16th EUROPEAN HEATHLANDS WORKSHOP 2019

HEATHLANDS IN A CROWDED WORLD

August 18th - 23rd Dorset and the New Forest, UK
August 23rd - 24th Extension at Pebblebed Heaths, Devon, UK

Programme & Abstract Book

Acknowledgements

Editors..... Isabel Alonso, Anita Diaz, Durwyn Liley.

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Contents

Sponsors & affiliates

We are grateful to the following for their time, input and direct sponsorship:

We are an ecological consultancy based in Dorset, UK. Our work is focused on the interface between people and nature. Our dynamic team is passionate about ecology, conservation and natural history. We work with those who share our values, in the most ethical and sustainable way that we can.

Throughout its life, BU has developed a strong reputation for offering a wide range of opportunities for undergraduate and postgraduate education, research and enterprise. Inspired by a clear vision for the future we continue to develop new initiatives and programmes, to realise the potential of staff and students alike.

We're the UK government's adviser for the natural environment in England, helping to protect England's nature and landscapes for people to enjoy and for the services they provide. Natural England is an executive non-departmental public body, sponsored by the Department for Environment, Food & Rural Affairs (Defra).

We are the government department responsible for protecting, expanding and promoting the sustainable management of woodlands and increasing their value to society and the environment.

The New Forest was designated a national park in 2005 to give this outstanding landscape the highest level of protection and to preserve it for the nation to enjoy for generations to come. Find out about our worldwide national park family, how the New Forest National Park Authority operates and is governed, our current work and plans for the future.

The RSPB is the UK's largest nature conservation charity, inspiring everyone to give nature a home. Together with our partners, we protect threatened birds and wildlife so that our towns, coast and countryside will once again teem with life.

We are a charity dedicated to educating people on the stunning variety of bird life in one of the country's most picturesque locations, helping you make the most of this truly breathtaking natural harbour. Poole harbour is a designated RAMSAR site and hosts nationally and internationally important numbers of a whole host species of bird.

The Urban Heaths Partnership is made up of 10 organisations working together to protect and enhance the Dorset heathlands. The Partnership's aim is to alleviate urban pressures on the Dorset heaths brought about by new residential development in the area through a combination of education, wardening, fire risk assessment, access and heath management and monitoring.

The Pebblebed Heaths Conservation Trust is an environmental charity, first established by Clinton Devon Estates in 2006 to protect the heath's unique ecosystem. Our primary aim is to steward the Pebblebed Heaths for the benefit of its wildlife and to promote public enjoyment, appreciation and understanding of this unique habitat.

A boutique audio and design studio running on renewable energy, based in Bristol, UK. We do voice-over recording, audio editing and production, web design and development, visual design for online and print, music and sound production, and web hosting.

16th EUROPEAN HEATHLANDS WORKSHOP 2019

Welcome from the organisers

Two years ago, in the Netherlands, we presented a plan to organise the 16th European Heathland Workshop in England in 2019. In fact, the proposal was mainly the brain-child of John Day, who was very keen for all heathland enthusiasts from other countries to see the progress we have made in the last years in England in dealing with some of the issues that were having a negative impact on the condition of these treasured habitats. Sadly John passed away last summer so couldn't see his ambition develop and become this full programme of presentations, field visits and time to socialise and enjoy in and around the Dorset, Hampshire and Devon heathlands. We hope you enjoy the workshop as part of John's rich legacy to heathlands and the European Heathland Workshop community.

One of the main challenges for managers of heathlands in this part of the world is to deal the large amount of visitors who come here every year in a way that provides at the same time enjoyable experiences for people and protects the features of conservation importance. There are over 15 million visits to the New Forest every year. The New Forest is a national park and draws visitors from across the country; however it is local people visiting very frequently that account for the highest proportion of use. In contrast, visitors to the Dorset heaths are almost entirely local residents and for all the heaths the growing levels of surrounding urbanisation bring greater human pressures. There are over 100,000 houses within 5km of the New Forest and over 250,000 houses within the same radius of the Dorset Heaths.

Managing heathlands that are so much used by people as well as wildlife requires educating visitors about the need for habitat management, be it felling trees, controlled burning of vegetation, or grazing and therefore fences. It also requires understanding and cooperation to avoid excessive disturbance to habitats and wildlife and to prevent accidental fires.

We will hear in this conference about how public and private organisations and volunteer groups have succeeded in improving habitat condition and in bringing back endangered and charismatic species such as the Ladybird Spider. We will discuss how we are working with natural processes, to restore damaged habitats, such as the mires in the New Forest and other sites and we will see their progress during the visits. Technology is revolutionising many areas of work and life, and nature conservation is no exception. The use of satellite and drone imaging is being explored to address the surveillance of extensive heathland areas.

Of course we will also have the opportunity to hear and learn about many more areas of work on heathlands across most of its natural extent in Europe, some with similar constraints arising from their location in densely populated areas. We will also discuss management and restoration from other land uses, such as military or mineral workings, the impact of a changing environment, and the impact of what is considered “traditional heathland management” on various species.

We are looking forward to a week full of discussions, knowledge exchange and, why not, fun among old friends.

