shoots could get growing. After two years the fences had to be eased to allow deer access but keep out the cattle. Fences were lowered to allow deer to leap over and gaps forced so fawns and weaker deer could “creep” in, leading to the phrase “leaping and creeping” thought to be unique to the Chase. Nowadays it is likely that only the more adventurous botanist might be found leaping and creeping to access some interesting looking field or wood.

The Hazel coppices were interspersed with broad rides



A Branson

to allow deer and hunters access and opportunity. The rides were hedged in with trees chosen specifically for the benefit of the deer. Prime amongst these were “the Vert”; broadly, green plants capable of hiding an adult deer, but more specifically Holly and Ivy. Berry-bearing trees and shrubs were also encouraged to feed the deer in winter including Whitebeam, hawthorn etc. Field Maples, of no value to the deer were also encouraged because they could be made into hides.

At the end of three years the fences were torn down and both deer and cattle allowed free access until the coppice reached maturity 12-13 years later. Farmers often had right of pasturage but cattle had to be removed from the woods through August when the deer (Fallow) were fawning. Pigs were also allowed but sheep were discouraged and sometimes banned altogether.

Outside the in-bounds farmers were less restricted but being unable to defend themselves against the deer, farming was not easy. There were many deer parks, which could be as large as Blagdon Park in the northeast of the Chase, having a perimeter of six miles. The parks were exclusively for the deer, who could often jump in but seldom get out again due to the design of the fencing. Beyond these parks, the King also granted rights of Warren to many and there was a general prohibition on destroying Furze and Gorse, to support hawking of pheasants and the hunting of hares etc.

To ensure the smooth running of the Chase there were rangers and game keepers and others, and to support the hunters, lodges that later became stately homes, such as Rushmoor. By the late 18th Century the benefits of the chase were beginning to be outweighed by the burdens. Farmers within and around the chase were constantly at odds with the deer and the hunters and enforcing the rights of the chase was expensive and even dangerous. After several attempts to negotiate change the government intervened and an act was passed that disenfranchised the rights of the chase in return for an annual fee and considerable land.

Almost immediately the farmers started to convert the chase to agriculture, a process that has continued up to the present. Much of the woodland has now gone

together with the furze, gorse and the warrens. But many of the woods still contain coppiced hazel and many of the rides are still lined with the trees and shrubs originally planted to feed the deer.

In 1983, Cranborne Chase and West Wiltshire Downs Area of Outstanding Natural Beauty was officially designated. In Dorset, the AONB delimits the chalk bedrock more precisely than the original Chase. In medieval times the boundaries of the Chase had to be “perambulated” and presumably rivers made an easy to follow boundary.

Anyone with notions of the Chase being covered by gentle meadows with grazing sheep, and crossed by drover’s roads along which these sheep were driven, would have been in for a surprise if they could have glimpsed the historical realities. Coppices, rides, open rough ground and deer, deer everywhere. And plenty of locals who regarded them and probably their guardians as nothing more than a pest that they could legally do nothing about.

Geology

The Chase lies across a plateau of chalk, rising from under the Poole Basin in the east, out to the scarp slopes to the north and west, none more defined than at Melbury and Fontmell. Most of the land is relatively flat with slight valleys along the Gussage and Tarrant valleys. The River Allen, running almost along the junction between the chalk and Poole Basin, has the least obvious vale of all. The chalk is consistent with the wider Downs, from Dorset through to Sussex and Kent, but with considerable exposure of the local Spetisbury and Tarrant formations as well as the Portsdown formation. These are all part of the Upper Chalk Group that tend to be softer smoother and have fewer flint nodules.

To the north of the Chase, glaciation had a dramatic effect on the chalk with the ice cracking along vertical and horizontal seams so that when the ice receded and the melt waters drained away there were left a number of dry valleys. These are particularly noticeable at Fontmell and Melbury.



A Favre



Chettle Estate

Interview with Alice Favre, Owner of the Chettle Estate

The Chettle Estate has been part of Cranborne Chase for many centuries. Centred on the village of Chettle and including Chettle House [until 2015], the estate's lands lie just outside the in-bounds of the chase, and were therefore freer to farm than their neighbours at Farnham, for example. But even so, farming anywhere on the Chase was a challenge until Disenfranchisement in 1829, when the Earl of Salisbury gave up his rights. Immediately there was a surge in agriculture that saw land all over the Chase being ploughed up.

The current owner of the Chettle Estate is Alice Favre, a descendant of the Castleman family, bankers and solicitors from Blandford who built the first railway into Dorset. The Castleman family invested in the house and rebuilt the church almost completely from ruins. In 1946, the estate passed to the Bourke family and came largely under the control of a lineage of women. As Alice reflects: "My grandmother was passed [the estate] by her uncle, who had no heirs to pass it to. That must have been fairly unusual in the 1940s, a non-titled



A Favre

woman owning a whole village!" But the inheritance was not really a windfall: "When my grandmother took over it was just at the end of WWII and the estate had a debt of around £35,000 (equivalent to around £1.5m nowadays) and many houses were in need of a lot of attention. To pay off the debt she sold everything she could, which was mainly trees and livestock as furniture and paintings were worth very little after the war, whilst loaning money off various wealthier members of the family. My grandmother was a formidable woman and took to restoring the cottages herself just to keep from going under, she put indoor bathrooms into most of the houses herself, houses didn't have plumbing before then, except to the kitchen tap. Back in those days owning houses was a millstone around your neck, rent was poultry and houses were constantly in need of repair. If you ask anyone who knew her they will say she was one of the hardest working women they knew. She was also a single mother with 3 children."

Alice's mother was left the Estate in 1967. Whilst away in America she left the Estate in the care of her brother but returned home to take over the Estate in the early 1980's just after Alice was born. Neither Alice's grandmother nor mother had any agricultural background and so left the farms to be run by local farmers. Until recently the 860 acres on the estate were divided across two farms, 550 acres for one tenant and 280 for the other - one of the tenancies has been in the same family since her grandmother leased it to them in the 1940's.

Alice was not content to carry on this arm's length relationship. "Since I took over in late 2017, after my

Chettle Estate

Continued

mother died, I have learnt a lot about farming (a combination of many farm tours, going to four Oxford Real Farming Conferences and a lot of reading) so I have been getting more involved in the land and agricultural side of the estate. It amazes me what we have done to farm land worldwide, all the chemicals we



have put into our soil, water and air - being led by the agronomists (the drug dealers of the farming world) rather than by our own knowledge of the land and nature.

“I have just kept back 60 acres for a project that the community are going to run - whereby we will link up the village shop with this land. It’s crazy that we have a busy village shop yet none of the produce sold there is grown on my land, or actually any land nearby! We do have Chettle strawberries in the summer but that is it. We haven’t started farming those 60 acres yet but we have had 5 cows doing a tour of the fields. The fields were part of a fairly intensive dairy farm before so they needed a rest and a light graze.”



A Favre

So what about the other 800 acres? “I wrote a vision for the land back in 2020 and I gathered a board of 18 advisors who spent a day round a map with me, led by an expert permaculture facilitator. I will be implementing this plan over the next 10+ years but it’s a vision that I hope can be followed for the next 40 years. I have also kept the people who live and work here abreast of the developing vision for the Estate. We have held 2 community days where I have given speeches about my journey. Everyone was very close to my mother so it’s had to be an ongoing transition, people can find change hard. And I always ask for their input and feedback along the way. I think everyone should feel involved and listened to when it comes to where they live.”

“We see some of the land being returned to nature



restoration, with conservation grazing and light tree planting - rather than rewilding. I won’t be putting up a big deer fence and we will be controlling when and where the animals go on the land. Also this is only on around 350-400 acres of the estate. So maybe 50% will go to nature restoration and the remaining 50% will be used for growing food. Rewilding polarises people and that is what we don’t need right now. We need a little of everything and a lot of what works for your specific type of land. Rewilding can spark the same response as the word ‘vegan’, it gets people’s backs up. The reality is, we need to eat much less meat, and we need to farm a lot less intensively and with nature, not against it. If you have a problem with a weed or a pest you need to work out what to add to the mix (ie what is missing) to fix the problem, rather than destroying something to try and fix it. The exception to this rule is where apex predators can’t be reintroduced to control pests. I would advise everyone to watch the film ‘The Biggest Little Farm’, this is a perfect example of how to continually add nature to problems to fix them and it’s a beautifully shot film about a piece of desert like land becoming a flourishing farm full of food and nature.”

Chettle Estate

Continued

All this sounds somewhat familiar, a bit like the Chase of old when it was managed more for the benefit of the deer and farming had to fit around that. “Back then there were more people on the land and that is definitely something I want to address as well. My two tenant farmers don’t really have any full-time employees, because with arable or livestock farming and the plethora of equipment that is out there, you barely need any actual people. But this isn’t right. With the farm that



will be attached to the shop, we estimate that those 60 acres will employ around 8 full-time people.”

Back then, however, the Chase was essentially a hunting ground. “Hunting is an interesting one too. It’s a sport for the rich, whilst the poor country folk are allowed to do a ‘beaters day’ at the end of the season. Thousands of birds are put down on land that can’t support them and they are fed by gamekeepers for several months before they are shot by rich people wanting big bird days. That’s not sport, or good for the countryside. British hunting should take a leaf out of the Scandinavians books; they go out to stalk wild animals and sometimes come home with nothing. We still need to shoot things in the countryside unfortunately – we have a lack of predators (wolves, bears, pine martens) to kill the squirrels, pigeon and deer. These are 3 pests that cause a lot of havoc to farmland and woodland. I haven’t quite got my head round the plan for reducing their numbers. The squirrel and deer damage in my woods is something else!”

Alice’s plans are extremely encouraging, but they might take a while to come to fruition. Restoring chalk grassland, for example, sounds like a long-term project. “Funnily enough this is the one part of my vision that I am debating on the methods. I get mixed feedback on this part of the plan. Some say it will be easy, others say it will be very hard. I can’t answer this very fully at the moment as it is a part of my vision that I want to revisit with more opinions from those who have done it, tried it

or tried a hybrid of it.”

Other than time, what does she think will be the biggest stumbling blocks? “Financing it! Money is an issue for many landowners and farmers that want to do what is best for nature. The government hasn’t given us any clear guidance on what the schemes will be, how much they will pay or whether they will back pay you for things that you do now, before the schemes are officially launched, so many farmers and landowners are holding back on making the right changes, which is a shame. I have a belief that what I am doing is right and that I will succeed one way or another.”

A last word, on plants perhaps? “I am no botanist, dendrologist or horticulturalist but I planted 3 giant redwoods last year and I would love to see them in 100 years time. They are in a triangle on a high point on the estate. I also want to see a landscape that has a balance of nature and food for human consumption. This is key to humans survival on this planet.”



Chettle village is just off the A345 Blandford to Salisbury road connected via a quiet lane with almost no through traffic. Why not stop and take a look in the shop and wander around the village. Back in May 2018 I did just that and counted 93 species in the village centre. The churchyard is a good place to start with *Pimpinella saxifraga* (Burnet saxifrage), *Asplenium trichomanes* (Maidenhair Spleenwort) and *Chelidonium majus* (Greater Celandine), for example. A small pond adds to the variety and at the time there was a unkempt area opposite the church where *Fragaria vesca* (Wild Strawberry), *Silene latifolia* (White Campion), *Viola arvensis* (Field Pansy), *Dipsacus fullonum* (Wild Teasel), and *Ballota nigra* (Black Horehound) were all growing. So often I have found a small patch of ground near a village centre providing a tiny haven for plants.



In Profile:

Fontmell and Melbury Downs

Fontmell [A Branson]

Andrew Branson

Think of Dorset and most people will conjure up images of its glorious coast, or perhaps the changing landscape of the Purbeck hills, or the heaths of Poole Harbour, but there is another aspect to the county that is often missed. In the north is the Blackmore Vale, an intricate clay vale created by the River Stour and its tributaries between low limestone ridges, apparently lost amid a maze of small fields and high, treed hedges, so dense in places that it looks more like a woodland with a series of rectangular glades. Surrounding the vale like a great amphitheatre is a wholly different landscape. Here, the steep sinuous flanks of chalk plateaux contain some of the finest chalk grassland in southern England. The great buttresses at the edge of this landscape of skies and wide horizons provide a startling contrast to the vale they survey. This is one of the great British landscapes.

Thomas Hardy famously described the scene looking across the 'engirdled and secluded' Blackmore Vale in *Tess of the d'Urbervilles*: 'Here, in the valley, the world seems to be constructed upon a smaller and more delicate scale; the fields are mere paddocks, so reduced that from this height their hedgerows appear a network of dark green threads overspreading the paler green of the grass.' The 'bold chalk ridge' of Fontmell and Melbury Downs is perhaps one of the best places to experience this landscape.

Although Hardy would have recognised the views from Fontmell and Melbury, he did not describe them. His entrance point to this great theatre of the English

landscape was to the south, at Bulbarrow. However, when the National Trust acquired the downs in the late 1970s and 1980s, it was in memory of Hardy's love of this landscape. And, indeed, from Melbury Beacon you can see some of the Blackmore villages he described, including Marnhull which Hardy called 'Marlott' in *Tess*.

History

The escarpments are on a western spur of the chalk hills of Cranborne Chase, with Melbury Beacon at 263m being the highest point in north Dorset (nearby Win Green, in Wiltshire, and also a National Trust site, is the highest point in the Chase). The landscape is the product of periglacial meltwater erosion when tundra-like conditions would have prevailed, spring meltwaters cutting deep valleys in the frozen hills. The steep-sided dry valley of Melbury Down, snaking eastwards into the chalk, with its series of interlocking spurs, is recognised as a Regionally Important Geological Site.

Sheep farming would have been the main activity on these bare chalk slopes, but some fields were cut for hay and the hill tops have been used for arable crops, such as wheat, barley and oats. Strip lynchets on some of the slopes, such as near Brandis Down to the south, are perhaps signs of early Medieval open field systems encroaching up the chalk slopes. More recently, dairy farming and beef cattle have become an important part of the mix of activities. Horses were still used on the farms locally until the early 1950s, and areas of grass were managed to provide them with fodder. In the

interwar years of the last century, two of the main farmers in the area were the Harding family and Rolf Gardiner. Gardiner was a controversial character, an innovative forester and farmer, who was a great believer in the power of a healthy rural life. He was, among other things, a disciple of D. H. Lawrence and involved in the revival of several English rural traditions, including morris-dancing. He was a founder member of the organic soil movement, which lives on today in the Soil Association. Locally, the Springhead Trust at Fontmell Magna, below the downs, carries on some of his ideas. The woodland on the Dorset Wildlife Trust's part of the reserve, known as Catswhisker, was planted by him (he thought it looked the 'cat's whiskers'). His son, the conductor Sir John Eliot Gardiner, continues to farm here and carries on his father's organic principles. The writer and academic John Stewart Collis worked on the land near Fontmell during the Second World War and spent a winter working in one of Rolf Gardiner's woods. His reflections on farming at the time (and much else) are captured in the book *The Worm Forgives the Plough*.

Sections of the site were acquired by the National Trust and Dorset Wildlife Trust between 1977 and 1988 and the whole now totals just under 300ha. Separate compartments are managed by the National Trust and the Dorset Wildlife Trust (DWT), which has a long-term lease on some of the National Trust's southern sections, including the steep-sided dry valley known as the Culews and the Burys. The division works well and the two organisations frequently work together on events. The bulk of the area was first designated as a Site of Special Scientific Interest in 1977 and is now also a Special Area of Conservation (SAC) under the Habitats and Species Regulation. The reserve contains the National Trust's largest area of contiguous chalk

grassland.

Management

The grassland is managed under Higher Level Stewardship. The farms that were originally sold to the National Trust are now long-term tenants, and it is their stock that graze both the DWT's and National Trust's land. This is a mix of cattle and sheep, with the cattle mostly on during the summer months. Inevitably, the livestock numbers vary from year to year, but creating the right levels of grazing for butterflies and the rich array of plant species is a key element of the regime. The less sloping parts of the reserve were ploughed at various points during the 20th century, particularly during and after the Second World War. Most of these are now in long-term arable reversion to chalk grassland. Although this is inevitably a slow process, there are encouraging signs that plants are returning, with species such as *Pimpinella saxifraga* (Burnet-saxifrage) and *Campanula glomerata* (Clustered Bellflower) making obvious inroads.

Scrub management is a constant in the yearly programme. The National Trust has a rolling ten-year programme of clearance, working in conjunction with the tenant farmers. On the DWT sections local volunteers attend regular work parties to clear the encroaching *Ulex europaeus* (Gorse), *Crataegus monogyna* (Hawthorn), *Ligustrum vulgare* (Wild Privet), *Cornus sanguineus* (Dogwood) and other species. It is recognised that the scrub is an important component of the vegetation and the intention is to keep a balance between the open grassland and the scrub. *Cotoneaster*

Platanthera chlorantha (Greater Butterfly-orchid) at Littledown, Fontmell [A Branson]





Seedheads of *Leontodon hispidus* and others at the cross dykes on Fontmell Down
[A Branson]

horizontalis (Wall Cotoneaster) can become a problem on the slopes and this is regularly monitored and cleared. The DWT areas are farmed organically so that all the removal is by hand. There has been selective thinning in the woodland at Catswhisker to allow more light to the floor. Some of the woodland here near the bottom of the valley is being removed in order to provide a grassland corridor between Littledown and the Curlews.

Wildlife

Although the views across the Blackmore Vale are stunning throughout the year, the seasonal changes in colour of the grasses and flowers of the downland slopes are also a delight. Personal favourites are walking through the deep valley of Melbury Down on a frosty winter's day with flocks of Ravens calling and tumbling overhead, or searching for cryptic Frog Orchids on bright July mornings in Big Bury where the enclosed valley seems to act like a great solar dish sparking up butterflies and tiny chalkland flowers. The reserve's SAC designation is based mainly on the presence of a good population of the endemic *Gentianella amarella* ssp. *anglica* (Early Gentian). This diminutive plant is found in several parts of the reserve, but short-cropped areas of Big and Little Bury are the best places to see it. Visit in early June and look out for its small, purple, upright trumpet-like flowers on the south-facing slopes. In recent years counts of the gentian have varied enormously, from tens of thousands to hundreds. Untangling whether this is because of weather patterns or changing grazing pressure is something that is still

being investigated.

