

Wildlife Trust Ecology Groups Reserves & Living Landscapes



Survey and Monitoring Newsletter: Winter 2016/17

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Introduction

The Ecology Groups winter newsletter is an annual newsletter sent to all KWT Ecology Group members, wildlife surveyors and reserves staff. This edition will give a brief behind the scenes look at KWT's Reserves Monitoring Strategy, and I hope the newsletter will clearly explain the origins, aims and structure of some of the programme. Each year many volunteers contribute enormously to the success of the programme and I am keen to ensure all those that are involved are as informed as possible.

The year in numbers

193 people are now on the Ecology Groups mailing list; **3** (up from 1) Ecology Groups are now up and running; **48** people took part in Ecology Group surveys on **22** reserves, completing **250** quadrats and generating thousands of plant species records, **3446** in the Medway Smile alone!

Monitoring strategy

For many years, staff, volunteers, amateur and professional naturalists working under the auspices of KWT

reserves permits have carried out surveys on KWT reserves, however much of the survey data was collected in an *ad hoc* manner. With the creation of the new post of Conservation Evidence Ecologist in 2015, KWT launched the Reserves Monitoring Strategy to standardise the way survey data is collected across the county, to ensure it provides a robust evidence base, and to inspire, train and involve volunteers through Ecology Groups.



Unusual white pyramidal orchids at Wouldham Common

Monitoring plans

Each reserve and Living Landscape has a monitoring plan, based on their key features as identified in management plans. These may be habitats such as chalk grassland and woodland, or species of particular conservation importance such as water vole or Adonis blue butterfly. Monitoring aims to collect

quantitative data using consistent and repeatable methodologies. In creating the strategy and plans, we have assessed what groups of species are most *useful*: species that are best suited to assessing the status and management of different habitat types. For instance, birds are very useful in many habitats where there are distinct assemblages of specialist species of those habitat types; woodpeckers, marsh tit and woodcock are woodland birds, reed and sedge warblers, water rail and bittern are wetland birds. The same theory applies to butterflies, beetles and many other groups.

Surveys

The surveys we carry out aim to 1) establish species presence and absence, population trends and habitat condition, 2) inform the management of reserves by reviewing the success of previous habitat management work and help plan for future management strategies, 3) evidence the success of our conservation work and 4) direct future surveying and monitoring programmes. For each KWT Living Landscape and reserve the key features for which the sites are important are identified in the



management plans and are intrinsic in the types of habitat in which they occur. Features can be of nature conservation, landscape, community, visitor or educational interest. For example at our Queendown Warren reserve in the Medway Smile Living Landscape, chalk grassland, woodland and early spider orchids have been identified as key nature conservation features. Each feature will have a number of attributes which are its characteristics, qualities or properties. Attributes are the measurable performance indicators which together help to indicate the condition of the feature. Examples might be the size of an orchid colony or frequency and distribution of key grassland species.

Habitat condition

The attributes of the condition of chalk grassland at Queendown Warren (and other sites) include positive indicator species, undesirable species, bare ground, sward height, abundance of herb cover, and extent of habitat. All attributes have pre-defined desirable ranges which represent the acceptable range of change by which the attribute can vary without cause for concern. If the limits are exceeded then there is a cause for concern and management work will need to be planned to address the change. The surveys we conduct are designed to monitor the attributes of each feature and therefore the condition status of that feature.



Wild thyme, a positive indicator species of chalk grassland

Key species

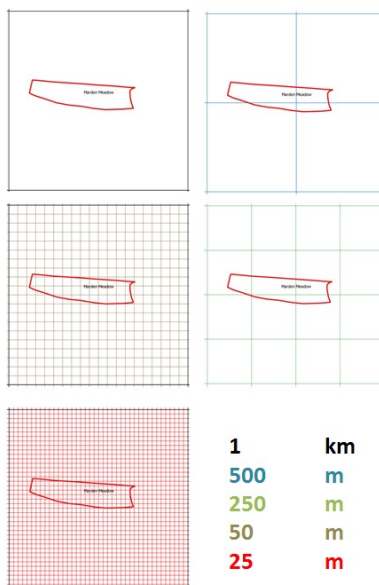
Butterflies and ground beetles are especially useful in assessing the condition of chalk grassland, as there are many species of each that are specialists; species *only* or *mainly* found in chalk grassland such as Adonis blue, silver spotted skipper and bombardier beetle. Of course many of these are species are conservation priorities in their own right.

Prioritising

At Queendown Warren, with the resources available, we have planned to undertake a habitat condition assessment (a four year baseline, then once every four years), orchid counts, an annual butterfly transect, and ground beetle pitfall trapping surveys.

Heat maps

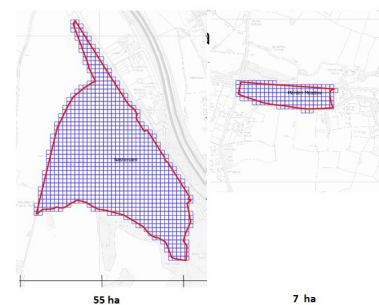
We have adopted an approach developed by Gloucestershire Wildlife Trust that uses GIS (Geographic Information Systems) and the British National Grid to create a grid square overlay for each of our nature reserves. This is used to scale and structure our sampling and make it easily repeatable.



The grid can be scaled to reserve size, resource availability and the required resolution of data.