Welcome to Dorset!

Anita Diaz, **Durwyn Liley** & **Isabel Alonso** on behalf of all the organisers.

Geert de Blust

Research Institute for Nature and Forest - INBO

Welcome from the chair of the network

Dear friends and colleagues,

Welcome to this European Heathland Workshop; the 16th in a row. It all began exactly 40 years ago, when some ecologists from the UK and Brittany met in France. They discussed heathland dynamics and the management measures needed at that time to keep the heath in good shape and preserve it for the future.

The participants were very satisfied with the results of the meeting; they saw the value of direct knowledge and experience exchange and decided that it would be worth repeating the initiative at regular intervals. And thus, every two to three years since then, an international workshop has been organised in one of the heathland regions of Europe. Additionally, the European Heathlands Network was formed, a lasting platform to connect participants and others involved in heathland.

During the years, the format of the workshops has hardly changed. The meetings are held in an interesting heathland region where, over centuries, the interaction between natural and cultural or societal processes resulted in that characteristic old rural cultural landscape of the European lowland heath.

The participants form a diverse group. The Network and the organisers do their best to invite people with different backgrounds and expertise to work together during the workshops, to exchange ideas and visions, to discuss field experiments and management results, to share knowledge.

In this way we have succeeded in bringing together a diverse community: managers of small and large heaths; researchers with a background in ecology, soils science, agronomy, history and archaeology; stakeholders and other responsible officials charged with the development and implementation of relevant policies.

The common goal has remained to better understand the nature and functioning of the heathland and so create a firm evidence base for policy and management that protects the biodiversity, cultural values and ecosystem services of the heathland. All together this has proven to be a very successful formula!

There are other reasons why people continue attending our workshops. They are great fun and contribute to the building of a community of people who get to know each other in person. This is invaluable in times of continuous digital communication and unlimited information that is only two or three clicks away from you. In such a world of impersonal information and virtual reality, it is a pleasure to look at a paper and see the name of an author you have personally met. I bet that that paper gets more of your attention. And the opposite also holds I guess; writing for an anonymous audience is much more boring than for people you know and have met. So, face-to-face communication and interaction, with all the body language involved, is what makes this kind of workshops so valuable, especially in a time that e-communication has become the standard.

We will have ample opportunity during this workshop to meet and talk with each other on beautiful heathlands. But sadly, we will also miss two of our dearest colleagues. John Underhill-Day unexpectedly passed away August 10th 2018 at the age of 75. For decades he was the expert manager of lowland heath of RSPB. He supported our network in many ways, always willing to share his experience and knowledge with managers and scientists during our workshops. Many of us remember with fondness and pride the compliments John gave when he saw our work. It is particularly sad that he is not with us at this workshop as it was his dream and he was arranging it for us.

Equally missed is Charles Gimingham, the real father of heathland ecology (remember his famous book 'Ecology of Heathlands' published by Chapman and Hall in 1972). He passed away June 19th 2018 at the age of 95. Charles was one of the founders of our European Heathlands Network and an enthusiast promoter of the workshops which he all attended until very recently when his health prevented him from travelling. Charles was an extraordinary man and dedicated scientist with a wealth of knowledge and experience, a sharp eye for the details and the skills to make the overarching synthesis. But he was a modest, quiet and friendly man too; the mentor and source of inspiration for all of us.

Charles Gimingham and John Day will be sorely missed by the whole heathland community. Our deepest sympathies go out to their families and friends.

Life goes on and so do science, environmental degradation, loss of biodiversity, management and restoration challenges and growing societal demands. Heathland and its biodiversity deserve our continuous attention. So, I'm happy to see a full program with plenty of highly relevant papers: the traditional ones dealing with the composition and dynamics of heathland communities in different environments; the impact of stressors on the ecosystem; management and restoration responses; opportunities to maintain heathland in an demanding and ever changing society; heathlands as a valuable resource for daily life in a sustainable society. However, the importance and priority of issues change over time. Today, the impact of climate change and consequently the mitigation and adaptation measures are dominating the debates. How does heathland come into this picture?

Questions are raised: can we cut forest in favour of heath? How would carbon stock and carbon sequestration change then in the short and in the long term? And what about different management techniques and rotations? These questions have been regularly posed during public lectures that I have given about heathland and in my lectures at the university. I know from colleagues that they have been involved in similar discussions too. And it is not only the public with doubts about the appropriateness of enlarging heath at the expense of woodland or that even doubts the value of preserving heathland at all.