The unimproved chalk grassland on the steep, sunny slopes are a rich mix of herbs and grasses peppered with anthills and crossed by sheep tracks, all of which add a variety of micro-habitats. The sward is dominated by grasses such as *Briza media* (Quaking-grass), *Trisetum flavescens*, *Helictochloa pratense* and *Avenula pubescens* (Yellow, Meadow and Downy Oat-grass), *Koeleria micrantha* (Crested Hair-grass), *Festuca rubra* (Red Fescue) and *F. ovina* (Sheep's-fescue), *Brachypodium sylvaticum* (False Brome) and *Carex flacca* and *C. caryophyllea* (Carnation and Spring Sedges). In the spring there are carpets of *Primula veris* (Cowslips) in some years, punctuated by the spikes of *Orchis mascula* (Early Purple Orchids) and the delicate blues of *Viola hirta* (Hairy Violet). Later in the season the slopes come alive with *Poterium sanguisorba* (Salad-burnet), *Polygala calcarea* and *P. vulgaris* (Chalk and Common Milkwort), *Rhinanthus minor* (Yellow-rattle), *Lotus corniculatus* (Common Bird's-foot-trefoil), *Thymus polytrichus* (Wild Thyme), *Asperula cynanchica* (Squinancywort), *Linum catharticum* (Fairy Flax), *Leontodon hispidus* (Hairy Hawkbit), *Galium verum* (Lady's Bedstraw) and *Anthyllis vulneraria* (Kidney Vetch) and *Hippocrepis comosa* (Horseshoe Vetch), together with *Carlina vulgaris* and *Cirsium acaule* (Carlina and Stemless Thistle). In places, *Helianthemum nummularium* (Common Rockrose) is dominant.

The reserve has an impressive list of orchids, including displays of *Platanthera chlorantha* (Greater Butterfly-orchid), *Anacamptis pyramidalis* (Pyramidal), *Gymnadenia conopsea* (Chalk Fragrant), as well as *Ophrys apifera* (Bee), the rare *Coeloglossum viride* (Frog), *Listera ovata* (Twayblade) and *Dactylorhiza*

Fontmell and Melbury

fuchsii (Common Spotted-orchid). There are even a few *Cephalanthera damasonium* (White Helleborines) in the scrub edges. The best time to see the orchids is in June and early July. Later in the year, the predominant colours of the sward turn more towards blues and purples, with *Campanula rotundifolia* (Harebells), *Scabiosa columbaria* (Small Scabious) and *Centaurea nigra* (Common Knapweed). In the autumn there is another more subtle flush of colour as *Succisa pratensis* (Devil's-bit Scabious), *Gentianella amarella* (Felwort) and yet another orchid, *Spiranthes spiralis* (Autumn Lady's-tresses) come into flower. In parts of Littledown, tall spikes of *Orobanche elatior* (Knapweed Broomrape) can be found. These are parasitic on *Centaurea scabiosa* (Greater Knapweed). At Melbury Hill and Melbury Down look out for the local *Saxifraga granulata* (Meadow Saxifrage) in May, with its delicate white flowers. The anaemic-looking *Thesium humifusum* (Bastard-toadflax), with its creeping habit and white star-like flowers, can be found in some of the shorter south-facing turf. A *Juniperus communis* (Juniper) grows on Compton Down; sadly, this lonely male plant is almost the last of its kind in Dorset.

Tucked away in Melbury Down there are some intriguing communities. The sheltered north-facing slope has a band of flint scree. The leached conditions here have allowed plants more often associated with acid conditions, such as *Calluna vulgaris* (Heather) to survive. *Genista tinctoria* (Dyer's Greenweed) can also be found along here, as well as a rich community of orchids, clovers and vetches. Hidden among the flints are various *Cladonia* lichens, including *Cladonia portentosa*, another heathland species. Grassland mosses and liverworts are well represented on the reserve with the impressive *Rhodobryum roseum* growing on the anthills at Melbury Down, while the scarce liverwort *Frullania tamarisci*, with its dark purple-brown leaves, snakes its way across parts of the flint scree, amongst golden and red fronds of *Hylocomium splendens*. On the sunny south-facing slopes of Fontmell Down scarce chalk grassland mosses such as *Entodon concinnus*, *Tortella squarrosa*, *Weissia sterilis* and the tiny *Ephemerum recurvifolium* can be found, amongst commoner species such as *Ctenidium molluscum* and *Hypnum lacunosum*.

Fontmell and Melbury Downs are superb for butterflies. Thirty-five species have been recorded here. The jewel

Platanthera chlorantha (Greater Butterfly-orchid)

[A Branson]



Fontmell and Melbury

Continued

in the crown must be the population of the rare Silver-spotted Skipper *Hesperia comma* that is found here at its only site in Dorset, its furthest west site in England. Keeping an open sward is critical for this sun-loving insect, since it lays its eggs on tussocks of Sheep's-fescue but also needs warm, bare ground on which to bask. There are also good populations of Dark Green Fritillary *Argynnis aglaja* and Marsh Fritillary *Euphydryas aurinia* on Fontmell and Melbury Downs. The Burys and Curlews are a haven for Adonis Blue *Polyommatus bellargus* and Chalkhill Blue *P. coridon*, whose larvae feed on the abundant Horseshoe Vetch. While the Adonis Blue populations are currently going from strength to strength in Dorset, the Chalkhill Blue seems to have a more uncertain future. Several scarce species of moth are also found on the reserve including the day-flying Narrow-bordered Bee Hawkmoth *Hemaris tityus*.

Some nature reserves have a presence in the landscape that draws you back whatever your interest. Fontmell and Melbury Downs is such a place, and surely one with which Thomas Hardy would be proud to be associated.

Visiting and access

The main parking area is at the small National Trust car

park off the Upper Blandford Road, south of Melbury Abbas at Spread Eagle Hill. From here, there are footpaths and permissive rights of way to the DWT parts of the reserve, as well as excellent circular walks to Melbury Beacon and around Fontmell and Hardings Down. The steep-sided Melbury Down can be accessed to the east along the road from Compton Abbas airfield. The DWT has a waymarked route across its reserve which takes in the Curlews and Catswhisker. There is also a car park at the top of the road from Fontmell Magna. This provides access to Brandis Down and a permissive footpath to Catswhisker and Littledown. For more information on access, visit the websites www.nationaltrust.org.uk and www.dorsetwildlifetrust.org.uk.

Acknowledgements

This article is based on one for *British Wildlife* magazine published in 2015 (*British Wildlife* Vol. 27 104-110). Many thanks to Clive Whitbourn, Ranger for the National Trust, and Neil Gibson, Warden for the Dorset Wildlife Trust, for their time and help with the article.





In Profile:

Down Farm

Martin Green, Owner Down Farm

My grandfather bought the very neglected farm back in 1931 and my parents moved in two years later. They had a tough struggle keeping their heads above water for the first few years but by the time of the outbreak of the second World War both the farm and economic conditions were improving. A Ministry of Agriculture Inspector who came to the farm during the war was able to report back that it was the most improved farm he had had the pleasure of visiting.

My father initially operated a mixed enterprise, as many chalkland farms did at that time, of cereals, cattle but only for beef as there has never been a dairy here, and sheep. Not a lover of the latter, he dispensed with them during the forties with the comment that “sheep are determined to die”. Pig- and chicken-rearing enterprises were also added but were phased out in the sixties as the farm increasingly concentrated on cereal production. In fact the demise of the chickens led to my subsequent occupation of their building as a museum!

By the time my father retired in 1979, the farm had increased in size to 520 acres through adjoining land acquisitions in the sixties including adjacent Canada Farm. By this time it was wholly cereal producing. My brother and I, who took on the running of the farm, soon went our separate ways and have managed the land as two separate holdings of equal acreage ever since.

For almost a decade I continued to run the farm as my father had done. However, I was not happy about the intensive, chemically reliant system that cereal farming had become and in which I felt trapped.

I was saddened to see the dramatic declines in farmland wildlife largely brought about by intensive farming of all types. I was looking to make a major change and fortunately this coincided with the start of Government

policy to fund Agri-Environment schemes in the late eighties. These had the potential to encompass both the Historic and Natural environments – what seemed a perfect fit here, or a no-brainer in current parlance?

Initially I joined the 5-year Set-aside scheme after bringing in my last cereal harvest in 1988. At that time farms were simply over producing and there were cereal, milk and butter ‘mountains’. This first scheme’s main focus was to help reduce these mountains and secondarily to stop the decline of biodiversity and begin the restoration of lost habitats.

So instead of preparing our seed beds for the next cereal crop, we planted our fields during that autumn and following spring with a conservation grassland mix, suitable for low density grazing and sufficiently open to allow for significant natural regeneration. That following summer in 1989 the fields were awash with colour. Long dormant seeds not only had the chance to germinate but with the cessation of the use of chemicals, principally sprays and fertilisers, were able to grow unmolested and set seed. Poppies were particularly prominent and included rarer species such as the Prickly and Long-headed varieties.

I was also able to familiarize myself with plants I had only heard my father speak of as once common on the farm but which I had never seen such as Corn Marigold and Venus’s Looking-Glass. It was a wonderful show and a heartening reminder of nature’s resilience when given the space and conditions.

As the grass established, the cornfield annuals we saw that first summer diminished in subsequent years. However, later we created fallow areas annually within the grassland to allow them to grow unimpeded as well as giving ground nesting areas for farmland birds in

Cranborne Chase: Down Farm

Continued

decline such as Lapwings and the rare Stone Curlew. Although never common in our area we did used to hear the mournful cry at dusk of these secretive birds but rarely glimpsed them. I remember well the last individual I saw on the farm was in 1975! I was on a tractor and this lone bird was just standing in the field seemingly unbothered by my presence. I even returned to the farm to get my father so he too could enjoy this privileged sight and obligingly it was still there when we returned. The 5-year Set-aside was important for kick-starting the chalk downland we planned to re-establish.

From this excellent start we transferred into the Countryside Stewardship and Habitat Improvement Schemes, which encouraged more positive management, eventually entering into Higher Level Stewardship which came to an end in 2018. During this period significant highlights included planting two hectares (seven acres) of native broadleaf trees which we christened Lambswood, creating a field pond and some limited hedgerow planting. As the area had traditionally been open downland we didn't want to close in the landscape with too many hedges and in my view not enough thought is generally given to location. Some roadside planting in our region is creating enclosed corridors to the exclusion of expansive views.

Essential to the management was grazing and we opted for the farm animal synonymous with chalk downland – sheep. After seven years without chemical use we were able to register our land as Organic and likewise needed an Organic status flock. Before stocking I removed miles of old barbed wire fencing, replacing it with appropriate netting.

The sheep arrived by way of a grazing agreement with a neighbour, so now we are not only able to produce first class organic lamb but maintain a healthy environment as well. With careful control of stocking rates we are able to create a seasonal range of sward heights from closely grazed to rank with a range in between. Combined with some areas left for late season hay

cutting this gives maximum facility for bio-diversity.

The gradual return of much of the native flora and fauna has been a joy to behold over the years. Birds of prey are a particularly good indicator and have gone from one occasional nester, the Kestrel, prior to environmental management, to five species nesting regularly today. The provision of additional nest boxes combined with the dramatic increase in food - insects, small mammals and birds, has had a dramatic effect on this small farm's ability to sustain higher numbers and a range of species. Natural regeneration of plant species is perhaps best highlighted by the number of orchid species we now have. Although it took nine years for the first one to appear, due no doubt to the efficacy of many years of herbicide use, we now have eight species, the last one only arriving in 2017.

Today, we are about to change from sheep grazing to more expansive grazing with cattle provided by a conservation grazer within the grassland regime, which has a range of sward heights from areas cut for hay in August through to a 20 acre re-wilding area removed from grazing in 2008. Two areas have had late hay cuts only for 25 years and have the richest flora with swathes of Pyramidal Orchids.

Two seven acre arable plots are maintained as alternate fallow and wild bird mixes. These have proven to be of great value to smaller birds and their aerial predators as numbers of winter migrant Short Eared Owls, Hen & Marsh Harrier are seen over the farm regularly.

In 2021 we dug a second 20m diameter field pond and created additional shrub planting to enhance a refugia initially created to examine & restore some Neolithic archaeology. Subsequent colonisation/re-wilding of both the bare chalk and grassland in between has formed a rich diversity here (Wyke Down) particularly attracting both summer and winter migrant bird species as well as plant species including Autumn Gentian, Basil Thyme, Southern Marsh Orchid & Blue Fleabane



M Green



R Sharp

Cranborne Chase: Places to Visit

Fontmell and Melbury Downs

On the edge of the Chase, these spectacular reserves, which are managed by the National Trust and Dorset Wildlife Trust, are by far the largest in Dorset's share of the Chase. A full account of the flora is provided by Andrew Branson's article. The whole area is an SSSI and includes less well-known reserves such as Brandis Down.

Sovell Down

This pocket-handkerchief sized reserve owned by DWT is hiding just off the road between Gussage All Saints and Gussage St Michael. It includes a fair amount of chalk grassland but is a little under threat from encroaching scrub. The grassland is more typical of the Wiltshire chase with some *Bromopsis erecta* (Upright Brome), *Avenula pubescens* (Downy Oat-grass), and *Helictochloa pratense* (Meadow Oat-grass). The site also has a good reputation for roses, and when I square-bashed the site back in 2019 I noted *Rosa micrantha* (Small-flowered Sweet-briar) and *Rosa squarrosa* (Glandular Dog-rose).

Knowlton Church

This reserve is even smaller than Sovell Down and owned by English Heritage on account of the church remains. The church is surrounded by a neolithic henge earthwork, reputed by some to have been dug to keep the spirits in rather than out. Fortunately, the steep sides of the earthwork protect the grass from heavy footfall and over-zealous grass cutting. In this rough grass can be found *Carex humilis* (Spring Sedge), although only on the steepest bits where the grass is reasonably short, and *Orobancha elatior* (Knapweed Broomrape). There are plenty of other chalk-grassland favourites present. Why not combine a bit of history and botany by visiting here before heading down the road to Sovell Down?

Pentridge Down

Still on the chalk grassland, Pentridge Down is Dorset's

little piece of Martin Down and well worth a visit. This is an SSSI and open access land but it is not a reserve as such. Its good quality unimproved grassland with *Avenula pubescens* (Downy Oat-grass), *Briza media* (Quaking Grass), *Bromopsis erecta* (Upright Brome), *Cirsium acaule* (Stemless Thistle), *Poterium sanguisorba ssp. sanguisorba* (Salad Burnet) and abundant *Leontodon hispidus* (Rough Hawkbit). The site lends itself to a circular walk from Pentridge village, just off the A354, the Salisbury to Blandford road.

Stubhampton Bottom

Walking up the footpath from Stubhampton into Ashmore Wood there is a field on the right-hand side that is unimproved chalk grassland at possibly its best. This is neither a reserve nor an SSSI and there is no access, so short of practising a little of that Cranborne leaping and creeping, you will have to admire the plants from the path, with the help of binoculars. Although some of the grassland is mesotrophic there are large areas covered by *Leontodon hispidus* (Rough Hawkbit), *Carex flacca* (Glaucous Sedge), *Helianthemum nummularium* (Common Rock-rose), *Lotus corniculatus* (Bird's-foot-trefoil), *Plantago media* (Hoary Plantain), and many others. Studding the grassland, in late June at least, are plenty of *Gymnadenia conopsea* (Chalk Fragrant Orchid) and *Anacamptis pyramidalis* (Pyramidal Orchid).

Badbury Rings

This well-known and popular location, owned by the National Trust, is another patch of good quality chalk grassland with plenty of botanical interest. Its hardly a secret, however.

Blandford Camp

Not the actual camp but Race Down, which is just outside the fence on the eastern side of the camp. Race Down is an SSSI and has open access. Its a bit unkempt but there are plenty of interesting calcicoles on show.

Cranborne Chase: Places to Visit

Continued

We surveyed the site, including the camp itself back in late July 2019 for the BSBI Atlas 2020, and noted 148 species including *Anacamptis pyramidalis* (Pyramidal Orchid), *Anthyllis vulneraria* (Kidney Vetch), *Asperula cynanchica* (Squinancywort), *Briza media* (Quaking Grass), *Carex humilis* (Dwarf Sedge), and the beautiful *Centaureum pulchellum* (Lesser Centaury) along with many others. Access to Race Down is a little tricky, but possibly the easiest approach is to park in Tarrant Monkton and walk up the hill to Monkton Down. You may have to head south and round to the camp fence to get onto Race Down proper.

Woodland on the Chase

Although the Chase today gives the impression of being about big arable fields, there is still a lot of woodland: from Ashmore Wood in the northwest, along the county border to Woodyates, and from Tarrant Rushton to Moor Critchel. Manswood marks the centre of the latter from which to explore Chetterwood and Oakhills Coppice, which is beautiful in the spring and contains a small SSSI. On the northeast side of Cranborne, near Boveridge, is Burwood which contains conifer and broad-leaved plantations of various ages. Beyond Boveridge, up against the Wiltshire border are Bouldsbury Wood and Martin Wood, both of which include patches of SSSI.

In addition to these more mature woods there are plenty of old hazel coppices, perhaps a remnant of the Chase before Disenfranchisement when coppicing was a way of life and people would travel for miles in the autumn to camp in the woods and harvest the nuts.

Water on the Chase

Its unsurprising that water is not a big feature on an area of land that is essentially a big block of chalk. The old Chase was largely defined by the rivers Stour, Nidder and Allen, but the Allen is really the only river on the chalk and is unfortunately difficult to access. There is a short walk around New Town near Witchampton and a longer stretch near Critchel Lake to Didlington Mill. The river runs through Wimborne St. Giles as well. The Crane is easily accessible just outside Cranborne in the small park at the back of Cranborne Manor. This is a typical Winterbourne river so don't visit in the summer when you are likely to be disappointed.

The River Tarrant is the other main waterway on the Chase and can be accessed in a number of places from Tarrant Crawford all the way to Tarrant Gunville. In a similar vein, the Gussage is accessible in a few places from Gussage All Saints to Gussage St Andrew's, although not very easily. Both are winterbournes and even when dry they still support local diversity.

Briza media and a fading capitula of *Leontodon hispidus*
[A Branson]



Opinion!