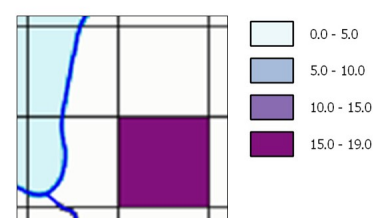
The size of the grid can be scaled to both the size of the reserve and the

available resources, and scaled-up to generate a representative map of the distribution of the surveyed habitat, species or attribute at the whole site level.



A 25m grid might be appropriate for Marden Meadow (right), but certainly not for Nashenden! (Left)

An inherent issue with monitoring is that it is impossible to be certain what change will occur and where, yet the purpose of monitoring is to detect it. Another issue is that if coverage of the whole site is not achieved, it is impossible to know if 'good' areas are always in the same place, or if they move within a site. The grid square approach allows us to clearly demonstrate that if a target habitat, species or attribute is increasing, the number of grid squares it occupies will also increase. If habitat condition is improving, the number of defining high quality species within a grid square will increase - depicted using a 'heat map'. Squares are coloured with a *temperature scale*, and the site will get 'hotter' as the number of 'hot' squares increases. It also demonstrates exactly where these areas are. You will find examples of these maps, produced from the surveys you have been involved in this year in this newsletter.



This square is very 'hot' (the most intense colour in the scale), indicating that this part of the reserve has 15-19 positive indicator plant species

Publishing findings

These maps are just a small part of the outputs of our monitoring. Over time I will be publishing more results from the surveys Ecology Groups carry out, demonstrating how monitoring provides evidence of the Trust's conservation management outcomes.

Ecology Groups survey programme

Each year a list of surveys across all the reserves are planned to help KWT monitor the condition of reserves and status of species. The programme will be sent to all Ecology Group volunteers and published on our website and social media early in 2017.

Wildlife Study Days

Many of the surveys we carry out do not require volunteers to have any prior knowledge of skill; they need only turn up and learn 'on the job'. For those areas where a little more expertise is required, our Wildlife Study Day programme is a great way to learn and develop an interest in a new area, and Ecology Groups are a great way to put that new found knowledge to use to help our conservation efforts in Kent. This year an exciting new Study Day will be launched, focusing on hoverflies, and others such as **get more from your bird watching, introduction to wild flowers, grasses for beginners, Kentish butterflies, ground beetle identification and ecology for beginners, breeding bird survey methods, songs and calls for beginners, reptile ecology and**



Hoverfly *Syrphus ribensis*

survey techniques, and woodland plants are especially relevant to the surveys we do on our reserves. The 2017 programme is almost ready to go to press and will be out soon, available from

<http://www.kentwildlifetrust.org.uk/discover-learn/wildlife-study-days>



Budding carabidologists taking part in the ground beetle study day

Recorder database

An exciting and critical new development behind the scenes at the Trust is that our Recorder database is up and running; a single central electronic storage solution that holds all of our survey data. Thought all the data stayed on pieces of paper in filing cabinets?! Nope, thanks to the help of the Kent and Medway Biological Records Centre our database currently holds **994,383** (and counting) species records for all KWT reserves and Local Wildlife Sites, giving staff easy access to the data you help us collect and allowing us to use it to help manage our reserves. If you're particularly good at or interested in this side of our work there are volunteering opportunities in this area too, do get in touch!



There are 1260 records of ringlet *Aphantopus hyperantus* on our reserves and Local Wildlife Sites.

Kent Wildlife Trust Ecology Groups on Facebook

Don't forget we are on Facebook, a great way to keep in touch, share photos and identification tips. Search 'Kent Wildlife Trust Ecology Groups' and check out our webpages at

<http://www.kentwildlifetrust.org.uk/wildlife/ecology-groups>

Want to get involved?

For any queries or for further details about Ecology Group activities, or to let us know about wildlife you have seen please contact: paul.tinsley-marshall@kentwildlife.org.uk



Ecology Group volunteers enjoying the view while completing a grassland survey

Thank you!

To all those of you who have been involved in surveys, collecting the data we need to assess our management and the success of our Living Landscape projects, I'd like to say a huge **thank you**. The Trust both values and relies on your support. On a personal level I'd like to say a continued huge thank you for all the help and support I received from you in my role of Conservation Evidence Ecologist. I continue to meet lots of enthusiastic, knowledgeable and dedicated people, and it's you guys that help make this job so exciting. I'm really looking forward to working with you all next year, and hope to meet many more Ecology Group volunteers in 2017. Paul

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Medway Smile Ecology Group



Holborough Marshes, Stockbury Hill Wood, Peter's Pit, Burham Down, Wouldham Common, Nashenden, Queendown Warren, Westfield Wood, Blue Bell Hill, The Larches, Darland Banks

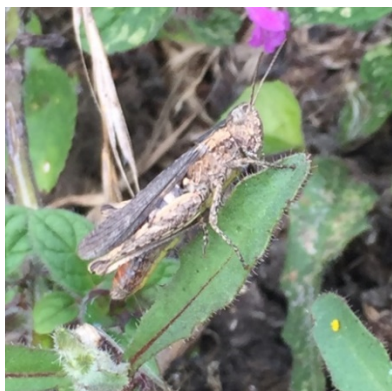
Chalk grassland

2016 saw a change in the way we survey habitats, in line with KWT's new monitoring strategy. The new method is based on the familiar rapid/habitat condition assessment that many of you have helped with, but structured in a way (based on grid squares as described above) that better allows us to measure and map changes, and to display, interpret and use the data in a more meaningful way.



The varied and colourful grassland sward at The Larches

Surveys were conducted by Ecology Group volunteers, reserves volunteers and wardens on most of the Medway Smile reserves and RNRs.