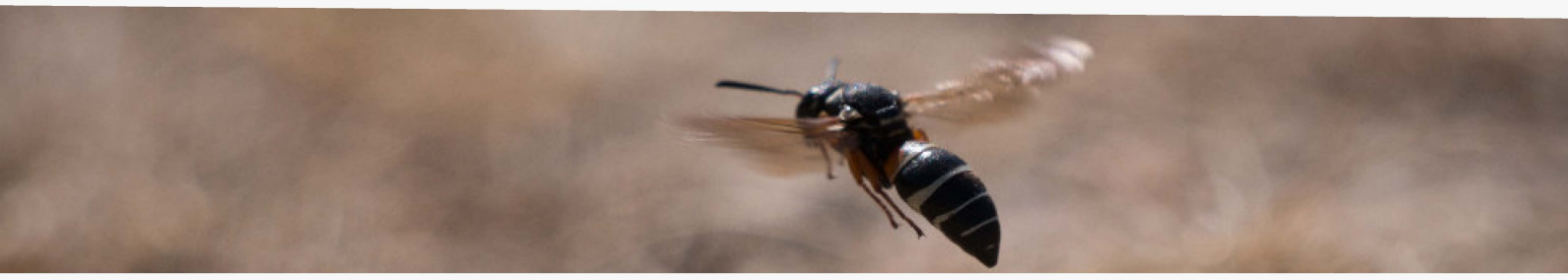
Voices ask "why not plant them with forest? It's good for the climate". Often politicians hesitate or even refuse to give permission to clear young forest in heathland reserves. As a result, heathland restoration in Flanders (Belgium) is now seriously hampered by discussions about deforestation and two major management plans for heathland restoration for instance are set on hold for official approval by the minister. I'm curious to see how this will be appreciated by the European Commission who assesses the progress of achieving the agreed goals for the restoration of open habitats.

It could be a task of the European Heathlands Network and its members to summarise the results of scientific work in this respect, to critically analyse the pros and cons and compile an appropriate argumentation for the discussion. In our previous 2017 workshop our Norwegian colleagues announced the start of two integrated research projects that deal with these issues, LandPress and HiddenCosts. I'm eager to learn from their results.

Dear friends of the heathland, it is clear that our work is not yet finished. This workshop is another opportunity to make progress and collect the information to underpin a scientifically sound and socially accepted heathland conservation and management.

Enjoy the workshop!

Geert de Blust



Organisation

The principal people involved in organising the event this year are as follows:

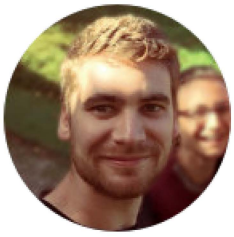
Isabel Alonso is Natural England's Senior Heathland specialist, based in the Chief Scientist Directorate. Her job is to provide specialist technical advice and training, both internally and externally, on all aspects of heathland conservation, management and restoration. She also ensures that heathland conservation advice is based on available evidence by maintaining contacts with site managers and academia. Prior to this, she was a researcher at the Centre for Ecology and Hydrology (Banchory, Scotland) and the University of León (Spain), working on heathlands and other pastoral systems. She has attended all EHWs since 1999 and for this one, she was in the steering group which oversaw the whole organisation and responsible for shaping the scientific programme and editing the Abstracts Book.

Anita Diaz is a senior lecturer in ecology interested in a wide range of factors influencing the biodiversity conservation of terrestrial habitats. She is particularly interested in the role played by species interactions such as the effects of wild and domestic grazers on habitats and how pollinators and plants interact. Her work includes research on invasive species plants and animals such as New Zealand pigmyweed and Sika deer. Anita has worked on a range of habitats including the Dorset heathlands and grasslands, cloud forests in Ecuador, rain forests in Peru and alpine meadows in Spain. Her research centres around: Heathland, grassland and woodland habitat conservation and restoration; Invasive species ecology; Pollination ecology; Grazing ecology and habitat management. Anita led the organising group and oversaw the administration led by the university staff.

Durwyn Liley founded Footprint Ecology (with John Day) in 2005 and is a director at the company. Prior to Footprint Ecology, he worked for Natural England, Butterfly Conservation and the RSPB, and his PhD was the first study to assess the population consequences of human disturbance for a breeding bird species. At Footprint Ecology, Durwyn's work has focused on recreation impacts, visitor surveys, bird disturbance and strategic planning work and this has encompassed work at virtually all the lowland heathland areas across the UK (including the New Forest, the Dorset Heaths and the Pebblebeds). Work on Stone Curlews in the Brecks, Nightjars in Dorset and a wide range of visitor surveys have been widely cited and underpinned planning policy in many parts of England. Durwyn has been working with Isabel and Anita to oversee the running of the conference, including editing the excursion guide and overseeing the conference website.

Sophie Lake started her career in nature conservation as a botanical surveyor at Norfolk Wildlife Trust some 25 years ago after graduating from the University of East Anglia with a degree in Ecology. She worked for other UK conservation NGOs and as a researcher for University of East Anglia and the Centre for Ecology and Hydrology before joining Footprint Ecology in 2009. During this time she also completed a PhD looking at the role of livestock grazing in the conservation of lowland heathland, which brought her to Dorset. Sophie currently works part-time at Footprint Ecology and part-time at Plantlife, where she co-manages the Dorset's Heathland Heart project, a component of the national HLF funded Back from the Brink initiative. She is co-ordinating the Purbeck Heaths field excursion at the workshop.