Rewilding Dorset



Wikimedia

Robert Sharp

There was a time, and not so long ago, that “Rewilding” was a rallying-cry of certain environmental activists against the agro-industry, forestry and even the general suburban sprawl that was seen as destroying our countryside and, more recently, our climate. I recall one journalist in particular espousing the benefits of rewilding Ennerdale in the Lake District to create a land that would be totally free from human influence.

It was predictable that the mainstream would eventually appropriate the word “rewilding”; partly because it became a “fashionable meme” and partly to de-weaponise its more radical meaning and even re-weaponise it against the radical vision it conjured. Now we can “rewild” our gardens. Grassy spaces that councils can't afford to mow are “rewilded”. Nature reserves, that were once just nature reserves are now “rewilding” as if somehow they are doing something they weren't before. Even farms are “rewilding” by planting up hedgerows, extending headlands and bringing back grazing. Fortunately, many farmers have a better understanding of what they are doing and have decided to term it “regenerative farming”.

The problems with rewilding are two-fold: a “technical” one and a philosophical one. The technical problem is easy to understand. In rewinding the actions of human beings, when do we stop? Humans have shaped our countryside for thousands of years. Much of our current biodiversity is the result of human action. As Sophie Lake explains in her article, some of the rare plants in Dorset today are suffering because of a lack of human intervention.

Most people regard the grasslands on chalk downs as a highly desirable ecosystem. They have butterflies and orchids. What more could you want? But without humans cutting down the woods and keeping back the scrub so that their animals could graze the fields there

would be no grasslands on chalk downs. It may seem perverse to those who preach of our wicked modern ways to consider that human activity created this diversity and if we now took away that activity we would end up destroying it. Which sort of leads on to the second, philosophical problem.

Since probably the reformation, in the western Christian world there has been a belief that civilisation is in decline, and that fundamentally this decline started with our expulsion from paradise. In the 18th century, for example, there was a lot of attention given to the “rural idyll”, a romantic notion that the countryside provided a pure haven away from the degenerate urban lifestyle. The same notion appeared in the French Revolution in the form of Rousseau's Noble Savage – a symbol of purified life contrasting with the excesses of the nobility. What “rewilding” symbolizes is that nature is pure and nature is right compared to humanity that is corrupting and degenerate. It is a theme that echoes through many recent antagonisms, including the ongoing climate crisis. But fundamentally it reflects human desires, fears and emotions and attributes nature with a morality that, unfortunately perhaps, just is not there.

So what should we do? Lets not confuse the matter with the emotional baggage that “rewilding” brings with it. We need to think about the problem scientifically rather than morally. What we want are ecosystems that can achieve balance without requiring massive human intervention. Modern farming is highly energy intensive to achieve the yields required to deliver large quantities of cheap food: fertilizers, herbicides, pesticides, and machinery. Regenerative farming, for want of a better term, is about achieving productivity using local resources – an ecologically balanced system with far less external input.



Bryology

Mosses and Liverworts

R Sharp

A Winter's Tale

Jim White

It does surprise me, given the obvious skills, enthusiasm, and keenness of DFG members, that so few turn to bryophytes for winter stimulation. There's an obvious yearning for things botanical – witness the New Year hunt for flowers – but the winter-long reign of mosses and liverworts seems almost to go unnoticed by most.

I've long had a soft spot for bryophytes, even since school days, but it's only since retiring from employment in nature conservation (I recognise the irony!) that I've had the time to indulge more in this quietly fascinating and attractive world through a hand lens. My serious re-awakening of interest started with the three-year 'Cyril Diver Project' that ran from 2013 at Studland. Some readers will have had the pleasure of being part of that study and others may have heard wistful talk of 'Diver days.' There is a real sense of nostalgia about those heady few years in the dunes and dune-heath. It was the perfect project; well-conceived, superbly managed, funded, and with the challenge of recording all groups across the same ground that Diver recorded so meticulously in the early 1930s. Rare indeed to have a full archive of records and a site that, apart from significant natural succession and the growth of new dune ridges (and a few events like WW2!), has remained very much as it was.

The Diver Project was led by the National Trust (NT), owners of Studland and large swathes of Purbeck, but had the ethos of peer-led volunteer sub-groups who would record – plants, bryophytes, fungi, invertebrates, birds – and teach and mentor one-another. So enjoyable and rewarding was the experience that after the three years, some groups – botany in particular – kept going and spread to carry on recording across the rest of the NT Purbeck estate. Initially building full species lists for

each site (no 1930s records here), the task and volunteer involvement continues, with quantitative and repeatable monitoring of priority habitats – heaths, chalk and limestone grasslands, some woods, etc.

One of the groups that started with 'Diver' was for bryophytes; smaller of course than the regular botany group but perfectly formed, nonetheless. As a winter stand-by, when most flora has become sparse at best, bryos are ideal. They are at their peak in the cool and wet (less so bryologists perhaps...) and with well over 400 species recorded in Dorset there is plenty to find. All the five or six moss enthusiasts are also part of the wider botany recording group, with its regular attendance of perhaps ten or more on a good day. So, this winter occupation, as well as turning up useful records (including occasionally species new to Dorset), keeps the core of the botany group together – and honed!

Having covered most of the wider NT Purbeck estate, now we are turning – after the hiccup of lock-downs – to the new 'super National Nature Reserve'; the 3,300 hectare expanse of heathland, mires, and associated habitats from Arne to Studland. A few of the original 'Diver' volunteers have kept going despite the passing years, and happily we have been joined by several new bryo-enthusiasts. None of us is an expert but we help each other; and in Dorset there is top-rate expertise at hand for any tricky problems, or to discount any over-adventurous ids!

We need to be relatively self-sufficient and not too demanding; apart from a little guidance from some of the NNR partners on how to access their sites, we have no formal support, taking responsibility for our own safety and aware of our limits. If the winter weather is

Bryology

Mosses and Liverworts

Continued

too harsh – wet or excessively cold – we might cancel but in general we manage to meet once a week, from late autumn through to about Easter. There is conviviality and support as well as recording and, with luck, learning. Even during the early months of 2021 when lockdown precluded meeting in person, we kept in touch and maintained interest by some training sessions on ‘Zoom’. Bryophytes may be quite lowly and understated plants, but our band is far from lacking in zeal and initiative!

Because we are, in the super NNR, tending to be largely on acidic habitats, there is ample scope for revision as old friends among the mosses and liverworts are frequently re-found. But there are excitements too, such as finding for the first time in Dorset the Red Data Book liverwort *Pallavicinia lyellii* (Veilwort) at Studland, and

then again on a remote spot at Arne; and *Riccardia palmata* (Palmed Germanderwort), only seen at one place before in Dorset, in 1972; and on the chalk, the handsome *Rhodobryum roseum* (Rose-moss), not recorded in Purbeck since 1952. Aside from rarities though, our attractive and unobtrusive bryophytes are always interesting, often revealing subtle clues about habitat and site conditions. They dominate the vegetation in some cases, such as mires or a damp woodland floor, so shouldn’t be ignored; a new world is revealed with a hand lens, always assuming fingers aren’t too frozen to cope!

So, if you fancy another challenge, or just want to brush up on lost skills, give the dozens of dandelions or hybrid brambles and roses a break, and turn your winter days into botanical treasure-hunts too!

Hennediella - Antipodean mosses on the move

Andrew Branson

One the advantages of the recent lockdowns has been that it forces you to explore your neighbourhood more thoroughly. Over the last year during walks close to home beside the River Stour I have found several populations of two mosses that are thought to be comparatively recent colonists of the British Isles. Unlike vascular plants, there are very few species of non-native mosses and liverworts in the countryside. Perhaps the most well known is *Campylopus introflexus*. A small but highly successful colonist of acid soils and rotten wood, with distinctive white hair points to the leaves which bend back when dry giving cushions of the plant a distinctive ‘starry’ appearance. Originally from the Southern Hemisphere, this moss was first found in Britain in the 1940s and is now widespread on many heaths throughout the country. More recently two species of ‘screw-moss’, *Hennediella stanfordensis* and *H. macrophylla*, have been found in Britain and are now appearing to spread. *H. stanfordensis* was first found here in 1958 by Harold Whitehouse and David Coombes in the Lizard, Cornwall. For a long time this species was principally found in the far west of Cornwall on cliff-top paths, in the Welsh Marches, on banks and paths by rivers, with a small scattering of records from eastern England and southern Scotland. It is thought that it is likely to be an accidental introduction from Australia. It was subsequently discovered that there were in fact two introduced species of *Hennediella*. The second naturalised species, *H. macrophylla*, was identified in the mid 1960s from south-east England. It is usually found on partly shaded paths by rivers and in flowerbeds in towns. It is thought that *H. macrophylla* originated

from New Zealand, and was possibly introduced here with imported plants. We also have a native, *H. heimii*, which is found on the edges of saltmarshes and on salt-sprayed cliffs around much of the British and Irish coast, including on Portland.

Both naturalised species are pretty unimpressive. They look like small, pale green acrocarpous mosses, a bit like the common *Barbula unguiculata*. Their distinctive character is that the border of the leaf below the tip is toothed, an unusual character for these types of moss. Both species have a short projecting tip to the leaf which is longer in *H. macrophylla*, which also has a comparatively narrower leaf.

In the last few years these little mosses have been turning up on paths and under trees along watercourses in western Britain. *H. macrophylla* was recorded for Wales for the first time in October 2019. I found a



A Branson

Bryology

Mosses and Liverworts

Continued

population by the River Yeo north of Yeovil in November 2020, which was a first for South Somerset, and so finding both species along the River Stour in Dorset was not wholly unexpected. I have now seen these mosses frequently along stretches of the Stour north of Sturminster Newton. Look out for them on shaded trampled ground under riverside trees and shrubs.

How is it spreading? Most plants of *Hennediella stanfordensis* in Britain have been found to be female, so capsules are very rare. It does, however, have

frequent underground tubers on its rhizoids, which may be important in its spread. *H. macrophylla* does produce capsules and also occasionally has gemmae on its leaves. As both species are often found on and beside trample paths they could be spread on the feet of walkers and their dogs. The likelihood also is that the rivers themselves could be spreading these plants. The frequent floods along the River Stour could be important in this respect. Perhaps the wetter and warmer winter weather we all experiencing is also helping. Mind you, *Hennediella macrophylla* is a close relative of *H. antarctica* which is no stranger to the cold!

Getting Involved

If you are interested in bryology and want to join a group then there are some opportunities in Dorset and the region. The Wessex Bryology Group holds monthly field meetings from October to March and boasts national experts who are more than willing to support beginners, details can be found on the British Bryological Society's (BBS) website under Events (see below for BBS website).

Bryan Edwards is the Vice-county recorder for bryophytes and can assist with identification. Details for contacting Bryan are available on the DERC website (<http://www.derc.org.uk/species/mosses.htm>).

Jim White runs a Bryology group who meet once a week on Thursdays to carry out surveys in the Purbeck district. Jim provides an account of setting up the group above, together with a meeting report to give you a flavour of what is involved. Jim can be contacted by email on jim@louern.co.uk. Jim's group covers the Purbeck Heath NNR and therefore you may want to consider registering with the Purbeck Natural History Forum, see earlier in the Newsletter for details.

If you live in Bournemouth or East Dorset then Robert Sharp goes surveying about once a week (when not editing newsletters) and covers an area from Mudeford to Cranborne. If you are interested in coming along, then email him on botany@osburn-sharp.uk.

Bryology requires a little more outlay than botany. To begin with you will need a field guide, and the current guide is "Mosses and Liverworts of Britain and Ireland: a Field Guide", available from the BBS for £30. You will also need a hand lens. If you want to get serious then you will probably need to invest in a stereomicroscope. The field guide does not provide details to identify mosses under a microscope so you will also need to buy one or more floras. As you get more involved you will want to buy an illuminated hand lens and more specialist floras. It is never ending.

You should also consider joining the BBS and supporting all the good work carried out by that organisation. Their website is at <https://www.britishbryologicalsociety.org.uk/>

Visit to Arne Moors, February 2022

Jim White

The following is another weekly report as per the NT Botany Group but for Bryology.

Our session today followed a little overnight rain so the bryophytes were very happy but the bright sun, at least at the start, and fresh wind made it slightly less convenient for the bryologists. It was our first visit to Arne Moors where we concentrated this time on the area of mostly wet heath in the SE corner. This area is within the 'super NNR' but the rest of the Moors isn't as most of the rest of the area is not heathland. The wet heath has some interesting patches where the vegetation is quite open, with more exposed wet, peaty surfaces than usual in mature heath, so lots of

niches for lower plants; certainly the lichen cover is impressive with more variety apparent. These open areas have less *Molinia* too, so the blanketing effect of the dead grass is also less. Towards the west edge of this heath area there is a fringe of woodland – oak, willow and birch over *Molinia*, or bracken in the few drier spots. It seems that water levels must have increased over recent decades as a good number of the oaks, both mature and younger trees, are dying back. The combination of permanent wetness, old *Molinia* tussocks, and an open canopy and lots of leaning or fallen branches, makes for an inviting habitat that grades westwards into the belt of heath bordering the Arne road. This latter feature would be interesting to visit if



R Sharp

we can come to the Moors again.

On the main expanse of wet heath, with a very slight slope down towards the SE, there is a more extensive representation than usual of *Sphagnum tenellum*. *S. compactum* is present and with these the regular leafy liverworts – *Calypogeia fissa*, *Cephalozia bicuspidata* and *Odontoschisma sphagni*. *O. denudatum*, a much more local species and with gemmae, occurs here on the damp peaty soil. *S. cuspidatum* is present in pools and *S. denticulatum* and *S. fallax* are quite frequent. *Campylopus introflexus* is also frequent, while bare ground patches have a mix of *Bryum capillare*, *B. rubens*, *B. dichotomum*, *Polytrichum juniperinum* and *Funaria hygrometrica*. *Dicranum scoparium*, *Hypnum jutlandicum* and, more locally *Leucobryum glaucum* are also regular in the more mature heath.

The wet woodland supports *Mnium hornum*, *Campylopus pyriformis*, *Polytrichum formosum*, *Pseudoscleropodium purum* on drier ground, with *Sphagnum palustre*, *S. fimbriatum*, *S. subitens* and more *S. denticulatum* typical of the frequent wet gullies between *Molinia* tussocks. Where the grass cover is not too dense these tussocks carry a good cover of smaller

bryophytes with *Calypogeia fissa*, *C. arguta*, *C. muelleriana* and *Cephalozia bicuspidata*. Epiphytes are well represented: *Frullania dilatata*, *Hypnum cupressiforme*, *H. resupinatum*, *H. andoi*, *Ulota crispa*, *U. phyllantha*, *Orthotrichum affine*, *Cryphaea heteromalla*, *Zygodon rupestris* and frequent *Dicranoweissia cirrata*. Bare ground, such as inclined root-plates or bank slopes holds *Atrichum undulatum* and *Dicranella heteromalla*. The wet woodland grades into a large ditch fringed with reeds where some of the *Sphagnum*s are frequent and also very tall *Calliergon cordifolium*.

The wet grassy heath of the east edge of the Moors has rather sparse bryo-interest but *Aulacomnium palustre* is locally abundant, but the long dense grass apparent over much of the open grassland is unlikely to allow bryos to flourish. The outer sea-bank has a more open heathy flora with much *Ceratodon purpureus* and *Polytrichum juniperinum*.

In temporary pools along the main track out to the sea-wall there were several masses of frog spawn; the first of the season for most of us.

Visit to Holt Forest, March 2022

Robert Sharp

Four of us gathered in the morning sun on the edge of what is known as Broad Lawn in the southeast corner of Holt Forest. The plan was to meander through the woods and survey bryophytes in this National Nature Reserve. From where we started there was little evidence of this being an ancient forest, dating back to the Normans and possibly beyond. There was also little evidence of bryophytes in the long grass forming a wide verge.

Our first stop was a small Oak tree literally on the corner. Unusually, for Oak, it had a fair smattering of epiphytic mosses and liverworts. In fact, among the more typical mosses such as *Lewinskya affinis* (Wood Bristle-moss), and *Cryphaea heteromalla* (Lateral *Cryphaea*) were tiny cushions of *Orthotrichum pulchellum* (Elegant Bristle-moss). There were also colonies of the liverworts *Frullania dilatata* (Dilated Scalewort), *Metzgeria furcata* (Forked Veilwort) and *Myriocoleopsis minutissima* (Minute Pouncewort).

Bryology

Mosses and Liverworts

Continued

A quick word about bryophyte nomenclature. First, although probably all bryophytes in the UK have got common names, many are not “natural” in the way most vascular plant names are. Until quite recently a lot of lesser known bryophytes just had scientific names but English names became a legal necessity and quite a lot of the results are, well, contrived. For example, the wonderfully named *Fossombronia incurva* goes by the unfortunate common name of Weedy Frillwort. In the field, it is easier to stick with the scientific names, especially as a beginner.

Except, well, these are themselves subject to change as taxonomies keep being revised by our expanding understanding of bryophyte DNA. Bryophytes in the UK are “regulated” so to speak by the British Bryophyte Society and the currently accepted names are published as a checklist every few years. The most recent checklist was published in 2021 and saw quite a few changes. For example, the genus *Orthotrichum* has been split into three: *Lewinskya*, *Pulviger* and *Orthotrichum*. It takes time for these changes to permeate the community: you may notice Jim using the older names in his meeting report above.