Yellow bird's nest *Monotropa hypopitys* at The Larches

These surveys result in our ability to produce maps that clearly display and quantify the data, and establish exactly where and how much of the habitat meets our targets. In 2016 we recorded a massive total of 199 plant species, up from 175 last year. The total number of species recorded by the survey now stands at 248. The data entry for these sites is a mammoth task and was completed by Tony Witts at the Kent and Medway Biological Records Centre just before Christmas. As soon as the maps have been produced they will be shared with all those involved.



The goats keeping an eye on the surveyors at Wouldham Common

Orchids

Many volunteers enjoy the annual orchid counts that take place on many of our reserves. Alison Ruyter reflects on the 2016 season: Man orchid numbers were up again this year at Darland Banks. Of all the orchids, I think these were least negatively affected by the cooler, wetter spring. The rest of the orchid species here put on a reasonable show but nothing out of the ordinary.



Green-winged orchid *Anacamptis morio*

At Queendown our single lizard orchid flowered again and was much photographed. The green-winged orchids on the extensions were a little lower in number than we would have liked but this is not unexpected due to the thefts two years ago and poorly timed grazing which we hope to avoid this year. On the main bank a couple of early spider-orchids flowered inside the rabbit exclusion areas so were able to produce seed. We have a project under way to expand the rabbit exclusion area significantly next

winter, which should make a huge difference.

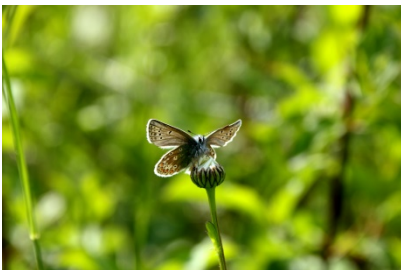
At the Larches, pyramidal orchids did really well in the restoration paddocks but the white helleborine suffered more from rabbit grazing pressure than in previous years. The broad-leaved helleborine had an average year with a spell of very dry weather coinciding with their main growth and flowering time.

Butterflies

Not only are many butterflies species of particular conservation importance, they are an excellent tool with which to assess the quality and health of certain habitats, such as chalk grassland. Not only are many generalist species present, chalk grassland supports species that rely on food plants and niches only found in this habitat.

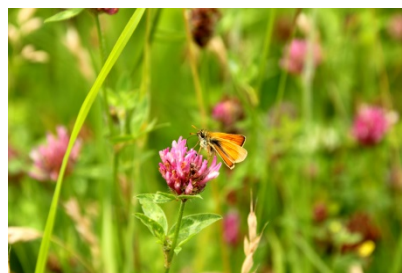
Unfortunately, 2016 was another very poor year for butterflies, despite some good weather during much of the summer.

April – September is transect season, and many volunteers were out in the sunshine week after week. Selwyn Dennis found meadow brown was the most abundant species at Queendown Warren, though not in the large numbers normally seen during the summer, and there was a similar picture same for gatekeeper. Common blues were the next most abundant, and Adonis blues were recorded but only in small numbers. No silver-spotted skipper were seen on the transect, though they were seen at other times.



A male common blue *Polyommatus icarus* at Lower Burham, interestingly missing the spots on the forewing closest to the body (photo Rob Pennington)

Rob Pennington reflects on his butterfly season: This year felt rather poor, the wet start to summer may have hampered species but the weather recovered, unlike the butterflies. Small copper were especially absent, I didn't record an individual until mid-August, and only counted four overall on my transects this year (I gather that they fared better on coastal sites, perhaps this little butterfly is going the way of the wall over time?). An anticipated painted lady influx once again didn't materialise, with the wind blowing the wrong direction and holding them up on the other side of the channel, I only managed a handful of records of them this year, a similar story with clouded yellow which were only around for a week or two in mid-September. It was a year where everything was present, even the rediscovered small colony of Adonis blue were still present at Lower Burham, but numbers all felt low. This isn't just the case in Kent, I travel quite a bit in the country to see butterfly species we don't get in the county and the story was much the same; all present but low on numbers. Fingers crossed that they'll bounce back in 2017.



Small skipper *Thymelicus sylvestris* (photo Rob Pennington)

My own personal highlight of the season was finding a grizzled skipper on the route I complete at the Larches. There are only 3 records of this species from 2010 and 2012 (categorised by the IUCN as vulnerable) in our (now up-to-date) database for the site, so very pleasing to find.



Grizzled skipper *Pyrgus malvae*, The Larches

Breeding birds

Preliminary data from the BTO tells us that the 2016 breeding season was late to start and productivity was low. Great tit, chaffinch and blackcap were particularly affected by cool and damp weather in April, with many laying eggs a week later than average. My own ringing data suggests that blue tits had a poor season, with adult birds making up a greater proportion of totals than would be expected in a good year. Species nesting in June, such as reed warbler, were also affected by heavy rainfall.

On a more positive note, there was a higher adult abundance of short and long-distance migrants at the start of the season. Chiffchaff in particular was noted in the greatest numbers since 1983. Survival rates may have been helped by warmer than average conditions in their wintering grounds. Similarly, the survival rate of cold sensitive species such as wren and Cetti's warbler was up on previous years, no doubt helped by the milder winter in 2015–16.



Marsh tit *Poecile palustris*

Our focus on breeding birds in the Medway Smile is on farmland and woodland species, and two dedicated volunteers and myself completed surveys of two woodland

and two farmland sites. Woodland birds are in serious decline, and of particular concern are species such as nightingale, marsh tit and lesser spotted woodpecker, and our surveys were designed to detect these as well as more common species. Unfortunately none of the focal species were found, however the survey of The Larches by Jonathan Barnard confirmed that the site is of local importance in respect of the number of species of breeding birds it supports.