Julie Melin-Stubbs has worked as a Conservation Biologist in southern England for twenty years, having completed an international honours degree in Zoology at the University of Leeds and McMaster University (Canada) and a Master's degree in Conservation Biology at Manchester Metropolitan University. She spent the first phase of her career working within non-governmental organisations, including three county Wildlife Trusts and the RSPB, focusing on landscape/catchment-scale river and wetland projects. After travelling in Central and South America, Julie became a Lead Advisor for Natural England (NE) before moving over to the New Forest National Park Authority 9 years ago. There she set up the New Forest Land Advice Service (NFLAS), an innovative partnership, involving the National Park, NE, the Hampshire and Isle of Wight Wildlife Trust and the Verderers of the New Forest, delivering wildlife conservation and sustainable land management advice to farmers, landowners and commoners and developing and delivering landscape-scale nature conservation projects in and around the New Forest and Avon Valley. Julie continues to manage NFLAS within her current role as Wildlife and Conservation Manager for the New Forest National Park Authority. She has helped to organise the New Forest part of the conference.



Chris Panter completed a degree in ecology in 2009 at the University of East Anglia. He was subsequently employed by the university as a researcher for five years in two main project areas. The first involved conducting biodiversity audits of several regions of the UK, including the heathland region of Breckland. Large databases (c.1.5 million records) were used in examining species ecologies and classifying guilds of rare species. More about this can be found at www.biodiversityaudit.co.uk. The second project area was the GPS tracking of Houbara Bustard in central Asia, examining movements in conjunction with landscape patterns from remote sensed vegetation measures. Chris joined Footprint Ecology in 2014 and works on a range of contracts, focusing on GIS and data analysis. Chris, Terry Elborn and Rachel Pearce are co-ordinating the excursion to Canford Heath.

Kim Strawbridge completed BSc Environmental Science at Plymouth University in 2005 followed by MSc Sustainable Forest and Nature Management at Copenhagen and Bangor Universities in 2010. After a number of years working as a ranger/warden for the National Trust and RSPB at a range of locations, she spent 6 years working in the Peak District National Park. Looking for an opportunity to bring together the challenges of managing a site for both wildlife and recreation, she joined the Pebblebed Heaths Conservation Trust in 2017 in the role of Site Manager. Working with the site team to ensure that the ongoing management of the heaths provides the best possible habitat for its unique wildlife, she is also keen to involve the local community in the management and enjoyment of their beloved commons. Kim is a firm believer that long term gains in the conservation of these shared spaces will be had by encouraging and supporting people's connections with nature and the landscape. Kim has arranged the extension visit to the East Devon Pebblebeds.

Kayleigh Winch completed BSc(Hons) Ecology and Wildlife Conservation at Bournemouth University in 2015. She spent the first two years of her career working as a ranger at The Heathland in East Dorset Grazing Enhancement Project, focused on practical heathland management, volunteer recruitment and livestock welfare. She returned to Bournemouth University and completed MSc Biodiversity Conservation in 2018 and was subsequently employed by the university as a research assistant in two projects. The first of which was a report on the impacts of deer across Great Britain for the Woodland Trust which aimed to disambiguate the impacts on woodlands. The main ongoing project is the development of the Nature Volunteers website which can be found at www.naturevolunteers.uk and which aims to bridge the gap between people looking for volunteering opportunities in the UK and conservation organisations looking for volunteers.

Important information

Please refer to the details here for safety, accommodation and travel information.

Emergency telephone numbers

Emergency services telephone numbers in the UK are **999** or **112**.

First-aiders

- **Isabel Alonso**..... **+44(0)7500 882590**
- **Sophie Lake**..... **+44(0)7903 642146**
- **Leanne Sargeant**..... **+44(0)7767 353642**
- **Toby Taylor**..... **+44(0)7973 567520**

Kayleigh Winch is not a first-aider but can assist getting help: +44(0)7795 678300.

Internal emergency telephone numbers

In case of non-life-threatening emergencies, please call one of the following numbers of the organising committee in the following order:

Kayleigh Winch.....+44(0)7795 678300

Isabel Alonso.....+44(0)7500 882590

Durwyn Liley.....+44(0)7712 483644 (though not on site at all times)

Hotel phone numbers

Dorset Golf and Country Club (Dorset/New Forest part): +44 (0)1929 472244

Bicton College (Devon part): +44 (0)1395 562400

Summarised travel information

The venue for the conference is the Dorset Golf and Country Club.

Train

The nearest train station is Wool (around 6km from the venue, about 7-10 min by taxi/car). Wool is on the mainline from London – Weymouth, with trains at least hourly. Wareham station is not the nearest but it is a regular train stop.