Ancient Oak covered in soil [R Sharp]



Back to Holt. From the oak tree we moved to the pond in the corner of Broad Lawn, but there wasn't much of interest near the water and little appetite for wading into the mud, so we focused our attention on a willow tree. Always promising for epiphytes, this one was no exception. We soon added two epiphytes that turned their backs on sexual reproduction in favour of producing gemmae – tiny buds of a few cells that literally burst out of the leaves or axils ready to become a new plant. *Pulviger lyellii* (Lyell's Bristle-moss) is larger than its cousins like *Lewinskya affinis* (Wood Bristle-moss) and has no capsules. Instead, the leaves are dusted with a fine brownish powder that are tiny gemmae bursting from the surface of the leaves. Close by we found *Plenogemma phyllantha* (Frizzled Pincushion) that used to be in the genus *Ulota* and produces fewer but much larger brown gemmae in clusters at the tips of the leaves. Most of the branches were covered in a very common epiphyte: *Hypnum cupressiforme* (Cypress-leaved Plait-moss). In places the layer of moss becomes so thick that it supports tufts of *Bryum capillare* (Capillary Thread-moss), a moss you can expect to find on the ground in most gardens. Hidden in all the greenery we also found the leafy liverwort *Radula complanata* (Even Scalewort), its light green colour and relatively large leaves being distinctive enough to be spotted from several metres. Much less obvious without a hand-lens are tiny lawns of *Metzgeria violacea* (Bluish Veilwort), distinguished from its cousin *Metzgeria furcata* (Forked Veilwort) by its narrow branches terminating in a bud of gemmae. *Metzgeria* gemmae are like tiny plates of cells and they get everywhere under your microscope if you are not careful. These gemmiferous tips, as they are called, often stand up from the surface of the bark to produce a distinctive look, once you get your eye in.

Having fought our way in and out of the willow, we made for the forest proper. The first big trees we encountered, while not that big in absolute terms, were some giant birch trees. How they have managed to survive and grow so big is a mystery. Maybe it is because they are on the lee side of the prevailing winds. Birch trees have relatively acid bark and are not known for supporting great epiphytes. Virtually the only moss growing on them was *Hypnum cupressiforme* (Cypress-leaved Plait-moss).

Before we got any further, we had to cross a “ditch” via a convenient bridge. The sides of the banks were nice and steep and the well shaded; a great place for liverworts. The dominant plant was *Pellia epiphylla* (Overleaf Pellia), a thallose liverwort consisting of strap-like leaves usually with a thicker central rib, called

Bryology

Mosses and Liverworts

Continued

a costa. These leaves overlap each other to form mats or plates on the steep muddy sides. Around the edges we also found a more unusual leafy liverwort *Chiloscyphus pallescens* (Pale Liverwort). This relatively large liverwort has rounded leaves that are very similar to its cousin *Chiloscyphus polyanthos*, which for once has an interesting name: St Winifrid's Moss, although it is not a moss. So meaningless is Pale Liverwort that some people have been known to call it St Winifrid's Other Moss. Anyway, the two are difficult to tell apart even under a microscope but ours had perianths – a sort of liverwort flower and so we were able to make a determination.

We also found a moss of the sides of this ditch: *Pseudotaxiphyllum elegans* (Elegant Silk-moss). This moss demonstrates another way in which bryophytes get by without sex. It produces little “vegetative propagules” or slender branchlets that give the tips of the branches a fuzzy appearance. These branchlets, of course, drop off and become new plants.

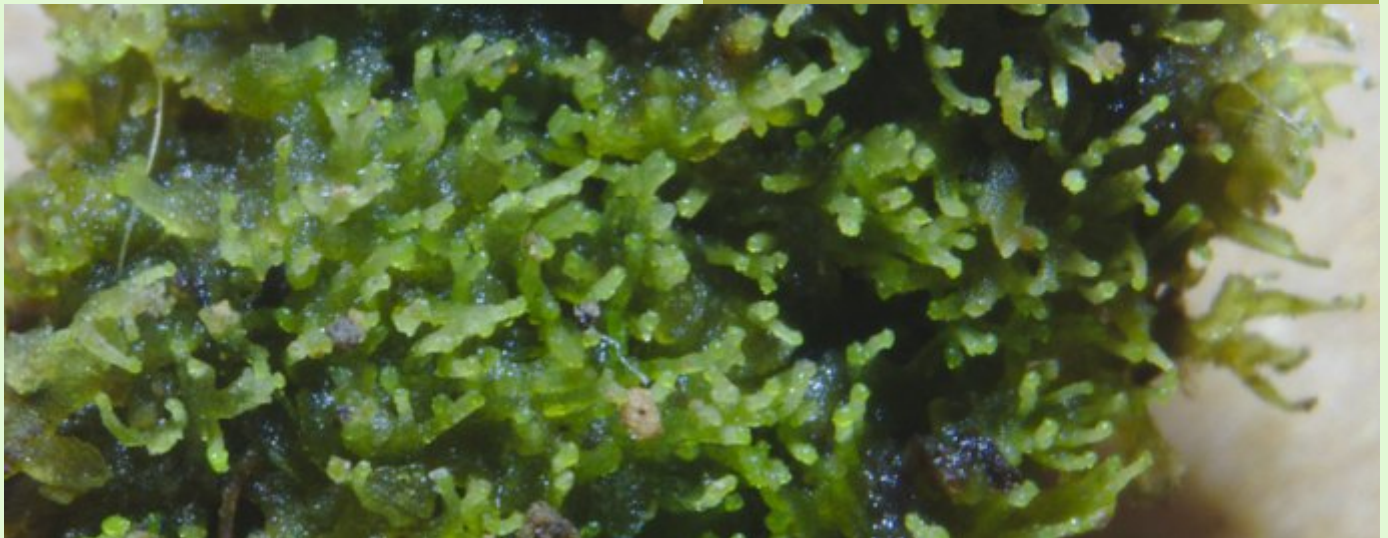
Finally we reached the forest proper, as announced by the presence of huge and ancient oak trees. Unfortunately for us, these trees offered little hospitality to bryophytes and so we were reduced to three species: *Hypnum cupressiforme* (Cypress-leaved Plait-moss) where it could make a modest living, and Dorset's two most populous (if not popular) mosses: *Brachythecium rutabulum* (Rough-stalked Feather-moss) and *Kindbergia praelonga* (Common Feather-moss). We had to make do with admiring the oaks and scouring whatever we could find that had any green on it. Holly trees are usually completely bare, but these fairly old trees had a coating of *Hypnum* and were smudged with little colonies of *Metzgeria* and a leafy liverwort that could have been *Myriocoleopsis*. Under the microscope the latter was confirmed but the former turned out to be

Metzgeria consanguinea (Whiskered Veilwort), distinguished from the other *Metzgeria* by the location and shape of its gemmae.

We pressed on deeper into the wood but found little to add to the list. A gravel path in deep shade was carpeted in what appeared to be two species of *Plagiomnium*. One was the distinctive *Plagiomnium undulatum* (Hart's-tongue Thyme-moss) but the other, while looking a lot like *Plagiomnium affine*, was sticking up rather than being procumbent. A little further along the path and we found more but this time there was a single branch that solved the riddle. With longer leaves and unmistakable puckering it could only be *Plagiomnium undulatum* (Hart's-tongue Thyme-moss), showing that when young, *Plagiomnium* leaves can look deceptively similar.

We wondered on through the Forest until we eventually came back to Broad Lawn. Here we found a raised bank that added a few familiar mosses to our list: *Campylopus brevipilus* (Compact Swan-neck Moss); *Campylopus pyriformis* (Dwarf Swan-neck Moss) (this is a deciduous moss; the tips of growing shoots break off easily and can start a new plant); their unwelcome cousin from New Zealand, *Campylopus introflexus* (Heath Star-moss), and the distinctive *Ceratodon purpureus* (Redshank Moss). As we walked towards the cars we were able to add some typical grassland mosses: *Calliergonella cuspidata* (Pointed Spear-moss), *Pseudoscleropodium purum* (Neat Feather-moss), and familiar to almost every lawn owner, *Rhytidiadelphus squarrosus* (Springy Turf-moss). A fallen tree stump along the way gave us our last species: *Didymodon insulanus* (Cylindric Beard-moss) and brought the total to a not unreasonable 47 species.

Riccardia palmata [R Sharp]





Vice County Recorders Report Robin Walls

General recording

Group activities were severely curtailed during 2021 owing to the continuing Covid-19 pandemic. Nevertheless individuals and small groups did venture out and contribute a substantial number of records during the year; 14 934 up to September, far more than the 3392 records in 2020 (see figure 1).

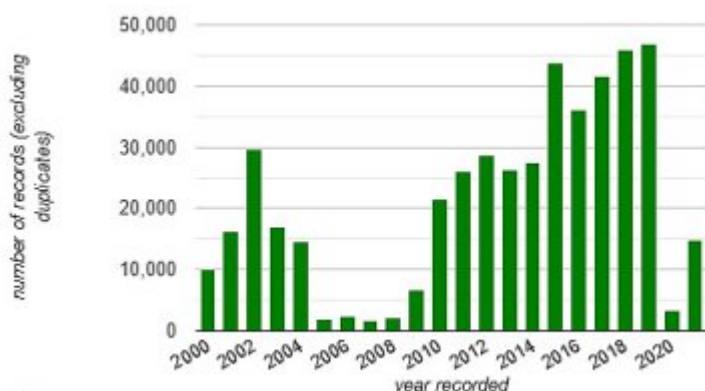


Figure 1. Number of records in the BSBI database for each year since 2000 (downloaded 2nd Jan 2022)

Records have not been collected evenly throughout the vice-county. Nearly all recorders submit data via Living Record so that up-to-date distribution maps are readily available (figure 2). The scatter of new records around Crossways is largely due to the activities of Tom and Jean Smith whilst the Purbeck hotspots are due to the activities of the National Trust's botany group and Durlston Country Park rangers. Other well-recorded squares, such as Shillingstone, are the result of DFG trips and DWT monitoring. There should be a cluster of squares in the SW from the regular meetings of the National Trust volunteers there, but these are not directly available to the county.

Lobelia urens and Mentha pulegium

We found a reasonable number of flowering spikes in the summer at the Hurst Heath population of *Lobelia urens* (Heath Lobelia) despite the *Molinia* continuing to grow vigorously. The working party arranged for February 2021 didn't happen, due to Covid and a key member being stranded in Scotland by the weather. Hopefully the work will be done in 2022. An encouraging sign was a single flowering spike in the area cleared of trees last time.

Brian Chandler, the farmer at Hurst Heath has handed over management to his son, who joined us for the inspection. He is keen to maintain this site in memory of his grandfather, Mike Chandler, who discovered the population. We discussed a more sustainable management regime than the periodic loan of a JCB and driver by Alaska that we are currently relying on.

Silverlake's translocated population of *Lobelia urens* flowered well at only one of the three exclosures. Although no plants have been found outside the exclosures it is possible that this protection is no longer needed. The lack of grazing has resulted in shrubs establishing and threatening the survival of smaller plants. Habitat First plans to dig out gorse and birch to leave open ground, which may stimulate germination of any seeds.

Mentha pulegium (Pennyroyal) looks as though it is now becoming established at Silverlake from the seed scattered two years ago. The strong smell is believed to protect the plant against grazing by mammals and invertebrate pests so there is no need for protection like the heath lobelia.

Potamogeton workshop

Botanical Matters

VCR's Report

Continued

In September we were lucky to have Richard Lansdown, a national expert on aquatic plants, to introduce us to pondweeds on the Stoborough Meadows. This is the only British site for the hybrid *Potamogeton x sudermanicus* (= *P.berchtoldii* x *P.acutifolia*). The first of these parents has only been seen once on this site although it is a common species elsewhere. The other parent is abundant in the ditches, and as we found out, not easy to distinguish from the hybrid.

Dorset Rare Plant Register

My intention on completion of the Atlas 2020 recording has been to update the Dorset Rare Plant Register (DRPR). The published version by Bryan Edwards and David Pearman is dated 2004 and a lot has happened since then. Most notably, the value of published volumes on the distribution of species is questionable now that the data are regularly updated and readily available online. A commentary on the ecology of the species and how well each is coping with climate changes and other pressures may well be a worthwhile venture.

I have maintained a spreadsheet of the latest record for every population of the species covered in the 2004 DRPR, as well as a few taxa that might be rare and some aliens. So far, updating is only by adding records as I hear of them and there has been very little proactive searching to see whether plants are still present in the known sites, or how well they are doing. In 2020 we began targeting species, but of course Covid-19 scuppered plans and things were not much better in 2021.

The only species covered at all comprehensively was *Epipactis purpurata* (Violet Helleborine). It turned out that nearly all the sites are in woodland SNCIs that were scheduled for a monitoring visit and so Mariko Whyte handled the access permissions for that project. This species is not desperately rare in Britain, but the Dorset sites are the most westerly sites in southern Britain. It is not an easy plant to find in the dim light of woodland, even when in flower but it was refound in six sites – a total of 31 plants. Four sites were not visited and it was not found in one site. But this is complemented by some new records. (*Editor's note, see Out and About above for more details and see below for more information about the Dorset Rare Plant Register*)

New and Interesting Records in Dorset

The first exciting find of the year was a new species for

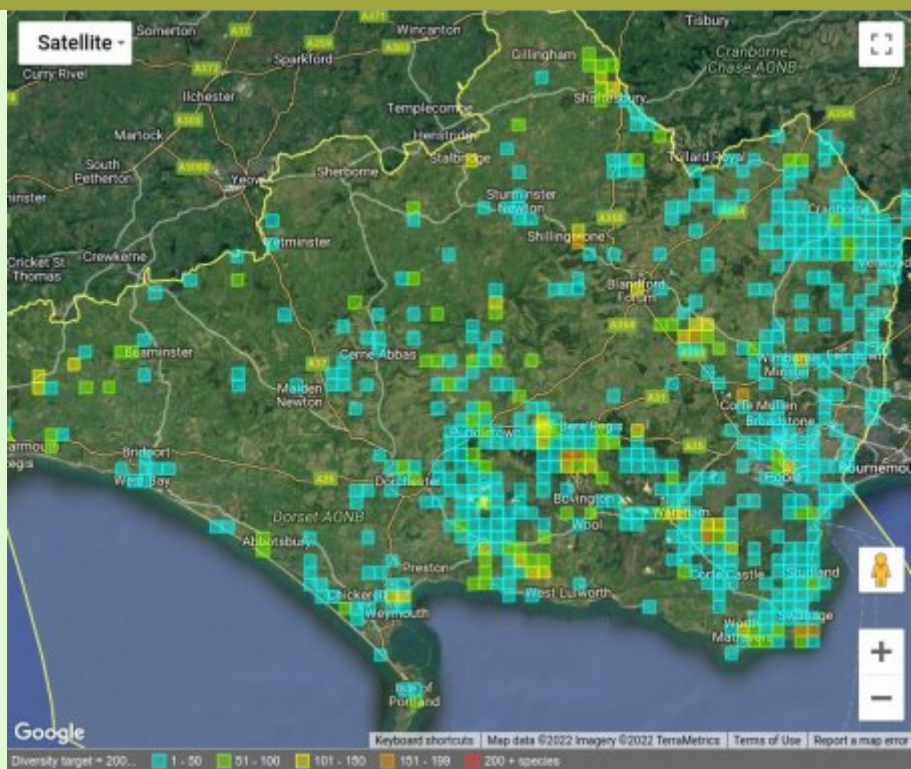


Figure 2. Number of records for each 1km squares since 1st Jan 2021
(Living Record, 31 Mar 22)

VC-9, *Symphyotrichum squamosum* (Saltmarsh Aster) growing in the pavement in the centre of Broadmayne. Carolyn Steele and I found it, in flower during a New Year Plant Hunt – the first time we had joined in that bit of fun.

The other notable new species was David Leadbetter's collection of *Taraxacum cornubiensis* in Swanage, confirmed by the referee for Dandelions. This is much further east than any other record. There are around 60 known dandelion species in Dorset so far; certainly an underestimate. The BSBI published a new field handbook in 2021 that has 239 species! It is a very much better book than the first handbook, but David's find renders the distribution map out of date already!

Trifolium incarnatum ssp. *incarnatum* (Crimson clover) is a stunning colour, but unfortunately a very rare component of the cornfield flora. Rosalind Bucknall found a large population around a field and in the school at Bishop Caundle – new locations. The pictures look superb and I hope it comes up next year when I might manage a trip to see it.

Lycopodiella inundata (Marsh Clubmoss) has always been scarce in Dorset (figure 3), and indeed the British Isles. It is classed as 'endangered' in the England red list

Botanical Matters

VCR's Report

Continued

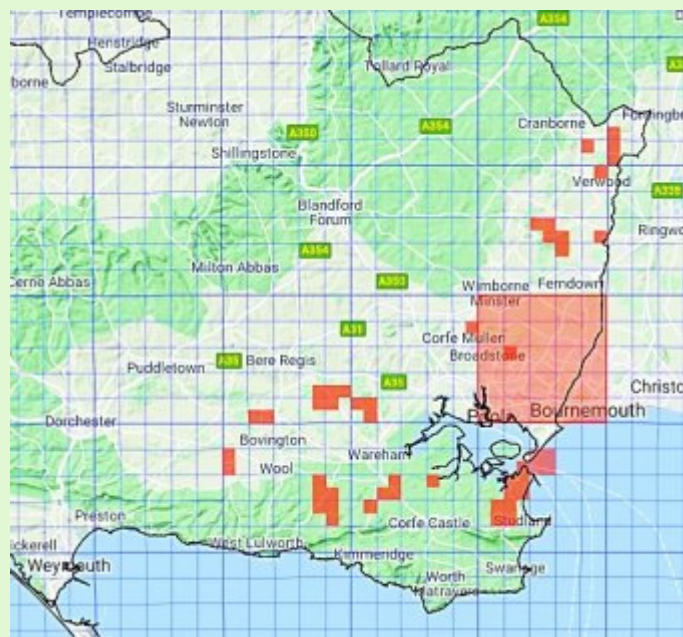


Figure 3. Distribution of *Lycopodiella inundata* in Dorset since 2000, prior to the new Duddle Heath find (BSBI database)

because of a 65% decrease in extent since the first BSBI atlas. So when Jenny Ashdown, a Kingston Maurward student looking for reptiles, spotted a colony in a small flush on Duddle Heath (Puddletown Forest) in the autumn we excitedly checked it out. Fortunately she had been on one of Dom Price's identification days and sent him some photos and a grid reference. He tells me that it is the first time any of the hopeful photos he's received has proved to be anything other than heather seedlings! Importantly this record is much further west than any others and represents the extreme of the Hampshire Basin metapopulation. It has been lost from E.Devon and is very rare on Dartmoor. It has given me new hope that we might find some on Warmwell Heath, but so far I've failed.

A scarce species that looks as though it is declining in Dorset is *Coeloglossum viride* (Frog Orchid). The distribution map in figure 4 demonstrates the current scarcity in Dorset compared with last century and also currently with Wiltshire. In the summer Paul Harris sent me an email reporting how pleased he was to find 15 plants where he had seen them many years ago near the Cerne Giant, but the record was not showing on the published maps.