Water voles

Nigel Jennings led the annual water vole survey at Holborough Marshes in April, always a fun day grubbing about the ditches looking for feeding signs and droppings, and with a newly arrived nightingale and sedge warblers singing nearby it was treat to be out in the spring sunshine.

“Holborough Marshes alongside the upper tidal River Medway is a stronghold for water vole *Arvicola amphibius*. The species is fully protected under the Wildlife and Countryside Act 1981. This protection extends to both the animal itself and its habitat which places considerable responsibility upon Kent Wildlife Trust to ensure its security.



Water vole droppings, a classic sign of presence

An annual survey of water vole signs in April/May has been carried out for several years and since 2013 the results have been analysed using a

quantitative method to confirm an estimate of population number which is in the region of 150 breeding individuals. This number obviously fluctuates during the season due to breeding success and natural mortality. Water vole surveys are vulnerable to the effects of heavy rain washing away latrine and feeding station signs that are key to successful recording. Fortunately this was not a problem in 2016 although we were unable to survey the northern section of the reserve to avoid disturbing breeding Lapwings. Nevertheless, the 2016 survey allowed us to conclude with a high degree of confidence that the water vole population at Holborough Marshes has remained stable relative to previous years (2013-2015).” *Nigel Jennings*

Ground Beetles

Following the very popular new Wildlife Study Day which ran four times in 2016 due to high demand, many volunteers got out on reserves to fully immerse themselves in the joys of pitfall trapping. We were lucky enough to have the assistance of Brian Eversham, a ground beetle expert and all round excellent naturalist to help us out early in the season.



Brian Eversham, CEO of BCN Wildlife Trust, explaining the finer points of ground beetle ID at Darland Banks

49 species of ground beetle have now been found on our Medway Smile reserves to date, 29 of which we found in our surveys this year, a number of which are new species

records for the sites. Interestingly the site with the highest score for chalk grassland affinity (a number based on the specificity of each species for different habitat types) was the arable farmland part of Nashenden.



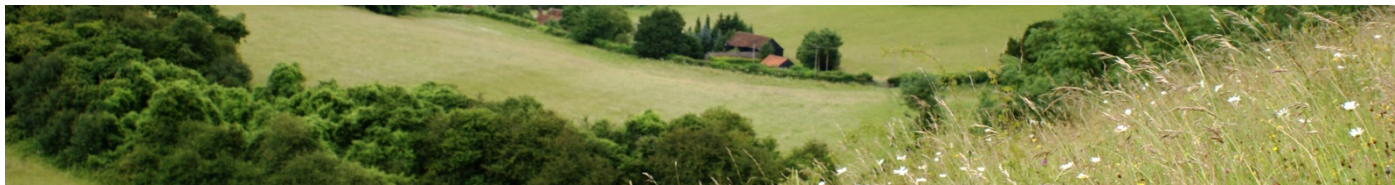
A badger clearly has strong feelings about pitfall trapping on the Queendown Extension.

One particularly interesting species found was the bombardier beetle *Brachinus crepitans*, a ‘Nationally Notable B’ species uncommon in Great Britain and thought to occur in between 31 and 100 of the 3,894 10km squares of the British National Grid. Bombardiers possess a remarkable but effective defence mechanism. It can spray a boiling, noxious chemical mixture of hydroquinones and hydrogen peroxide from the tip of its flexible abdomen, which it can aim skilfully, producing an audible explosive ‘pfut’ sound. This boiling spray has the potential to kill other insects and strongly deter larger predators, as well as curious humans. Thankfully no Ecology Group volunteers were harmed carrying out the surveys!



The contents of pitfall traps from Nashenden Down

Darent Triangle Ecology Group



Fackenden Down, Magpie Bottom, Polhill Bank, Kemsing Down

The Darent Triangle Ecology Group was one of two new groups launched in 2016, and an encouraging 24 people came to the launch day at Kemsing Village Hall. On a gloriously sunny day we headed out onto the reserve for a taster session in chalk grassland condition assessment, and loose promises were made about continued good weather for the season. Sadly this wasn't to be the case – those of you who surveyed Polhill Bank will remember a particularly wet day, huddled under a tree for shelter. Thanks very much to Paul Glanfield who conjured up hot drinks despite the monsoon like conditions!



Magpie Bottom, one of KWT's best kept secrets?!

Chalk grassland

In common with many of our reserves, chalk grassland is one of the key features in the Darent Triangle. So why is it so important? Walk over the short, springy turf of your local chalk grassland in summer and you're likely release the rich aromas of an Italian kitchen as thyme, marjoram and wild basil fill the air. A truly wildlife rich habitat – up to 40 species of flowering plants can be found in one square metre of lowland calcareous grassland (we certainly found this to be the case).

It has even been called the European equivalent of the tropical rainforest. Many species found in chalk grassland are specialists and are unable to live anywhere else. – Let's hope to see Kent on Planet Earth 3?!

Common flowers like small scabious and bird's-foot-trefoil can be seen alongside many nationally rare plants such as the curious-looking monkey and late spider orchids. Not surprisingly, this vast array of wildflowers attracts a humming mass of insects including scarce species such as the wart-biter bush cricket, Adonis blue and Duke of Burgundy butterflies, and bordered gothic and four spotted moths.

Before the Second World War, fragile and flower-rich calcareous grassland was widespread, but these habitats seriously declined: by 1984, 80% of sheep-grazed lowland chalk and limestone grassland had disappeared.