Local taxi numbers:

Excel Taxis Wareham..... +44(0)1929 448066
Everest Taxis Wareham..... +44(0)7473 330063
Wareham Forest Taxis..... +44(0)7399 206687

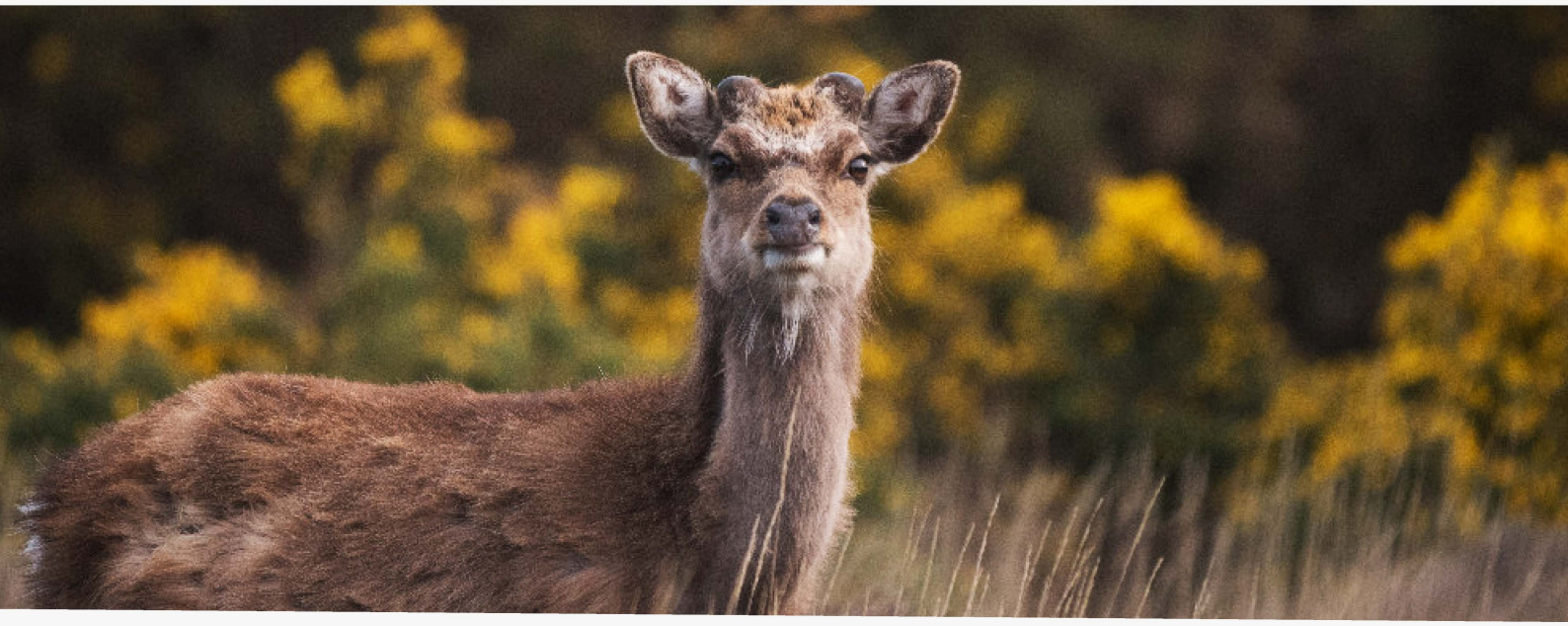
Driving

The postcode to use for your sat-nav is BH20 7NT.

Nearest airports

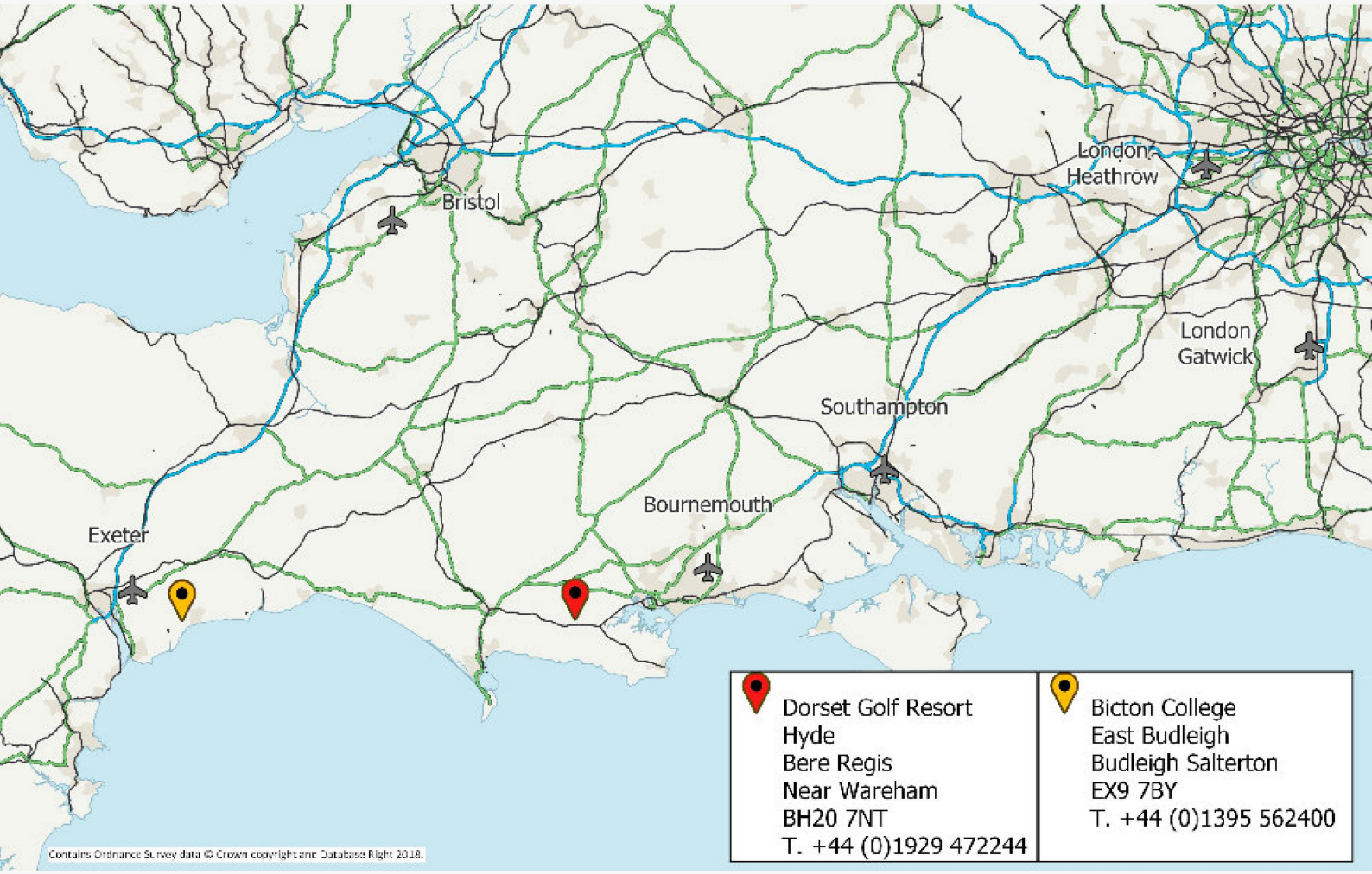
Southampton airport is around one hour by train from the conference venue and has direct trains to Wool. Bournemouth airport is also well located. There are also good public transport links from the London airports.