Knowing Dylan Reisenberger lives

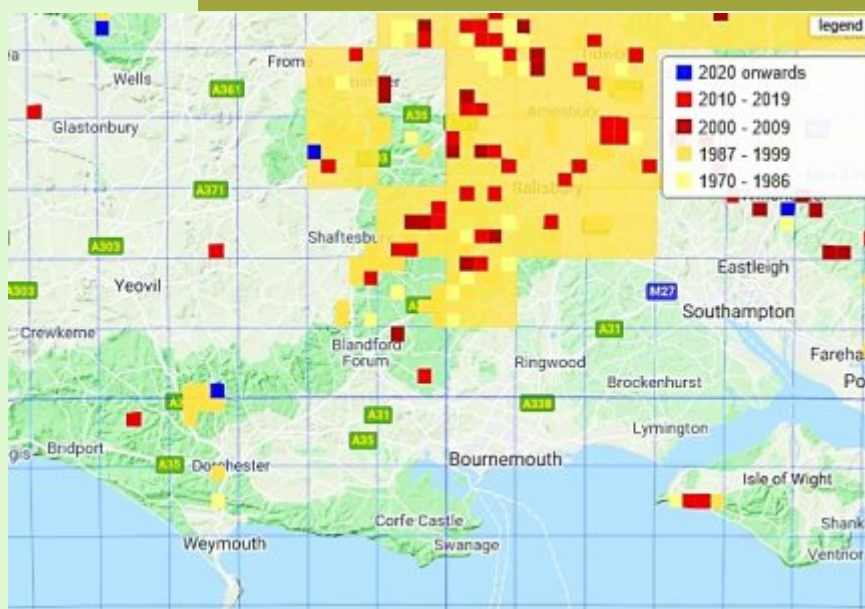
nearby and, aided by family, has been finding good populations of Autumn Gentian and other chalk downland species near his home, I passed on the information. Because he could not go himself he enlisted the help of his wife and daughters. They were delighted to find the population and indeed, counted more than the original finder. Subsequently Dylan's daughter Rosa found many more plants at new sites, having learnt to spot the right grassy habitat, bringing the total to a healthy 76 flowering spikes – the largest population in Dorset.

Another scarce species of chalk downland that may be less common than it once was is *Neotinea ustulata* (Burnt-tip Orchid). The map in figure 5 is very similar to the Frog Orchid and indeed to *Carex humilis*, *Thesium humifusum* and several other species, raising an intriguing mystery. What is different about the chalk ridge from the Blandford area to the southwest? The geology map has several different chalk formations, laid down 71 – 86 mya, but none of them appears to run out in the Blandford area?

Urban Flora & Road Verges

Trundling along in the shadows of botanising in the open countryside is observing the unexpected diversity of the built-up areas. The enforced restriction of movement over the last two years has encouraged many botanists to look at their local streets and the reduction in council spraying has given the pavement weeds a break. Those of you who have joined in the BSBI's New Year Plant Hunt will have realised that the longest lists

Figure 4. *Coeloglossum viride* distribution (BSBI database, 31 Mar 22)



Botanical Matters

VCR's Report

Continued

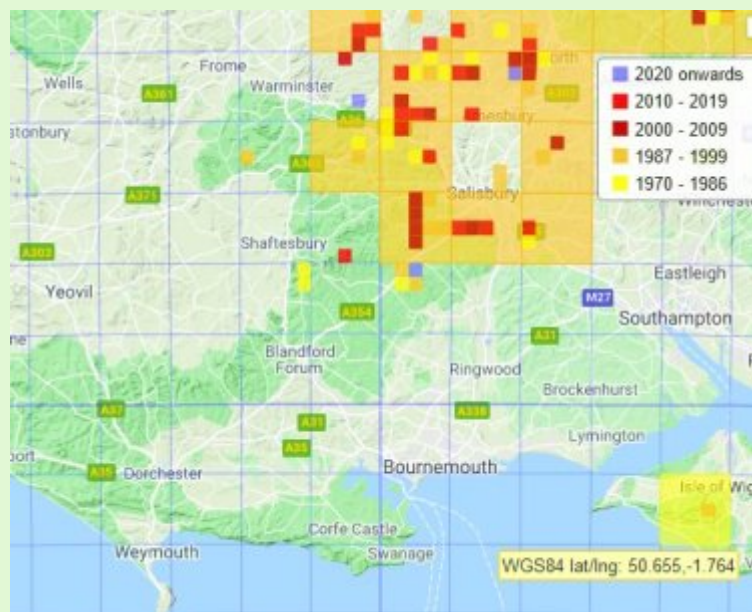


Figure 5. *Neotinea ustulata* distribution (BSBI database, 31 Mar 22)

of species in flower are likely to be from urban environments. ‘Square-bashing’ for the 2020 Atlas amply demonstrated that looking around any village in the square rapidly increases the list because of the low diversity in the farmed countryside.

A friend of mine conducted a street by street survey of her local patch at Hillhead in Hampshire and started to compare the lists in various ways. Direct comparison of the diversity has the obvious limitation that the streets are different lengths and we might expect longer streets to have more species. A simple species per metre index, as I computed for Broadmayne survey, is a crude option because the relationship between length and diversity is unlikely to be linear and I wondered what would be better. Can we compare street diversity by collecting in a standardised way? For instance, recording a sample lengths – say 30m – as we would for a hedgerow survey? I’m sure this will work, but of course, you have to decide this before the survey; it is not applicable to historic lists. Ideally we need a non-parametric index for comparison unless we can establish a universal function relating the diversity to length. This is sounding like an MSc project at least, but it would pave the way to defining an ‘important street or verge’ and perhaps influencing spraying regimes.

Rewilding

Rewilding projects are following the bus model: three have popped up this year: Wild Woodbury, near Bere

Regis (DWT), Bishop Court Dairy, near Kingston Lacy (NT), and Chettle Estate, (private estate)

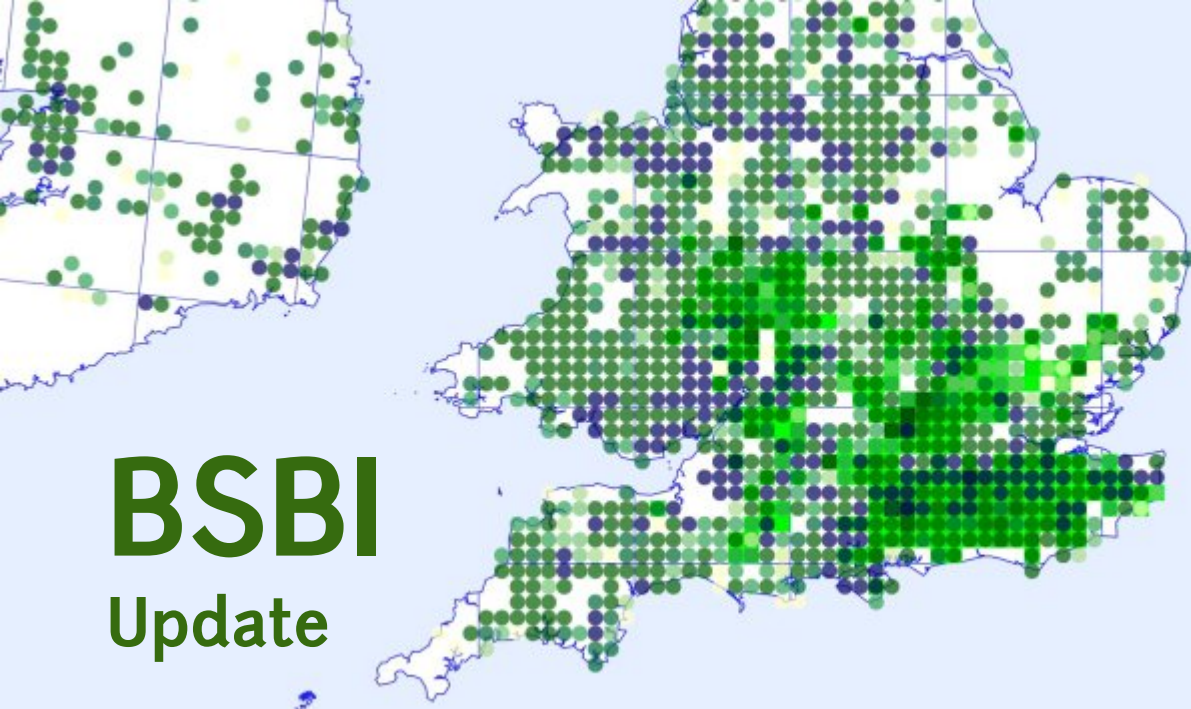
All are arable reversions that I and other DFG members have visited to get a list of species and I hope we can continue to follow developments. The arable sites have some interest worth keeping, like *Briza minor* and *Clinopodium vulgare* at Wild Woodbury or *Filago vulgaris* at Bishop Court. How these survive as the open areas reduce and which new plants become established will be fascinating.

(Editor's Note: see *Opinion!* on the topic of *Rewilding* and *In Profile* on Chettle Estate)

Help British Botany

Are you a member of the Botanical Society of Britain and Wales? If not, then please consider joining. As well as the benefits of membership, including the ability to attend range of field outings, you will be supporting botanists working across the UK for the benefit of the natural environment.

Details of how to join are on the BSBI website: <https://bsbi.org/>



BSBI

Update

© BSBI 2022

Plant Atlas 2020: Is there an end in sight?

Peter Stroh, Botanical Society of Britain and Ireland

Fieldwork for the third atlas of Britain and Ireland ('Plant Atlas 2020') was completed by the end of 2019, so why, you might ask, has a nice shiny new book not dropped through your door yet (assuming you have a very large letterbox)? I was actually asked this very question two months into 2020, just before we all became a lot more familiar with virology, public health messaging, and the inside of our homes! I was, at the time, blissfully ignorant of the huge amount of work that lay ahead of us, and hoped that something might be ready by 2021 (you have to be an optimist to work in ecology, after all). The size of the task soon became evident when we started to check the maps, and more specifically the data behind the maps. Botanists across our area provided us with over 28 million records, a quite incredible effort. Data entry is a wonderful thing, but mistakes do happen, names are mis-spelt, or mis-coded, identifications are sometimes questionable and need investigating. We would be mapping over 3,000 taxa, with associated captions to write and a hundred other tasks to complete. There are 296 species in the BTO Bird Atlas, and that book took two years from the end of fieldwork to publication. The enormity of the job began to dawn on me.

Fast-forward to March 2022, and a lot has happened, both in the world (which you know about), and with the atlas. We are working on three main 'outputs'; an online atlas, an atlas book (in two volumes), and a summary report. The online atlas design is in an advanced state, thanks in large part to the skills of Rich Burkmar at UKCEH. I won't give away all that the site will have to offer, but you'll be able to view numerous maps for a single species, have access to a photo gallery, and view novel graphics that show information about phenology, altitude, and distribution by latitude, based on the validated data held in the DDb. However, the online site,

and the book for that matter, would be fairly meaningless without validated maps and completed captions. Fortunately, we are making good progress with these tasks.

Following invaluable help from over 40 expert volunteers, the maps and text for all c. 1,600 aliens have been finalised. Hybrid maps (c. 200) have been checked, and captions written. All c. 1,600 native species maps (note the even split between natives and aliens in the wild) are finished, captions have been drafted, and we are currently working on finalising the text for these. By the time you are reading this, we will have seen the first results from the analysis of the atlas dataset, performed by Oli Pescott at UKCEH.

There is still a daunting amount of work to do, not least finishing the native captions, formatting and standardising references, writing the introductory chapters for the book, proof-checking the text (over 1 million words), writing the summary report, etc., but we now have a set-it-stone publication date of March 2023. I'm pleased to report that Princeton University Press have offered to publish the atlas book. Princeton have an excellent track record in producing high-quality natural history publications, and will be organising design, printing and postage, as well as publicising the book far and wide. There will be a pre-publication discount of 50% for BSBI members, and a running discount post-publication of 30%. So, if you aren't a BSBI member, it's worth joining, just for the discount. I hope you will find that the end products are worth the wait!



Botanical Notes

R Sharp

The Accuracy of Grid References Robin Walls, Vice-County Recorder

My 'day job' during the latter part of my career has been concerned with the accuracy of measurements and the reliability of chemical analysis. All measurements have a random error, hopefully small, but unavoidable and they may have a bias which should be all but eliminated by good practice. Quantifying the random error, or uncertainty of measurement as it is usually called, is important if we are to make valid inferences from the results. Grid references are no exception, so when somebody suggested there might be a bias in the way gps measurements are translated from the latitude-longitude system to the British grid reference I wondered what that implied when trying to locate a plant.

Typically, handheld GPS meters (eg. Garmin, phone apps) give a ten figure grid reference suggesting an accuracy of ± 1 m. It is never clear whether this is the SW corner of a grid square (the convention for OS grid references) or the centre of a circle. Assuming the latter, a 1m radius defines about 3m^2 to search if you are trying to refind a record. Some meters provide an uncertainty estimate, and the best mine offers is ± 3 m, but I think ± 10 m is more realistic a lot of the time. A 10 m square covers 100 m^2 or sq.m (not 10 sq.m as is sometimes written) and a circle would be 314 m^2 . Incidentally what3words claims to locate a 3 m square but because of the random nature of the words it is not possible to deduce adjacent squares. As a minimum we can infer a 9×9 m square to search.

It is easy to test your GPS by taking several readings from the same place at different times. Plotting them in Dorset Explorer or Living Record allows you to see how they appear on an aerial photograph. If the spot does not match perfectly there is the possibility of bias from the photo rectification process to consider as well as the

measurement accuracy. I've only once compared the OS grid reference with the lat-long on both my GPS and phone and the differences looked more random than systematic. Somebody has probably gone into this thoroughly, but I have rarely found discrepancies of more than a few metres, which is good enough for recording purposes.

Records prior to GPS availability are rarely better than six figure, which amounts to $10\,000\text{ m}^2$ or a hectare to search assuming it is accurate. In practice the recorder may not have applied the SW corner rule correctly and rounded up or simply looked for the closest spot on a map. This increases the search area by around 50 m to the south and west creating a potential area of $17\,500\text{ m}^2$.

Centroid grid references have an uncertainty that cannot be quantified without additional information, such as the name of a field, wood or compartment. This can be a useful option for widespread species when the area occupied does not easily fit a grid square. I don't know about all online recording systems, but Living Record keeps the full grid reference of the point clicked irrespective of the precision of the centroid, grid square or linear stretch.

The moral of all this is not to take grid references too literally. They will get you close, then look for the habitat. When recording grid references, obviously be as accurate as possible and check for mistakes. A description of the site and verbal directions are invaluable additions, especially for rare plants that are small and easily missed.

Botanical Notes

Continued

Botany and Archaeology, A Research Study Sigrid Osborne

Sigrid Osborne is an MRes student studying at the Department of Archaeology and Anthropology, Bournemouth University

Having trained as a horticulturist before studying archaeology, looking at the relationship between plants and people in the past became a natural lead into possible research projects. The subject combining the two is called Archaeobotany: using plant remains, for example wood, charred seeds or microscopic remains such as pollen to reconstruct past landscapes and to provide information on the interaction of people with plants amongst others as food, house-building material, for basketry and medicines.



One of the problems archaeobotanists encounter is the poor survival rate of organic material on certain soil types such as the acidic soils found on the Isle of Purbeck in Dorset. Pollen can survive on these soils and has been used in the past to assess the way the landscape might have looked and been used.

There is another microscopic plant remain which survives equally well on acidic soils. This is called a phytolith, a term derived from the Greek meaning 'plant stone'. Phytoliths, like pollen, have been used to explore plant communities and how the landscape has changed over time. They have contributed to questions about human activities related to plants, such as which crops are grown for food, plants used to roof houses or to construct matting. So far phytolith research has mostly taken place in the Middle East, South America, and parts of Asia.

During an archaeological university training excavation in Purbeck in 2019, the site introduction mentioned that it was very unlikely that organic remains would be discovered on site due to the very acidic, dry soil conditions. Wondering if phytoliths could help shed some light on the site's past plant communities, an initial library literature research relating to British Archaeological phytolith case studies showed that it was not often used. The main reason



cited was that there is no modern reference collection showing phytoliths for British flora.

The main aim of this MRes research study is to address this by assessing which plants and plant parts from the Isle of Purbeck contain phytoliths and what they look like. The site of the 2019 university training excavation has been used for agriculture for many years but is situated within the lowland heathland setting of the Isle of Purbeck. This has led to the phytolith exploration of three plant communities: lowland heathland, acid grassland and agricultural crops. Once a pictorial phytolith data base for the modern plants from these ecosystems has been

set up, the soil samples from the site will be examined. Another aim of the research is to look at the soil build-up overlying the excavation site.

The excavation site was dated to the late Anglo-Saxon period. The soil overlying it is just over 1m in thickness. How the soil accumulated on the site and whether it was used for agriculture for all of this time or was initially part of the lowland heath are questions that the phytoliths can help to understand.

Collecting, drying, identifying the plant specimen, and extracting the phytoliths from both the modern plants and the soil samples has been the first part of the research study and took place from September to December 2021. Phytoliths have to be extracted under laboratory conditions as various specialist equipment, such as a centrifuge or fume hood, are required, and four different chemicals are used for some of the processes. From January until April 2022 the modern plant phytoliths are being photographed and catalogued, a herbarium for the project is being set up and the soil phytoliths are being counted. Once these three tasks have been completed the analysis and discussion of the results can take place in April and May 2022 before the final report is being compiled. The intention is to have



Botanical Notes

Continued

the project completed by the end of June 2022.

Thanks go to Harry Manley and Derek Pitman (site directors for the 2019 archaeological excavation), Emma Karoune and Sarah Elliott (training in phytolith

fieldwork and laboratory processes), Robin Walls, Anita Diaz, Andrew Osborne and Damian Evans (plant identification and fieldwork) and to my three research supervisors: Sarah Elliott, Emma Jenkins and Derek Pitman.