The most significant reason for this decline is the reduction of grazing and traditional management due to changes in land use. Much of the wildlife of lowland calcareous grassland is unable to withstand the results of agricultural intensification including the increased use of herbicides and fertilisers and over- or under-grazing. Development, mineral extraction, landfill, afforestation and heavy recreational pressure have also been instrumental in the loss of these habitats.

As a result, butterflies like the Adonis blue have all but been lost, the dwarf milkwort and the juniper bush are fighting for survival and glow-worms are now only found in a few places.



So, it was a dedicated bunch of Ecology Group recorders that surveyed all of the Darent Triangle chalk grasslands, achieving good coverage of all the habitat on the reserves – a fantastic achievement.

Jenny Gibb has bravely and kindly taken on the data entry for these reserves, and as soon as this work is complete I promise to share the results with you. You will find examples of how we are able to use the data elsewhere in the newsletter.

Butterflies

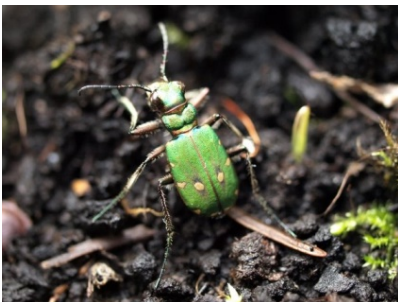
In a poor butterfly year, the Magpie Bottom transect returned a handful of positive high counts, including 17 silver washed fritillaries in August, 27 marbled white in July, and a single grizzled skipper in June. There are a number of vacancies for butterfly transect walkers in the Darent Triangle, so get in touch if you can help.

Blean and Canterbury Ecology Group



Thornden Meadow, Childs Forstal, South Blean Woods, Bigbury Wood, East Blean Wood, West Blean and Thornden Woods, Reculver, Wraik Hill, Foxes Cross

The Blean and Canterbury Ecology Group was the second of two new Ecology Groups that got up and running this year. What seemed like an endless stream of people crowded into Mayton Oast for the launch session, and then out into the woods to sample the joys of sampling. Nightingale, willow warbler and garden warbler were heard, and green tiger beetles 'jump-flew' in front of the advancing ecologists.



Green tiger beetle *Cicindella campestris*

Bigbury Camp

A small committed team carried out habitat condition surveys at Bigbury Camp, where management has created an area of open acid grassland within the woodland. 41 'quadrats' were completed and over 80 species of flowering plants, grasses, rushes and ferns were recorded. Over the last few months this data has been digitised, and we are now able to produce maps that display very complex data in a very simple and easy to interpret way.

For an example of how we have used the data you collected see the next page. These maps are fantastic tools that allow us to assess how much of a reserve is in favourable condition according to various desirable criteria, to see exactly where these areas are, and assess future changes.

Wraik Hill and Foxes Cross

A couple of very productive sessions were spent at Wraik Hill and Foxes Cross, familiarising ourselves with the flora of these sites in preparation for more detailed survey. Just over 80 plant species were recorded at Wraik Hill, including common cow-wheat, butcher's broom, and pepper saxifrage, and 84 species at Fox's Cross including marsh bedstraw, lesser water parsnip and spiny restharrow. An overflying red kite was a welcome site indeed.



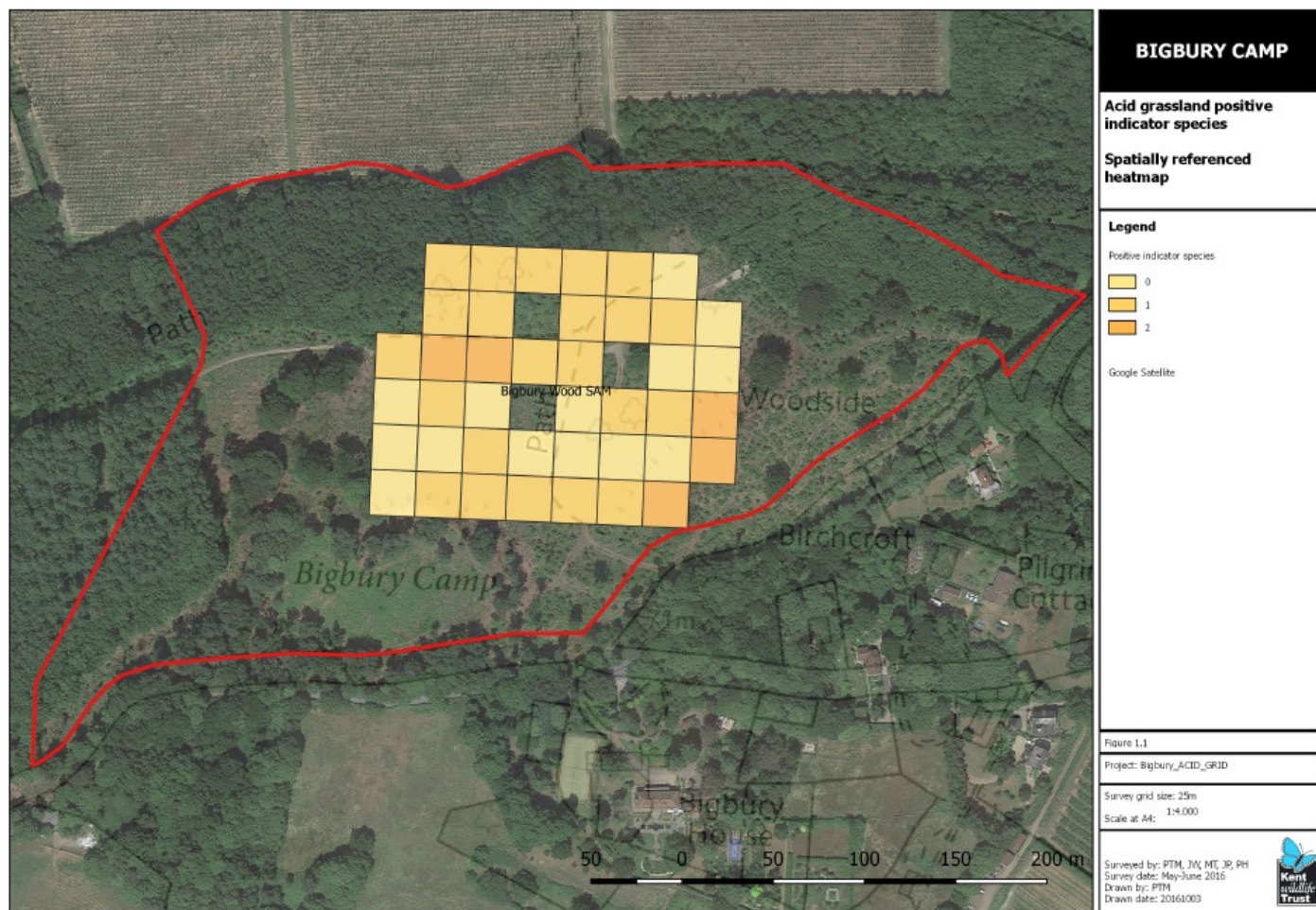
A gloriously sunny day's botanising for Ecology Group volunteers at Reculver