For those leaving directly from the Pebblebed Heaths, Exeter airport provides a good departure point. There are also mainline trains from Exeter to London.



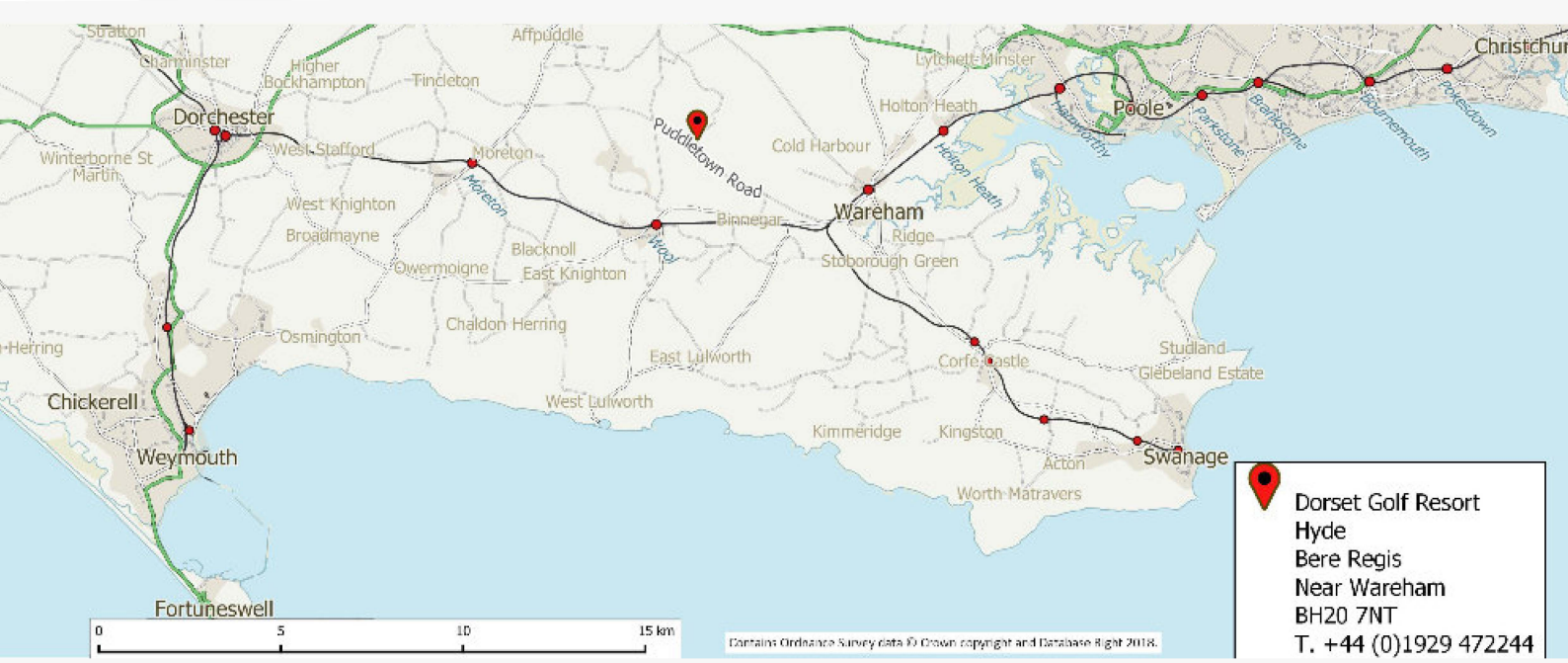
Accommodation

An overview map of both the Dorset and Devon areas of the UK relevant to the conference and the extension.