A Note on Percentage Cover Robert Sharp

When recording species in quadrats (for example, see Darren Cook’s article in Surveying Dorset) it is usual to assess the amount of cover for each species. I have used two methods: the “DAFOR” method, which classes each species as being “Dominant, Abundant, Frequent, Occasional or Rare”, and Percentage Cover or Pcov, which estimates the % of the quadrat covered by each species. A third method, similar to Pcov, is to use a scale that translates to Pcov but magnifies the low end of the scale to capture cases where there are only one or a few species, independent of actual cover. This is called the Domin scale.

The problem is that all of these methods are subjective. I have seen Dafors done in completely different ways (one based on “impression” the other on a quasi-pcov approach) and the same recorder can be inclined to more or less optimistic assessments depending on mood, weather or whatever (speaking from experience). In an attempt to make Pcov estimates more reliable I had 10cm x 10cm squares of clear plastic made, but using them, other than as a rough gauge, is too time consuming to be practical. So what are the alternatives?

At one extreme is probably the only properly objective solution: to cut all the vegetation down, grouping each plant by species, let it dry and then weigh it. Apart from the obvious impracticality of this method, it still has problems. How do you deal with bare patches, for example? A more practical but also very time-consuming method uses a long baton with spikes or pins every few centimetres, sometimes called a Point Frame. The species are then recorded if and only if they are touching a pin. The frame may only be 50cm long and with 10cm pin spacing, this would require 20 uses to cover a square metre.

An alternative to Pcov is to divide the quadrat into a number of squares: 4x4 or 5x5, and then record the number of squares each species is found in. A pseudo Pcov score can be easily derived as a percentage of squares occupied by each species. But this method seems questionable when comparing, for example, a

single plant of *Hypochaeris radicata* covering the best part of one square, with maybe two or three tiny *Aphanes australis* in two or three separate squares.

At the other extreme is not to bother! Does it make any difference if we just record presence/absence instead of cover? I carried out a quick test using the data presented in the paper on Southbourne LNR, converting the results into 1's or 0's and then measuring dissimilarity with the Bray-Curtis method. This compares a group of quadrats with National Vegetation Classification communities. The difference between Pcov and presence/absence is shown in the table. Although the most similar two communities remain the same, the rest are shuffled about. It would be prudent, perhaps, to investigate further before giving up on coverage completely. Watch this space.

NVC	P/A	NVC	Pcov
OV2	0.63	OV2	0.70
OV23	0.78	OV23	0.80
OV1	0.79	OV20	0.85
OV11	0.81	OV1	0.86
OV20	0.82	OV22	0.87

Dissimilarity scores for sample data compared to NVC communities using Pcov and Presence/Absence

Dorset's Rare Plant Register

A Branson

Robin Walls, Vice-County Recorder

In 2004, with help from the BSBI, Dorset Environmental Records Centre (DERC) published Dorset's first Rare Plant Register (DRPR) compiled by Bryan Edwards and David Pearman. This was a logical progression from Humphry Bowen's *Flora of Dorset* published in 2000. A lot has happened since 2004 to the countryside, climate and technology. The continuing loss of good habitats, declining biodiversity and climate change are well known, if not fully understood. Following the fate of the most vulnerable species in the DRPR is a convenient way to track the change.

Most of the botanical records in Dorset are entered into Living Record and anyone can find where a species is by using the distribution maps tab. But this has only been the situation recently; for older records there is the NBN atlas or better, BSBI maps. These are freely accessible and in the case of the BSBI map the data are at tetrad or monad level. For more detail there is the BSBI's Digital Database (DDb) for which access is limited to vice-county recorders and a few researchers. But any database is limited to the records that botanists choose to submit.

The simple idea of a rare plant register becomes more complicated once you start considering the detail; the area to cover, the species to include and what to record. Since taking over as vice-county recorder I have updated the spreadsheet passed on from Bryan Edwards, but I have not managed to capture all the new records. My original intention was to review the DRPR and start surveying after completing Atlas 2020 fieldwork, but that was disrupted by other events. Searching for plants in the open is probably one of the safest occupations during a pandemic, but we all had more immediate concerns and systematic botanising dropped down our priorities. Eventually I got back to reviewing the list of

a	Internationally Rare, including taxa which are Endemic, Near Endemic, and those for which Dorset has an International Responsibility
b	Nationally Rare (occurring in <15 or fewer hectads)
c	Nationally Scarce (occurring in 16-100 hectads) in Great Britain)
d	Great Britain Red List threat categories – CR, EN, VU, (NT, EX, EW, DD)*
e	England Red List threat categories – CR, EN, VU, (NT, EX, EW, DD)*
f	Priority Species – UK countries
g	Dorset Rare (1-3 sites or monads in vc9)
h	Dorset Scarce (4-10 sites or monads in vc9)
i	Believed to be declining
j	Recorded between 1990 and 2000, no records since; potentially Locally Extinct

Table 1

Dorset's Rare Plant Register

Continued

species last autumn and more recently I've been thinking about how to update the data.

The DRPR spreadsheet since 2010 keeps strictly to the Vice-County 9 boundary. Thus Bournemouth and Christchurch are excluded, as in the 2004 DRPR; the northwest incursion into modern Devon and Somerset is included. Species not seen since 1990 are considered extinct in the vice-county and the current frequency is based on the number of monads with records post-2000 in line with the latest BSBI atlas. Some species common in Dorset need to be included because the vice-county has a substantial proportion of the national population. An example is *Anacamptis morio* (Green-winged Orchid) that is vulnerable (VU) in the England Red List but present in 66 monads in Dorset.

Table 1 shows the criteria adapted from the BSBI guidelines (2017). Note that species from threat categories in brackets are not always included.

After limited consultation and some admittedly subjective decisions I have whittled the list down to 338 taxa. A further 92 of the taxa considered are present in too many monads and do not appear threatened in Dorset. Finally I have a backup list of taxa that are potential additions but we need more information. Most of the species in the DRPR are native and archaeophyte species in Dorset, but some that may be well-established and non-invasive aliens (neophytes) have been included. Hybrids and infra-specific taxa were not permitted in the England Red List, but it seemed appropriate to consider some for the DRPR, such as our native arum, *Arum italicum ssp. neglectum*, which is nationally scarce. The taxonomic status has an alarming habit of changing with revisions and this is likely to continue as more information from DNA is examined. One tiresome change has been the two common ivy subspecies becoming full species: *Hedera helix* and *H. hibernica*.

The revision started with a table of the threat categories and scarcity of all the likely taxa. This is now being

extended by adding the year last seen and details of when and by whom sites were first found. So far these columns are only sparsely populated but I hope we can build up the historic information. There is a list of the last year seen in order to prioritise surveys between now and 2030. DERC has a survey form for DRPR taxa to act as a checklist of what to record at each site. The essential information is an accurate grid reference and estimate of the populations size (as well as date, recorder etc). I am hoping to build up a picture of the habitat in the form of associated species, the soil and other environmental factors.

Thinking beyond the DRPR and concerns about declining plant populations for the most part, we should also be keeping an eye on what is increasing amongst the neophytes. The two main groups are: taxa that are thought likely to be aggressive - some are already causing damage to habitats and incurring high cost to control and it is obvious that all of these problems would be much easier if we had acted sooner; taxa indicative of climate change, which is much more interesting. We should anticipate some becoming a legitimate part of our flora in the future. Eradicating all aliens is not a tenable strategy in light of climate change. We know we are going to lose species, so why not welcome their replacements? We might be witnessing something comparable to the recolonization of the land after the last Ice Age.

Plans to go about surveying are fluid and in the first instance it is probable best to encourage people to look for species they fancy. Broadly there are two approaches: looking for all the sites of a particular species, or looking at all the sites for rarities in your own area. All I would ask is to let me know so as to control duplication. The full list of DRPR species and sites for your chosen taxa or squares are available from me at present. This may become time consuming and I'll need help. The new list will shortly be available on the DERC and BSBI websites, I hope. So lots of fun to be had and in the process we will build up a thorough database of the scarcer species in Dorset.

Dorset Flora Group

The Dorset Flora Group was established in 2007 with the aim of supporting botany and botanists across the county, including amateurs, professionals, and charitable organisations. The group holds events through the year to carry out surveys of various kinds and to provide training and assistance to botanists. Anyone with an interest in botany is welcome to join. Details of how to join can be found at the Group's website.

The DFG is run by a committee, which is currently: Jon Crewe (Chair), Robin Walls (Vice-County Recorder), Carolyn Steele (Treasurer), Jean Smith (Secretary), Andrew Branson, Steve Masters (representing DWT), Darren Cook and Michelle Brown (representing NT), Robert Sharp, Jonathan Cox and Dylan Reisenberger.



Bookshelf

R Sharp

The Botany Book I would least like to lose

Jonathan Cox

There are many excellent botany books I would not want to lose, including my Stace, Garrard & Streeter and the superb range of BSBI handbooks, but most of them could if lost be eventually replaced, some easier than others. What cannot be replaced are memories, and for that reason the book I have chosen is my 1974 edition of *The Wild Flowers of Britain and Northern Europe*, with text by Richard Fitter and Alistair Fitter and illustrated by Marjorie Blamey. At the front of my undeniably grubby and well-thumbed copy is a single pressed Harebell, protected by transpaseal and given to me by my father after a holiday with Mum in 1980. It took decades before all traces of blue faded from the flower. In the margins of the text opposite the beautiful plates I have scribed over the years in micro-print the details of first sightings and some notable sightings of species, notes that help me remember the plants as well as being enjoyable to look back on.

The notes go back as far the 1970s and range from notable plants experiences I had in my childhood to recent records from Dorset, and some of the most evocative are for common species. They recall the time at school when my enthusiastic and encouraging biology teacher took our class for walks around the school playing fields and showed us White Dead-nettle and Hedge Garlic in flower, and reminded me of the unusually large and ancient False Acacia near the school buildings. During weekend trips to Epping Forest with Mum, Dad and our much-loved mongrel Benson (named after my father's favourite cigarettes) we looked occasionally at the plants, and I recall us discussing the identity of a scrambling plant with attractive purple flowers, which proved to be Woody Nightshade. The notes recall the splendid Mistletoe that grew on our garden apple tree, and of finding in later years both Shaggy and Gallant Soldier in the flowerbeds.

I think the first plant I identified using the book was Common Figwort, found on disturbed ground in Cardiff during my BSc, soon followed by Marsh Pennywort on Skokholm island. By contrast the illustration of Ivy-leaved Toadflax reminded me of when I failed to identify this plant during a practical exam! I was very fortunate to become friends at home with an exceptional naturalist, who in addition to being a fine botanist was also a skilled entomologist, and I will always be grateful to him for encouraging my natural history. My notes record when he showed me impressively tall Cotton Thistle near Tring, and Round-leaved Fluellen in arable stubble.

It is the small details that bring back fine memories – my first-ever sighting of Lesser Swinecress was on the stony remains of the trackbed of a long-defunct industrial railway in north Gower, and the note reminds me of the peaceful beauty of the adjacent saltmarsh and the pleasant companionship of the excursion. Records for Apple-of-Peru, Fuller's Teasel and Starry Clover evoke fascinating forays in the 1980s on a large municipal rubbish tip near Swansea, now long-since covered by amenity grassland, where one always found something unexpected, including on one occasion a colony of chirping house crickets. Notes for Balm-leaved Figwort and Orange Bird's-foot are happy reminders of visits to the Isles of Scilly.

Dorset is well-represented, my first sightings notes including Nottingham Catchfly on the clifftops near White Nothe, Yellow Centaury on a damp heathland track near Morden Bog, Sea Pea in flower on Chesil Beach, and Early Spider Orchid on the South Dorset Coast. More than 40 years after buying my Fitter, Fitter & Blamey this book remains a treasured item on my shelves.

Bookshelf

Continued

BSBI Violas Robert Sharp

Violas of Britain and Ireland, BSBI Handbook No. 17, Michael Porter and Michael Foley

Out of all the BSBI handbooks I own, this is probably the most useful, although it is a close run with the Sedges book. To say that it is a comprehensive guide is probably an understatement. It includes a binomial key, an illustrated key and a very useful section comparing pairs of similar species. The species accounts are very well illustrated with fine line drawings, lots of photos including habitat as well as close-ups, and accounts of varieties, again with photos. Between the main taxons are separate accounts for all known hybrids with similar details to the species. There are also useful tables comparing the key characteristics in the parents and the hybrid. Distribution maps are, of course, provided for species and hybrids.

Violas are probably more difficult than they first seem and I would not be surprised if a fair percentage of identifications were incorrect. This book certainly helped me to gain a better understanding of the genus, although last year I pretty much missed the season. Some of the hybrids are not uncommon and are probably under-recorded.

Compared to, for example, the Euphrasia handbook, this is both accessible and immediately useful. I bought the Euphrasia guide and got no further than reading the methodology. That is not to say the handbook is not very good, but when differentiating taxa requires six samples, a micrometer and an awful lot of measuring, I decided to concentrate elsewhere for the time-being.

If you haven't already got the book, I thoroughly recommend buying it, and asap because there is still a fair amount of the season to run.

Viola riviniana (Common Dog-violet) in the author's back garden



End Matters

Call for Contributions

Meeting notes, opinion pieces, book reviews, places to visit, and anything else connected with plants are all welcome.

If you would like to submit any material then please email the editor at the address below. If you would like to write a longer article please contact the editor in advance.

Contacting the Editor

To submit material or comment on the newsletter, please email: dfg_heath@gmail.com

All text and illustrations are copyright and no reproduction in any form may be made without written permission from the Editor

© Dorset Flora Group 2022



View of Southbourne Local Nature Reserve looking towards Bournemouth [R Sharp]

Botanical Papers

57 - Sheep's-bit (*Jasione montana*) Survey 2020, Darren Cook

61 - Southbourne Local Nature Reserve, Grassland Plant Communities in the LNR, Robert Sharp

Sheep's-bit (*Jasione montana*) Survey 2020

Darren Cook
November 2020

Introduction

Jasione montana (Sheep's-bit) is a small biennial flowering plant in the Campanulaceae family found on heaths, dunes, rough grassland and cliffs in acid sandy or stony substrates (Rose, 2006; Streeter, 2010). It is widely distributed throughout the west of Britain. However, it has experienced declines in many central, eastern and southern regions, including Dorset and Hampshire (Botanical Society of Britain & Ireland, 2020). Within Dorset, it occurs on scattered sites around the Poole basin, but Studland Dunes supports the largest population in the county (Edwards, 2020a, 2020b).

Declines in many areas can be attributed to the loss of habitat to development, e.g. the Poole Basin heaths. However, even in protected sites, suitable habitat can be lost where vegetation has become more closed owing to succession and a reduction in grazing and disturbance. This remains a current threat to Sheep's-bit, which is listed as 'Vulnerable' on the Red List for England (Stroh, *et al.*, 2014) and also as a 'Dorset Notable' species.

Within the dry dune system at Studland, Sheep's-bit is considered to be indicative of good quality habitat, particularly of the more open vegetation types, and is also an important plant for many invertebrates including several important species (Edwards, 2020b). Because of its rarity and its merit as an indicator species, it is included in the species assemblage considered to be important to the dune system, with the recommendation that it is mapped accurately as a baseline and monitored every 5 years (Edwards, 2020b).

Dynamic Dunescapes is a project that aims to restore dynamism to the dune system, particularly where dunes have become fixed and the vegetation closed. Practical management work will include creation of dry scrapes on areas of dune heath and the introduction of grazing. The project also engages a citizen science approach to collect ecological and environmental data to monitor the trajectory of change. This survey utilised citizen science volunteers to carry out the required baseline mapping of Sheep's-bit ahead of practical management work.

Method

The survey was carried out on the dry dune system of the National Trust's Studland Peninsula with the aim of examining all areas where potentially suitable habitat could occur. The extent of the area surveyed is outlined in Figure 1, and amounts to approximately 90 hectares. The system broadly consists of four dune ridges, termed Zero, First, Second and Third Ridges with the youngest (Zero Ridge) being on the eastward side adjacent to Studland beach; there is also a lateral ridge to the north bordering the entrance to Poole harbour, known as Shell Bay Dunes.

Zero Ridge and Shell Bay Dunes generally consist of mobile dunes with a narrow strip of semi-fixed dunes. The vegetation here is typically dominated by marram (*Arenaria ammophila*). The system rapidly becomes fixed dunes on the other ridges, where the vegetation is typical dune heath. Bare sandy ground occurs extensively throughout the mobile dune zone on Zero Ridge and Shell Bay Dunes (as expected) but is far less common on the fixed dunes. On First Ridge and some parts of Second Ridge it is fairly widespread in small patches and narrow paths, but on the more mature Third Ridge it is very scarce.

Two slightly differing approaches were taken to the survey method according to the structure of the vegetation and the prevalence of suitable bare sandy habitat for the plant. In areas where vegetation was open with regular exposures of bare sand (Zero Ridge, First Ridge and Shell Bay Dunes) a more structured approach was taken in searching for plants. Surveyors searched in pairs by walking a transect line roughly perpendicular to the ridge line with a search width of approximately 10 metres; transect lines were spaced approximately 10 metres apart. In areas where vegetation was largely closed with fewer exposures of bare sand (Second Ridge, Third Ridge, Southern Heath and Inner Ridge) a less structured and more targeted approach was taken. Surveyors sought out and concentrated on the bare sand exposures and did not search large areas of dense heather and gorse.

In all areas where Sheep's-bit was found, the location was recorded as a 10 figure British National Grid reference. The abundance of Sheep's-bit within a 5 metre radius was recorded according to the following scale: Rare: 1-3 plants or small patches, Occasional: 4-10 plants or small patches, Frequent: 11- 100 plants or patches, Abundant: more than 100 plants or patches.

Surveys took place on 4th, 11th, 18th, 25th September and 9th, 16th, 23rd October 2020. Records were entered into the 'Living Record' online database, and a dataset downloaded on 6th November 2020. These data were processed in 'QGIS' to produce a heatmap of distribution and abundance using a kernel density estimation with a radius of 15m and weighted for abundance on a scale of 1 to 4.

Results

The distribution and abundance of Sheep's-bit within the surveyed area is illustrated in a heatmap in Figure 1. The survey area is outlined in orange. The density of Sheep's-bit is marked in blue with a darker colour representing greater density of occurrence and abundance.