Wasp Spider *Argiope bruennichi* at Wraik Hill

Bats

For many years the Kent Bat Group (KBG) have conducted surveys on our reserves. In West Blean a box scheme has been set up with the intention of monitoring woodland bat populations, particularly Natterer's and brown long-eared bat and their response to KWT's coppice management of woodlands. Unfortunately to-date take up of the fifty bat boxes by bats over four seasons has been minimal. Proof of breeding for Natterer's, brown long-eared, Daubenton's, whiskered and soprano pipistrelle has been determined however, and in addition KBG have caught a male noctule in breeding condition and a male common pipistrelle. In September 2016 a number of immature female brown long-eareds were found in one of the boxes and we are hopeful now the boxes have been recognised that uptake will improve markedly in 2017.



The coloured squares cover the extent of grassland on the reserve, and the map clearly shows that the number of positive indicator species of acid grassland varies across the site. As this improves with time more of the map will become more intensely coloured, and we will be able to assess the results against predefined targets for this habitat type.

Summary of positive and negative indicators and some habitat condition attributes at Bigbury Camp in 2016

Variable	Level	Percentage of surveyed area
Positive indicator species	>1	65.85
Undesirable species	>0	17.07
Bare ground	none	34.15
	<5%	34.15
	5-20%	21.95
	>20%	9.76
Microtopography – very small scale variation in topography	More or less uniform	7.32
	Some irregularity	82.93
	Frequently irregular	2.44
Sward structure	Uniform tight sward mostly <10cm	21.95
	Uniform medium height 10-40cm	4.88
	Rank tall herbaceous >40cm	68.29
	Scattered tussocks (Mol./Junc.)	2.44
	Complex, variable with tussocks	2.44

Wilderness Down & Swale Ecology Group

Mary's Meadow, Spuckles Wood, Holbeam, Oare Marshes, South Swale, Ospringe Down



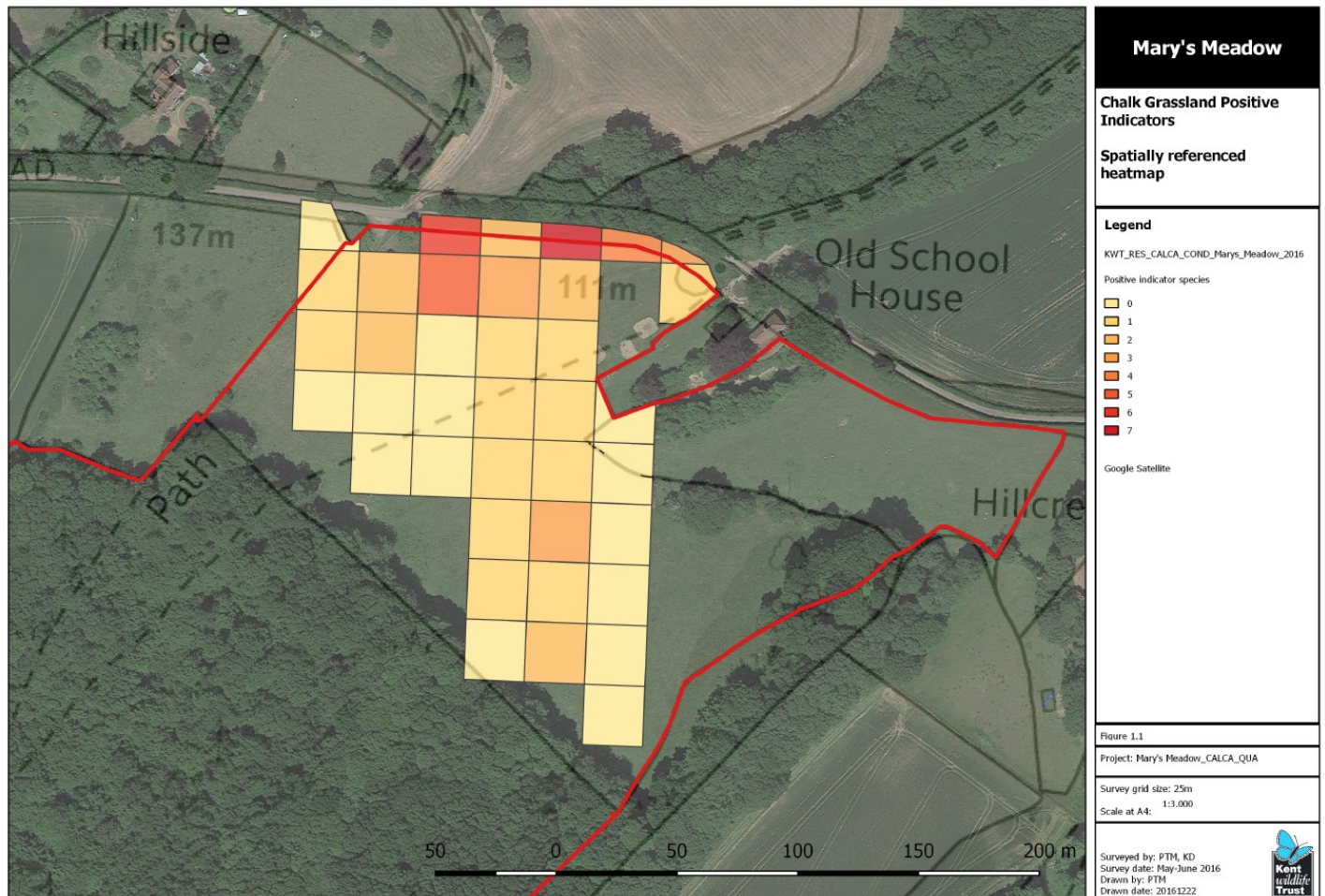
The Wilderness Down Ecology Group is a fledging affair, consisting in 2016 of just myself and Swale Area Warden Kevin Duvall. We are very keen to hear from you if you live in this part of Kent and would like to get involved in monitoring our reserves.