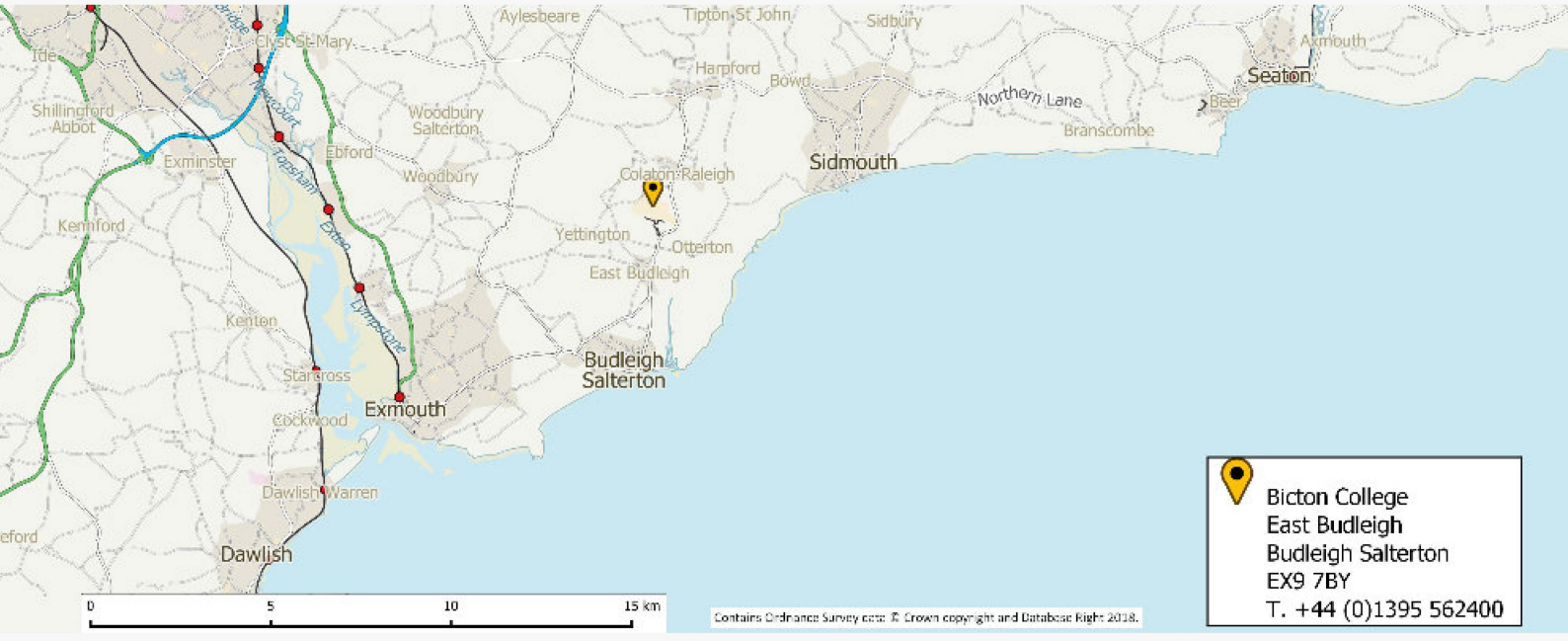
Dorset

The conference will be based at the **Dorset Golf and Country Club**, which is centrally located for the various excursions and is adjacent to part of the Dorset Heaths. Accommodation is provided in the same venue.



Devon

The extension excursion will be based in **Bicton College**. Accommodation for the extension excursion is provided in the same venue.



Workshop programme

Sunday 18th August

Arrival | Evening excursion

15:00-22:00	Arrival & check in at The Dorset Golf Resort, near Wareham (Dorset)
17:00-19:00	Evening walk to Dorset Wildlife Trust's Higher Hyde Reserve
19:00-20:30	Dinner

Monday 19th August

Presentations | Posters | Introduction to the New Forest

07:30-08:30	Breakfast
09:00-09:20	Welcome by organisation committee
09:20-09:45	Opening by the chair of the EHN, **Geert de Blust**
09:45-10:00	Welcome to Dorset and Tribute to John Day by **Jim White**
10:15-11:00	Oral session 1 chaired by **Sophie Lake**: Heathland Management
11:00-11:30	Break
11:30-12:30	Oral session 1: Heathland Management (cont)
12:30-13:30	Lunch
13:30-14:30	Oral session 2 chaired by **Rita M. Buttenschøn**: Heathland species conservation
14:30-15:00	Break
15:00-16:15	Oral session 2: Heathland species conservation (cont)
16:15-17:00	Poster Session chaired by **Leonor Calvo**
17:00-18:15	Break
18:15-18:30	Introduction to the New Forest by **Julie Melin-Stubbs**
18:30-19:15	Ecology of the New Forest by **Clive Chatters**
19:15-20:30	Dinner