Sheep's-bit is widespread throughout most of the northern portion of Zero Ridge and First Ridge, and along Shell Bay Dunes, with some high density patches occurring in a few places. Throughout the southern portion of Zero Ridge it is reasonably widespread at a lower density but becomes increasingly limited further inland across the southern portion of First Ridge and is particularly localised on Inner Ridge and Southern Heath. There is a limited distribution across the northern portion of Second Ridge, becoming more sporadic moving south, and absent from the very south of that ridge. On Third Ridge North there is a localised occurrence to the very north, but it is almost absent from the rest of that ridge.

Discussion

The distribution of Sheep's-bit across the dune ridges broadly corresponds with the existence of bare sandy ground, the extent of which can be seen in the underlying aerial images. This is as expected considering the required habitat for Sheep's-bit. In the north of the peninsula this bare sand largely exists as a mosaic of patches and paths in which Sheep's-bit shows a regular distribution and has a particularly dense abundance in a few places. In the south, particularly on Inner Ridge and Southern Heath, Sheep's-bit is less abundant and seems clearly limited to the small paths and a few bare sand exposures. On Second Ridge South and Third Ridge where it is known that bare sandy ground seldom exists, the absence of Sheep's-bit is not surprising.

There are, however, two localities towards the northern end of Zero and First Ridges where Sheep's-bit was not recorded despite the existence of suitable bare sandy ground. It would be interesting, and possibly informative, to pay attention to these localities in future

surveillance to see if they become larger or such absences appear elsewhere. This could be an indicator of a contracting distribution and decline of the species.

Cyril Diver, who carried out an extensive ecological survey of the peninsula in the 1930s, also produced a map of the distribution of Sheep's-bit (see Figure 2). Before comparing the distributions from the maps, it is important to realise that in Diver's time First Ridge was the youngest dune ridge adjacent to the beach, and that Zero Ridge has formed since then. Similarly, a transverse dune ridge has extended across the Shell Bay Dunes area. The occurrence of Sheep's-bit in these areas represents colonisation of the new dune habitat.

Broadly, it seems that across the younger First and Zero Ridges the current range and distribution of Sheep's bit is fairly similar to that of First Ridge in the 1930s, although it now seems less abundant than it was in the south. It is also fairly similar across the centre of Second Ridge North and Third Ridge North. Sheep's-bit was also very localised on Third Ridge in the 1930s, suggesting that the habitat there was similarly closed with little bare sand at that time.

Two main differences stand out between the two maps, however. Firstly, Sheep's-bit now seems absent from Second Ridge South and Third Ridge South in the areas where it was recorded quite widely by Diver. This might reflect the loss of bare sand in these areas. Secondly, Sheep's-bit is now widespread in the northernmost portion of Second Ridge and into the Shell Bay Dunes area that existed in the 1930s, however Diver did not record any in this area. This is interesting considering that bare sand appears to have declined in this area (Edwards, 2020a).

Another interesting feature that was apparent in the survey is that although the published flowering period of Sheep's-bit is May to August (Rose, 2006; Streeter, 2010), flowering was still quite widespread throughout September and even persisted to a lesser extent in October.

Conclusion

This survey has generated a valuable and thorough baseline map of the distribution and abundance of Sheep's-bit across the Studland dunes. The survey could be repeated after a suitable period, say 5 years, and the observations compared to these. From that it should be apparent whether the distribution of the species is stable or not and could indicate what impact habitat management and grazing may have had.

The suitable localities on the north end of Zero and First Ridges where Sheep's-bit was not recorded could benefit from a repeat survey to establish if there is a true absence here, and perhaps more frequently to monitor if the adjacent distribution is contracting. Similarly, more frequent surveillance of new dry sand scrapes might be useful to identify if or when colonisation by Sheep's-bit occurs.

Acknowledgements

Grateful thanks go to all volunteers who contributed many hours thoroughly searching the dunes to generate this extensive set of records and to the volunteer who spent many hours entering all records into the database.

References

Botanical Society of Britain & Ireland, 2020. *Plant distribution maps*. [Online] Available at: <https://bsbi.org/maps?taxonid=2cd4p9h.vk1> [Accessed 4 November 2020].

Edwards, B., 2020a. *An Ecological Assessment of Studland Dunes*, s.l.: Dorset Environmental Records Centre. Edwards, B., 2020b. *Ecological Assessment of Studland Dunes: Species & Species Assemblages*, s.l.: Dorset Environmental Records Centre.

Rose, F., 2006. *The Wild Flower Key*. Rev ed. London: Warne.

Streeter, D., 2010. *Collins Flower Guide*. 1 ed. London: HarperCollins.

Stroh, P.A., Leach, S.J., August, T.A., Walker, K.J., Pearman, D.A., Rumsey, F.J., Harrower, C.A., Fay, M.F., Martin, J.P., Pankhurst, T., Preston, C.D. & Taylor, I., 2014. *A Vascular Plant Red List for England*. Bristol: Botanical Society of Britain and Ireland.

Figure 1. Heatmap showing the distribution and abundance of *Jasione montana* on the Studland dunes in 2020. Survey area is outlined in orange, darker blue represents a higher density of plants. [D Cook]



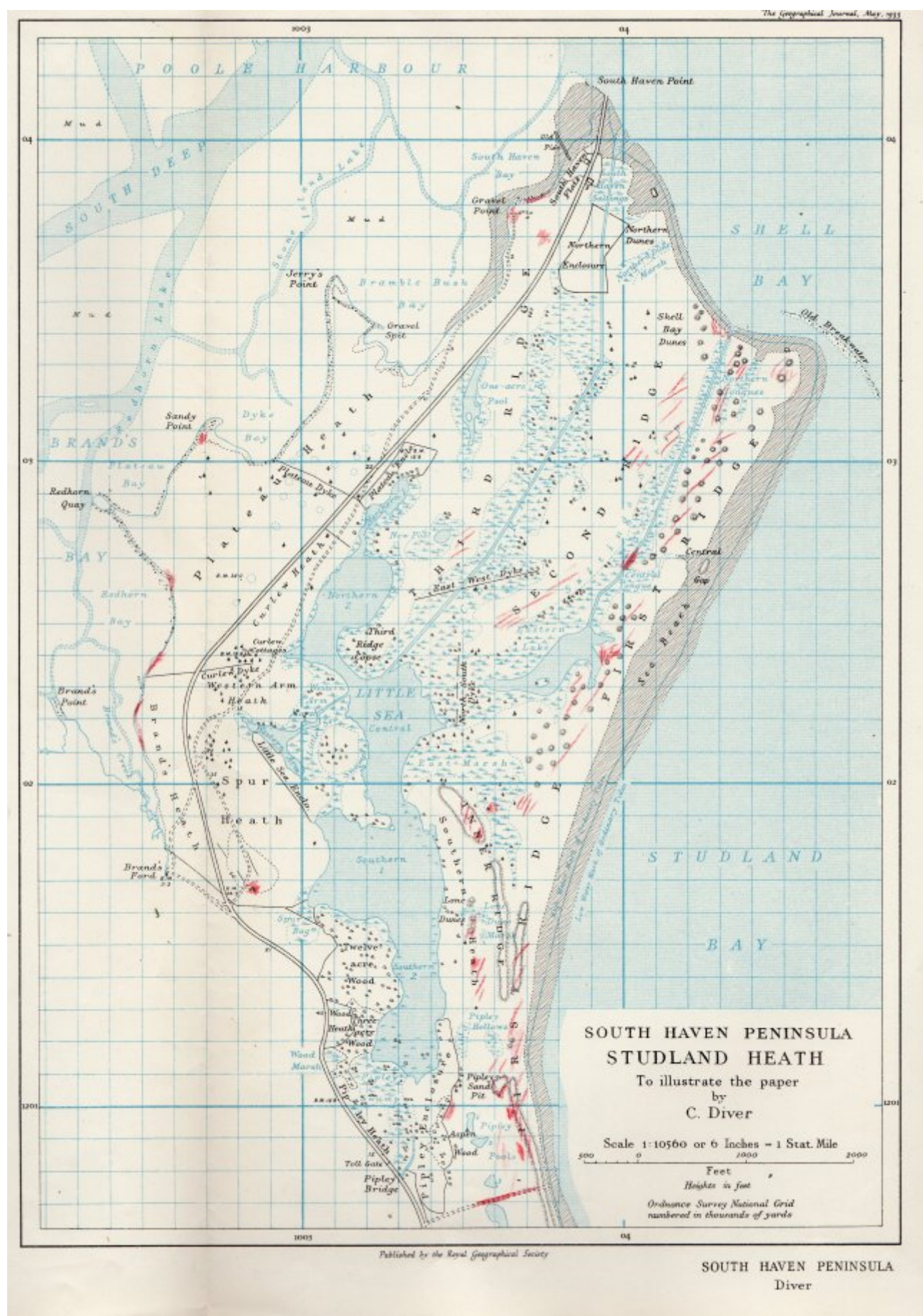


Figure 2. Map showing the distribution of *Jasione montana* on the South Have Peninsula as published by Cyril Diver in 1933. [D Cook]

Southbourne Local Nature Reserve

Grassland Plant Communities in the LNR

Robert Sharp
March 2022

The grassland of the Southbourne Local Nature Reserve is well trodden by walkers, especially during the lock-downs in 2020 and 2021 and suffered several droughts over the same time period. In May and June 2021, the grassland at the western end was surveyed for vascular plants using 1m x 1m quadrats. The aim was to understand the plant communities growing there and to compare these to the communities across the UK identified within the National Vegetation Classification (NVC). The statistical package “R” was used to conduct cluster analysis and dissimilarity tests. The results indicated 4 different communities, all with a similarity to continental communities that are limited in the UK to the extreme southwest. Further investigation is recommended before any firm conclusions can be drawn.

Introduction

The Southbourne Local Nature Reserve (LNR) is a thin stretch of cliff-top grassland in Bournemouth, between Boscombe Pier in the west and the Southbourne Zig-Zag in the east. It is a local amenity that saw very heavy usage during the Covid lock-downs in 2020 and 2021. In early 2021 the grassland was very worn down and a spring drought made it unusually bare, but then rain in late April and early May heralded an immediate recovery.

The LNR has several species of interest including *Crassula tillaea* (Mossy Stonecrop), *Silene nutans* (Nottingham Catchfly) and *Silene gallica* (Small-flowered Catchfly). The former is occasional across most of the shorter grass and therefore the impact of increased tread on these plants was of interest. Observing the changing state of the LNR over the spring of 2021 led me to carry out a survey of the western end of the reserve with the aim of determining the plant communities in order to better understand the vulnerability of the grassland to the prevailing conditions (high usage, increased drought).

According to the British Geological Survey, the LNR consists of a superficial layer of blown sand dating back over the last 3 million years over a sand-based sedimentary bedrock (Boscombe Sand) formed around 45 million years ago and typical of the Hampshire Basin. The plant communities growing on the LNR can be seen as dune grassland progressing from very localised blowouts with *Ammophila arenaria* (Marram) and occasional *Leymus arenarius* (Lyme Grass), through an open sward dominated by theophytes such as *Aira praecox* (Early Hair-grass), to relatively closed swards with *Agrostis capillaris* (Common Bent) and *Anthoxanthum odoratum* (Sweet Vernal Grass) ending with *Ulex europaeus* (Gorse) scrub. Left unchecked, the scrub would become a low woodland of *Quercus ilex* (Evergreen Oak) and little else, as can be seen across the

road from the LNR, in Shelley Park and along the southern edge of Manor Gardens.

Methodology

Surveys consisted of 1m x 1m quadrats assessed for species presence and then for each species, their percent coverage (Pcov). The Pcov was assessed by eye with the assistance of a 10cm square of perspex providing a 1% reference. Quadrats were located semi-randomly. The assessment of communities requires locating each quadrat in a relatively homogenous stand of vegetation. The stands were often fairly small so the approach was to walk to within a few metres so that individual plants were not discernible and then throw the quadrat into the stand. In the event that the quadrat straddled more than one stand it was moved the minimum distance to cover only one. In order to minimize bias, a large number of quadrats were sampled (56 in total).

Data was collected between May and early June 2021 and stopped when conditions started to significantly effect the plants growing in the grassland. The results were analysed in two stages. First all of the quadrats were tested with hierarchical clustering to establish putative groupings. Then the groups were averaged and compared to the plant communities that were created through the National Vegetation Classification project.

Hierarchical clustering was performed using the R statistical package as follows. First, the sample data was normalised using the “decostand” function from the “vegan” package, with the “normalize” method that works by making the margin sum of squares equal to 1. Then the data was converted into dissimilarity indices based on the euclidean distance between samples, using the “vegdist” function from the “vegan” package with the “euclidean” method. The next step was to try out various clustering algorithms to determine which produced the most consistent grouping. Although the quality of clustering can be assessed using cophenetic

Rank	Species	Coverage
1	<i>Plantago coronopus</i>	24%
2	<i>Anthoxanthum odoratum</i>	12%
3	<i>Lolium perenne</i>	8%
4	<i>Plantago lanceolata</i>	7%
5	<i>Vulpia bromoides</i>	7%
6	<i>Hypochaeris radicata</i>	6%
7	<i>Ornithopus perpusillus</i>	6%
8	<i>Brachythecium albicans</i>	5%
9	<i>Polytrichum juniperinum</i>	4%
10	<i>Trifolium subterraneum</i>	3%

Table 1a - Top 10 Species by Coverage

Rank	Species	Frequency
1	<i>Plantago coronopus</i>	91%
2	<i>Hypochaeris radicata</i>	84%
3	<i>Anthoxanthum odoratum</i>	79%
4	<i>Vulpia bromoides</i>	66%
5	<i>Ornithopus perpusillus</i>	63%
6	<i>Brachythecium albicans</i>	61%
7	<i>Bromus hordeaceus</i>	61%
8	<i>Lolium perenne</i>	57%
9	<i>Plantago lanceolata</i>	52%
10	<i>Trifolium dubium</i>	48%

Table 1b - Top 10 Species by Frequency

correlation coefficients, qualitatively superior results were obtained using Ward's Minimum Variance clustering. This was achieved using the “hclust” function from the “stats” package with the “ward.D2” method.

The number of groups was chosen by eye and the quadrats in each group combined to determine the frequency (as a %) for each species. This was done in a spreadsheet and the resulting data exported back to R as 'csv' files. The data was then combined with the NVC communities, having converted the latter to % (they were domin scores) and updated the scientific names. The groups were individually compared to the NVC communities using a Bray-Curtis dissimilarity matrix

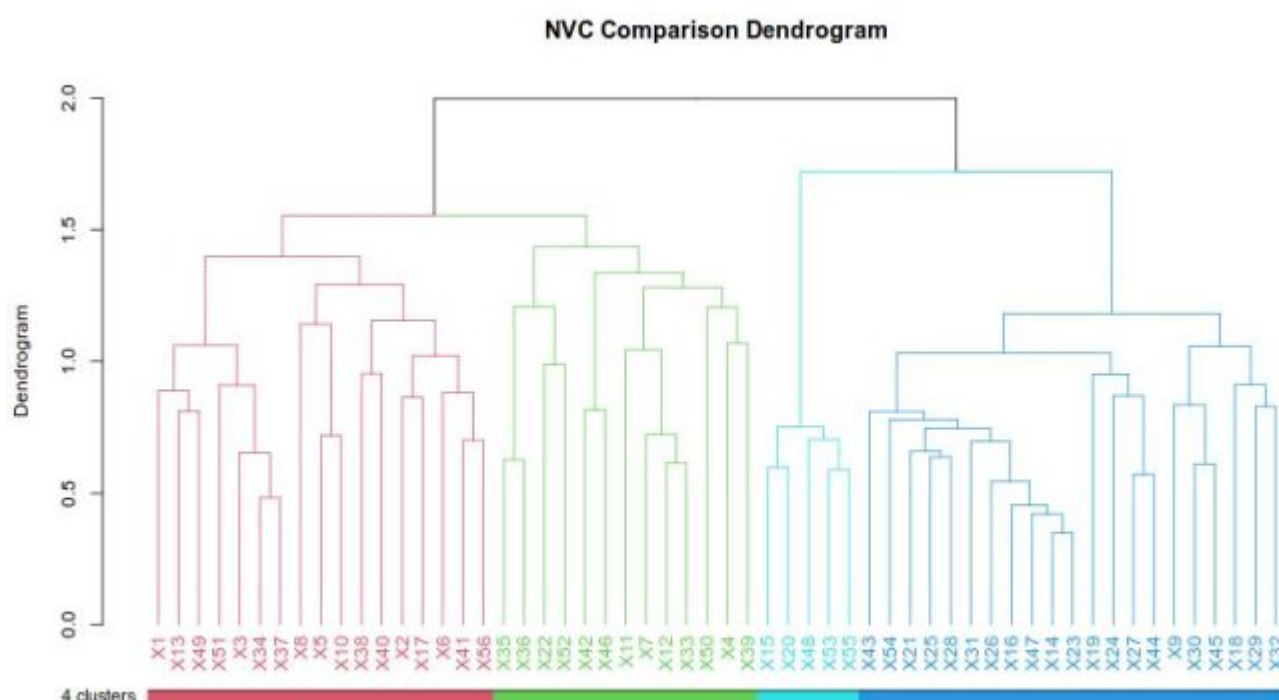
with the “vegdist” function from the “vegan” package and the “bray” method. Those communities with the lowest scores are most like the group being tested. See Borcard, 2018 for details.