Chalk Grassland

We began monitoring at Mary's Meadow, a lovely secluded grassland reserve adjacent to Spuckles Wood. Following the same

survey methods used elsewhere, we covered a good portion of the reserve. 30% of the surveyed area had at least one positive indicator species. As habitat quality, defined by the abundance and distribution of indicator species increases or decreases, the number of qualifying squares will change, and can be expressed as a proportion of the total reserve area. Favourable condition is considered achieved where between 2 – 6 indicator species are frequent and stable

across the site. There is a way to go before the site attains diversity of more established reserves, though given the management history of the site prior to our ownership (improved agricultural pasture) is not surprising that the current status is low across a large part of the site. This is anticipated to improve with time and restorative management, however some areas (steep south-facing slopes) are clearly already rich in positive indicator species – red hot!



The Weald Ecology Group

Marden Meadow, Collingwood, The Gill, Quarry Wood, Brenchley Wood, Turner's Field



Another fledgling Ecology Group seeking new members! In 2016 we concentrated on Marden Meadow, one of our flagship reserves, a beautiful neutral grassland meadow full of green-winged orchids and yellow rattle. Using the grid square approach we surveyed two large parts of the reserve; the western compartment designated a SSSI for its botanical richness. In the middle compartment our management seeks to restore the sward to a

standard comparable with the SSSI. The results of our survey clearly demonstrate the difference and will clearly show any future improvement. It is worth noting that the 'hottest' areas indicating 15-20 positive neutral grassland indicator species are exceptional. Of the 63 squares surveyed, 4.76% have between 15-19 positive indicators. We now know exactly where the best bits are and can ask why are these the best bits? Are the best bits

always in the same place? Is this pattern simply a reflection of the ecology of the reserve, or can we discover what these conditions are and replicate them more widely, improving the reserve further? As the habitat improves, this heat map will clearly demonstrate the change as more squares become 'hotter'. The map is underpinned by all the complex survey data, allowing more detailed spatial and statistical analysis.



Historic Dover Downlands Ecology Group

Lydden Temple Ewell, Sladden Wood, Nemo Down, Old Park Hill, Dover Castle



The Historic Dover Downlands Ecology Group will focus in the first instance on Old Park Hill. In 2016 myself and some of the Dover area team made a start with some preliminary training at Old Park Hill and the wonderful Lydden and Temple Ewell NNR.



Autumn Lady's-tresses *Spiranthes spiralis*, flower from August to September, they are found on calcareous grasslands or sandy dunes and have a distinctive coconut scent.

The gloriously sunny weather made the training a joy, and we found, as expected, a rich and diverse grassland sward teeming with life.



Chalk hill blue *Polyommatus coridon* at Lydden

If you live in the Dover area and would like to get involved keep an eye out for the 2017 programme

which will contain details of how you can help.



Silver-spotted skipper *Hesperia comma*, the only skipper found in the British Isles that has the distinctive white spots on the underside of the hindwings, which give the butterfly its name.

Jiminy Cricket!

The wart-biter bush-cricket (or Kent's Jiminy Cricket as we like to call them) is one of the UK's most at risk species. They need a very specific type of environment to survive and are therefore restricted to this very small patch of the Kent's countryside. We are working to improve up to 30 additional acres of ideal habitat, helping to support wart-biter bush-cricket to move more freely across the landscape.



The very impressive Wart-biter bush-cricket *Decticus verrucivorus* at Lydden

The promotion of greater numbers of wart-biter at the site will also support potential work to re-establish additional wart-biter colonies at other sites across the historic chalk downlands of East Kent, and beyond.

The Species Recovery Trust, in partnership with Up on the Downs, HLF and KWT, held a volunteer training day in August, where participants were taught how to survey for the cricket to prepare them for carrying out surveys each summer and to submit their records to the Species Recovery Trust. To find out more about monitoring wart-biters contact enquiries@speciesrecoverytrust.org.uk

Ground beetles

Pete Meiners, our 2016 RNR trainee warden reflects on his ground beetle season: "Ground beetles can be excellent indicators of habitat quality since different habitat types tend to have specific assemblages of species, in the same way as plants. After attending the excellent Ground Beetle Study Day run by Paul Tinsley-Marshall, I decided to put my learning into practice by surveying the ground beetles of the Lydden Hill RNR near Dover. With the help of other volunteers, I set up simple pitfall traps on two sites with very different habitats, one of chalk grassland and the other of shady scrub. I checked the traps most days over a four week period, identified and released the beetles and

Reserve Recording

Every year we issue a number of permits to individuals who wish to conduct their own surveys on our reserves. These dedicated volunteers give their own time to record species of particular interest to them, and the data they contribute is very valuable to the Trust and more widely to conservation in Kent. 82 permits were issued in 2016 to individuals recording everything from birds, dormice and bats, to moths, ants, bees, wasps, flies, and photography.



Common seal at Sandwich (photo: Russell Miles)

A few of the notable species recorded on our reserves in 2016 include:

- *Cheilosia nigripes* – a rare hoverfly
- *Andrena gravida* – a rare bee
- *Symmorphus crassicornis* – a rare wasp
- Kent Black Arches – a Nationally Scarce B moth
- Ground Lackey – a Nationally Scarce A moth
- Mathew's Wainscott – a Nationally Scarce B moth
- Langmaids Yellow Underwing – a Nationally Scarce a moth



Short-eared owl at Sandwich (photo Russell Miles)

- *Oncocera semirubella* – a wonderfully rhubarb and custard coloured micro moth

Anyone can apply for a permit to record on our reserves. Applications are considered by the reserve managers and wardens, so if you have a particular area of interest then please get in touch.



Oncocera semirubella (photo Vicky Aitkenhead)

Acknowledgements

A huge thank-you is due to all those who have contributed to Ecology Group Surveys and recording on our reserves this season, not only habitat surveys, but breeding birds, butterflies, ground beetles, reptiles, admin and data entry. Every effort has been made to include all who have been involved this year, however I sincerely apologise to anyone I have missed, it's a long list, please correct me!

Blean Ecology Group

Alan Crawley, Alex Lockton, Alicja White, Bill Downs, Carole Clark, Gavin McGregor, J Holmes, Jeff Forcott, John Puckett, John Wilson, Mark Tuson, Maria O'sullivan, Mike Enfield, Nathan Nicholls, Niel Morris, Nick Beaumont, Nick Piggot, Nick Tompsett, Paul Davies, Paul Hayter, Greg Gatusch.

Darent Triangle Ecology Group

Alan Ford, Anne Barrett, Bob Richards, Bryan Bullen, David Sperlinger, Gareth Christian, Glyn Davies, Glynis Fenn, Ilse Hendrix-Bevan, Jacob Lowe, Jane Donaldson, Jenny Gibb, John Ross, Joyce Pitt, Marie Holland, Noel

Clark, Opeyemie Adeyemi, Paul Glanfield, Susanna Clerici, Ray Leathers, Richard Bennet, Rosie Merry, Val Rae, Vanessa Florence.

Dover Downlands Ecology Group

Andrew Wilkinson, Cristina Juan, Gill Tysoe, Jo Wynn, Faith Sidders, Nick Sinclair, Pete Meiners.

Medway Smile Ecology Group

Adelle Pilfold, Alison Ruyter, A Witts, Carson Holmes, Dave Watson, David Eather, Don Hardwick, Gill Tysoe, Heather Furse, James Rowland, Jacob Lowe, Jonathan Barnard, Judith Harris, Kandice White, Karen Weeks, Linda Taylor, Mark Bretherton, M Ashdown, Nathan Nicholls, Nigel Jennings, Paul Brocklehurst, Pauline Holmes, Pete Meiners, Raymond Howard, Rob Pennington, Selwyn Dennis, Simon Ginnaw, Steve Weeks, Kirsty Lee.

Weald Area Ecology Group

Matt Hayes, Noel Clark, Julie Merret.

Wilderness Down Ecology Group

Kevin Duvall

Reserve Recorders

John Horton, Stephen Hancock, Aaron Davies, Daniel Maughan, James Hunter, Phillip Jewess, Ade Jupp, Ken West, Hannah Worker, Shirley Thompson, Peter Howarth, Ken Goldsmith, Howard Bentley, Andrew Stanger, William Marshall, Laurence Clemons, Alan Cooper, Glynis Fenn, Ross Newham, Sam Page, Nigel Gardiner, Suzanne Kynaston, B A Haggart, John Knowler, Michael Maloney, John Puckett, James Rowland, Kevin Tolhurst, Kevin Button, Craig Llewellyn, Grant Hazelhurst, Andy Taylor, Mark Parsons, Katheryn Leggat, Dave Grundy, Julie Merrett, Richard Moyses, Hazel Ryan, Alan Stubbs, & associated members of the Kent Moth Group, Russell Miles, Alex Lockton, Alan Ford, Greg Hitchcock, Tony Witts, Kevin Duvall, Bob Francis, Phil Buckley, Mike and Julie Reed

Photo credits: Paul Tinsley-Marshall, unless otherwise stated.