Results

Species Composition

The first two tables (1a,1b) show the top ten species across all quadrats, first by frequency (% quadrats present) and then by coverage (% coverage summed across all quadrats). These tables show that eight of the ten species are in both and *Plantago coronopus* (Buck's-horn Plantain) is the most frequent and has the greatest coverage. Only three of the eight are grasses :

Figure 1 - Ward Clustering into 4 groups



Group A	Group B	Group C	Group D
<i>Anthoxanthum odoratum</i>	<i>Anthoxanthum odoratum</i>	<i>Lolium perenne</i>	<i>Plantago coronopus</i>
<i>Hypochaeris radicata</i>	<i>Hypochaeris radicata</i>	<i>Plantago coronopus</i>	<i>Brachythecium albicans</i>
<i>Ornithopus perpusillus</i>	<i>Plantago coronopus</i>	<i>Poa annua</i>	<i>Hypochaeris radicata</i>
<i>Plantago coronopus</i>	<i>Lolium perenne</i>	<i>Plantago lanceolata</i>	<i>Trifolium suffocatum</i>
<i>Vulpia bromoides</i>	<i>Plantago lanceolata</i>	<i>Ammophila arenaria</i>	<i>Ammophila arenaria</i>
<i>Bromus hordeaceus</i>	<i>Vulpia bromoides</i>	<i>Hypochaeris radicata</i>	<i>Anthoxanthum odoratum</i>
<i>Aira praecox</i>	<i>Brachythecium albicans</i>	<i>Kindbergia praelonga</i>	<i>Vulpia bromoides</i>
<i>Brachythecium albicans</i>	<i>Bromus hordeaceus</i>	<i>Trifolium dubium</i>	<i>Aphanes australis</i>
<i>Rumex acetosella</i>	<i>Ornithopus perpusillus</i>	<i>Trifolium suffocatum</i>	<i>Lolium perenne</i>
<i>Plantago lanceolata</i>	<i>Rumex acetosella</i>	<i>Anthoxanthum odoratum</i>	<i>Ornithopus perpusillus</i>

Table 2 - Top 10 Species in each Cluster Group

Anthoxanthum odoratum (Sweet Vernal Grass), *Vulpia bromoides* (Squirreltail Fescue), and *Lolium perenne* (Perennial Ryegrass).

The cluster chart (figure 1) shows the results of the cluster analysis with 4 groups. Table 2 shows the top ten species for each group where the colours identify groups of species that are: common across all groups (green), common to groups A and B (brown) and common to groups C and D (red).

The samples in each group are mapped onto the LNR in the figure 4. Group A is dark green, B is olive, C, sand and D is yellow.

Notable Species

The following species were identified during the survey. The number in parenthesis is the number quadrats it was found in. The number of Fabaceae was high, most of which were trefoils : *Lotus subbiflorus* (1), *Trifolium arvense* (5), *Trifolium campestre* (5), *Trifolium dubium* (27), *Trifolium micranthum* (1), *Trifolium subterraneum* (19), *Trifolium suffocatum* (20), *Trifolium striatum* (12), and *Trifolium glomeratum* (2). Other species of interest include: *Crassula tillaea* (12), *Spergula arvensis* var. *arvensis* (5), *Poa bulbosa* (3), *Silene nutans* (1), and *Spergularia rubra* (1). In the case of *Silene nutans*, although it was only recorded once, there were large drifts of it growing in the vicinity of the quadrat and along the edges of some paths.

Plant Communities

Table 3 - Dissimilarity Scores for initial NVC communities

NVC	GrpA	GrpB	GrpC	GrpD
SD12	0.81	0.82	0.85	0.79
MC8	0.82	0.82	0.86	0.81
OV23	0.68	0.77	0.73	0.67
U1	0.75	0.75	0.84	0.77
MG6	0.83	0.80	0.78	0.84

The results for each of the four groups that were identified through cluster analysis were then aggregated to score % frequency. These were then individually compared to the NVC groups using Bray Curtis dissimilarity score. An initial set of communities was selected to cover a range of possible results based on the species present: *Festuca ovina* - *Agrostis capillaris* - *Rumex acetosella* grassland (U1); *Festuca ovina* - *Agrostis capillaris* - *Galium saxatile* grassland (U4); *Carex arenaria* - *Festuca ovina* - *Agrostis capillaris* dune grassland (SD12); *Festuca rubra* - *Armeria maritima* maritime grassland (MC8); *Lolium perenne* - *Dactylis glomerata* community (OV23); *Cynosurus cristatus* - *Centaurea nigra* grassland (MG5); and *Lolium perenne* - *Cynosurus cristatus* grassland (MG6).

The use of clustering techniques with the grouped data was assessed but discarded. For example, using all four groups at the same time demonstrated that autocorrelation across the groups was dominant: the groups clustered closely together and away from any other data. Clustering one group at a time identified similar NVC communities, but it was apparent that dissimilarity measures were both simpler and clearer.

The purpose of this initial assessment (see table 3) was to identify the communities most alike to the samples. A second assessment was then carried out (table 4) using all of the communities within the NVC grouping indicated. The results are shown in the following table. There is no reason not to compare the sample groups

Table 4 - Dissimilarity Scores for Most Similar OV communities

NVC	Group A	Group B	Group C	Group D
OV2	0.68	0.66	0.77	0.70
OV23	0.80	0.77	0.73	0.80
OV20	0.88	0.84	0.80	0.85
OV1	0.84	0.85	0.88	0.86

	F	L	R	N	S
Group A	3.67	6.27	4.30	2.91	0.25
Group B	3.93	6.66	4.68	3.33	0.33
Group C	3.87	6.55	4.85	3.64	0.49
Group D	3.56	6.12	4.18	2.89	0.32

Table 5 - Ellenberg Indicator Scores by Group

with all of the NVC data, as is done by MAVIS, for example, but at the time the work required to convert the scientific names alone was too great.

Finally, the sample data was used to measure the Ellenberg Indicators for the four groups, as shown in table 5 and figure 2.

Discussion

The groupings created by the cluster analysis are discernable in the field. Groups C and D, containing *Ammophila arenaria* (Marram) are typically closer to the cliff edge while Groups A and B are further from the cliff. The *Ammophila arenaria* grows in two forms: well developed tussocks (see figure 3) typically where some sort of erosion or mini-blow-out has disturbed the ground; and otherwise as a few thin strands lying prostrate. This debilitated form of *Ammophila* is not unusual in dune grassland, and where heavy foot traffic has worn back to the underlying sand, the plant is quick to regain dominance. Groups B and C both contain *Lolium perenne* (Perennial Ryegrass) which is evident in the richer sward and bright-green tussocks of the *Lolium*. Groups A and D cover the grassland where heavy foot traffic keeps the sward open and very short.

This account is consistent with the Ellenberg Indicators for each group. For example, groups B and C both have higher N than groups A and D which indicates more mesotrophic grassland than elsewhere. However, given that nitrogen was not measured directly, this is at risk of being a circular argument: *Lolium* indicates higher levels of nitrogen; higher levels of nitrogen indicate more mesotrophic conditions; mesotrophic conditions favour *Lolium*.

Comparing sample data with the NVC communities is far from ideal. The communities are synthetic – they are derived by aggregating similar samples together, meaning there are no real communities that closely resemble the NVC communities. If the original sample data used to create the NVC communities were used then it would be a more accurate comparison and likely some of these samples would closely resemble the data being analysed.

The results are not conclusive but combined with a qualitative comparison, the similarity between the Southbourne LNR communities and those comprising OV1/2 are striking. These open vegetation communities (OV1 – OV6), which are more evident on the Continent than Britain, are described as “typical of open ground on light, often sandy soils, usually quite acidic and inherently infertile, in the warmer and drier south of Britain” (Rodwell, 2000). The list of plants include *Spergula arvensis*, *Erodium cicutarium*, *Lysimachia (Anagallis) arvensis*, *Aphanes australis*, and *Silene gallica* all of which have been recorded on the LNR (only *Silene gallica* was not sampled at this time). The NVC account goes on to impress the need for disturbed ground by these communities, and what better source of constant disturbance than the steady, year round trampling from walkers of all kinds.

Conclusions

The similarity of the Southbourne communities to those within the NVC communities OV1 – OV6 requires further analysis. The work carried out in 2021 did not include a thorough survey at the same time as the quadrats were sampled, and so far only about 2/5ths of the reserve have been analysed. There is still much to be done before any firm conclusions can be drawn.

The use of clustering to group samples is well established and the analysis of data for Southbourne LNR supports this as a useful method for identifying species assemblages from the field. The aggregation of group results enables a comparison to be made with the NVC communities, but this analysis is limited by autocorrelation across the sampled groups and by the synthetic nature of the NVC data. It may be more useful to use clustering techniques to establish local community data as a baseline (e.g. at a point in time) against which new data can be compared. A mixture of quantitative and qualitative comparisons with the NVC data can still be used to identify regional or even national similarities, while accepting this comparison can be no more than indicative.

The analysis above shows that R can be used to carry out NVC comparisons, and trivial tests with MAVIS indicates these to be very similar, but this has not been properly evaluated. Using R has the benefit of being able to easily perform clustering and grouping prior to making comparisons. It also ensures the researcher understands the steps involved in the analysis instead of “black-boxing” them.

Acknowledgements

I would like to acknowledge the useful advice provided

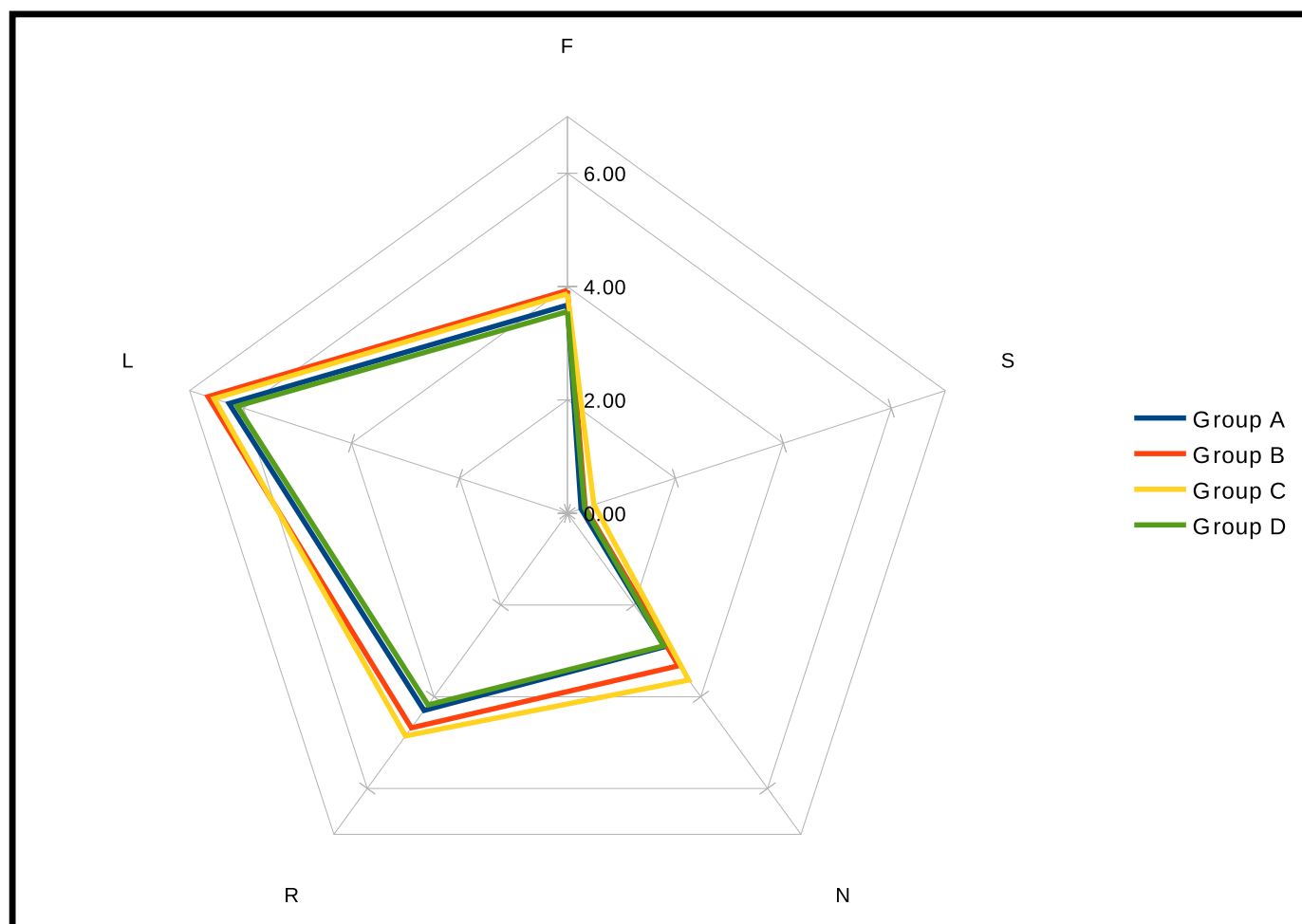


Figure 2 - Ellenberg Indicator Scores by Group

by Martin Rand (VCR for VC-11) concerning methodology and the assistance of Phil Collier in collecting some of the samples. I would also like to thank Robin Walls for his general encouragement to undertake a project of this type.

References

Borcard, D., et al. *Numerical Ecology with R*, Springer Science, 2018.

Rodwell, J. S., et al., editors. *British Plant Communities*, Vol 5, Cambridge University Press, 2000.



Figure 3. Marram tussocks from erosion on a corner
[R Sharp]

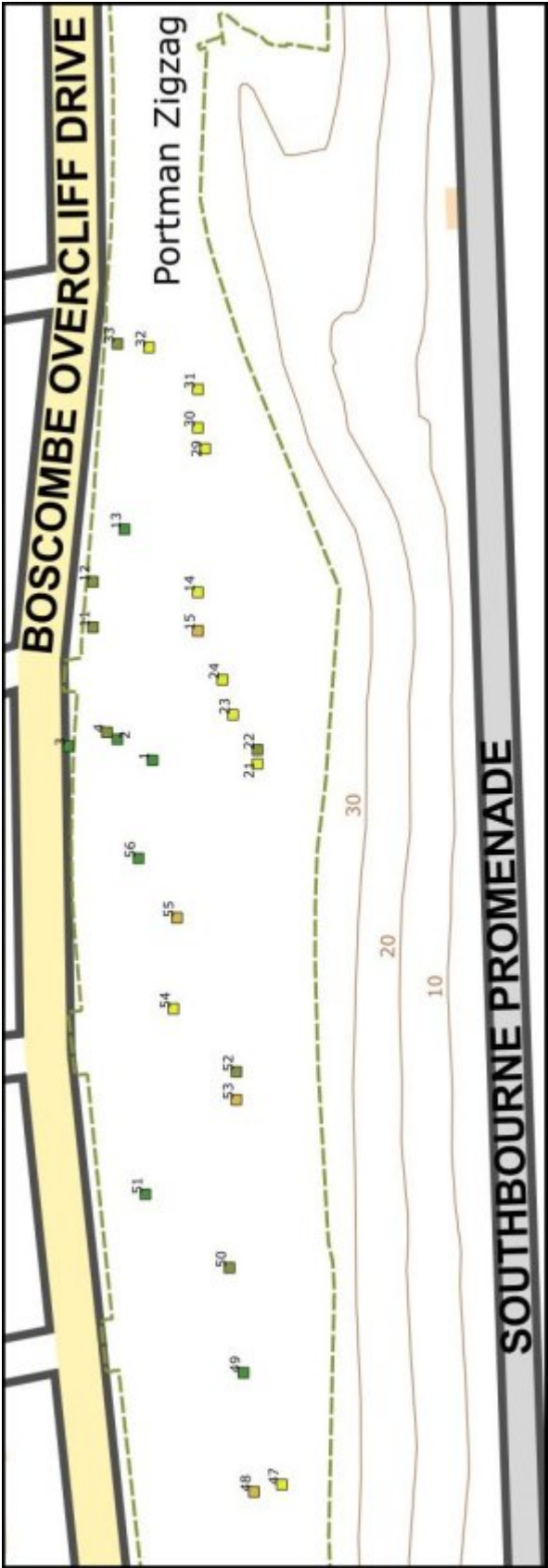
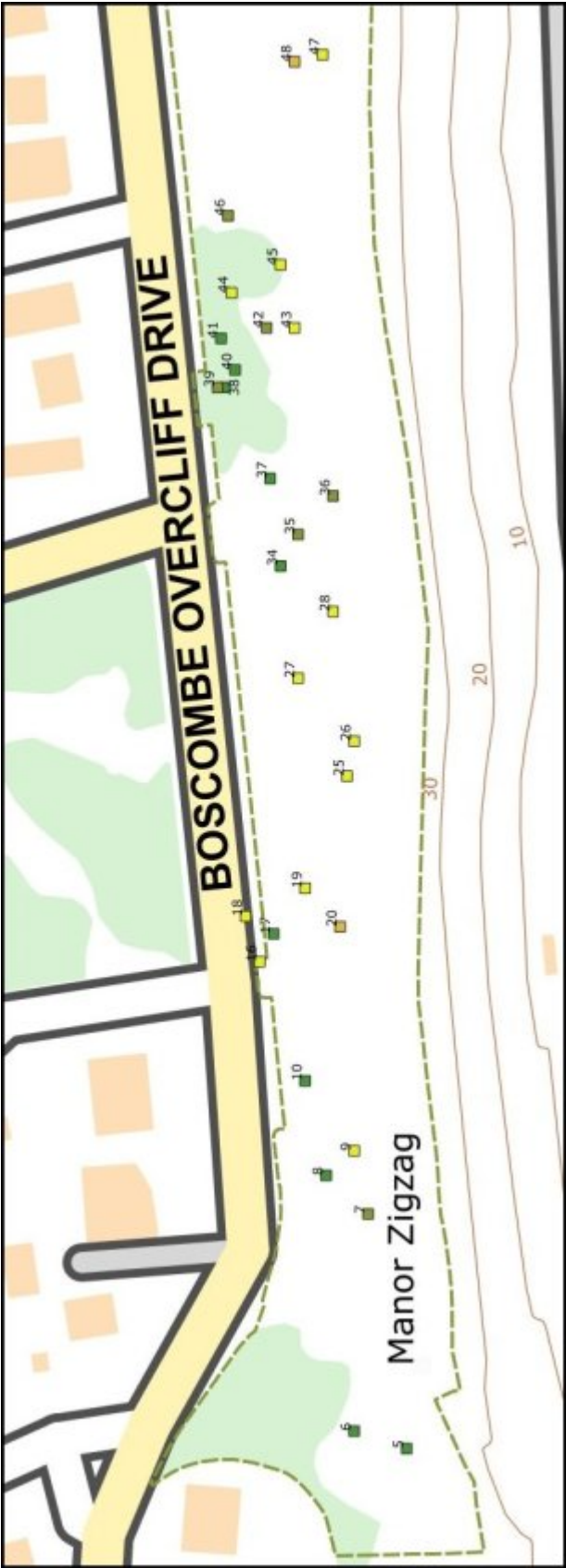


Figure 4 - Map of quadrats, as explained in text