Tuesday 20th August

Excursions New Forest

07:30-8:30	Breakfast
08:30-9:30	Board bus and travel time to Mire restoration sites
11:30-13:30	Visit to Pony Sales Yard, Commoning, Lunch
13:30-17:00	Dry heathland areas, wild fire recovery and controlled burn sites
17:00-18:00	Bus travel to Hotel
18:30-19:00	European Dry Heaths Action Plan, by **Concha Olmeda**
19:00-20:30	Dinner

Wednesday 21st August

Presentations | Excursions | Film & book introduction

07:30-08:30	Breakfast
09:00-10:00	Oral Session 3 chaired by **Joost Vogels**: Heathlands and visitors
10:00-10:30	Break
10:30-12:00	Oral Session 3: Heathlands and visitors (cont)
12:00-12:15	Short Break
12:15-16:00	Board bus to visit "Urban heaths": Canford Heath, urban pressures, Lunch
16:00-18:00	Boat trip: Dorset heaths in the landscape
18:00-18:30	Bus travel to Hotel
19:00-20:30	Dinner
21:00-21:30	Film/book evening: The Hidden World of the Strabrechtse Heide, **Jap Smits**

Thursday 22nd August

Excursions | Pre-dinner presentation | Conference Dinner

07:30-08:30	Breakfast
09:00-09:10	Board bus to Masters Quarry
09:10 -12:00	Multiple land-use – heathland restoration, mineral extraction and renewable energy; machinery exhibition
12:30-13:30	Lunch stop on chalk ridge and overview
13:30-17:30	Visit Arne RSPB reserve: Public engagement, species management within landscape-scale conservation.
18:00-18:30	Invited address: **Marian Spain**, Natural England's Interim CEO
18:30-20:30	Conference Dinner
20:30-Late	Ceilidh with local band Black Sheep

Friday 23rd August

Concluding session | Farewell | Extension programme excursion

07:30-08:30	Breakfast
09:00-10:00	Oral Session 4 chaired by **Steve Fry**: Monitoring and new technologies
10:00-10:30	Break
10:30-11:45	Oral Session 4: Monitoring and new technologies (cont)
11:45-12:00	Workshop, Conference close; Lunch
12:30-15:30	Optional extension: Transfer to Devon
15:30-17:30	Optional extension: Visit to Mutter's Moor for overview and context
17:30-22:00	Pizza at Otterton Mill

Saturday 24th August

Excursion | Lunch

07:30-08:30 Breakfast

09:00-17:30 Optional extension: Tour of East Devon Heaths; Lunch

Sunday 25th August

Departure

Colour key

- Travel & admin time
- Meals & informal time
- Opening & concluding sessions
- Poster sessions
- Invited talks
- Field excursions
- Optional extension
- Scientific programme - S1
  Heathland management, restoration
- Scientific programme - S2
  Heathland species
- Scientific programme - S3
  Urban development, people and recreation management, partnership working
- Scientific programme - S4
  New technology, modelling

The programme at a glance

TIME	SUNDAY 18th	MONDAY 19th	TUESDAY 20th	WEDNESDAY 21st
7:30 AM		Breakfast	Breakfast	Breakfast
8:30 AM				
8:45 AM				
9:00 AM		Coffee		S3.1: **I Diack**
9:15 AM		Welcome by the organisers		S3.2: **JAH Smits**
9:30 AM		**G de Blust** - Opening address & welcome		S3.3: **C Dictus**
9:45 AM				S3.4: **C Panter**
10:00 AM		J White: Welcome to Dorset		Break
10:15 AM		Chair: **Sophie Lake** — S1.1: **K Ibe**		S3.5: **L Calvo**
10:30 AM		S1.2: **P Sewerniak**		S3.6: **AC Elliot**
10:45 AM		S1.3: **H Siepel**		S3.7: **J Fagúndez**
11:00 AM		Break		S3.8: **A Diaz**
11:15 AM				S3.9: **P Attwell**
11:30 AM		S1.4: **E Marcos**		Q&A
11:45 AM		S1.5: **H Lee**		
12:00 PM		S1.6: **J Cox**		
12:15 PM		Q&A		
12:30 PM		Lunch		
12:45 PM				
1:00 PM				
1:30 PM		Chair: **Rita M. Buttenschøn** — S2.1: **IK Schmidt**		
1:45 PM		S2.2: **NE Scott**		
2:00 PM		S2.3: **KA Haysom**		
2:15 PM		S2.4: **JJ Vogels**		
2:30 PM		Break		
2:45 PM				
3:00 PM	Arrival & check-in	S2.5: **CJ Kelly**		
3:15 PM		S2.6: **RR Hansen**		
3:30 PM		S2.7: **JO Offenberg**		
3:45 PM		S2.8: **MTS Strandberg**		
4:00 PM		Q&A		
4:15 PM		Chair: **Leonor Calvo** — P1: **J Kowal**, P2: **L Death**, P3: **RM Buttenschøn**, P4: **N Hutchinson**, P5: **K Winch**, P6: **J Jasińska**, P7: **J Cox**, P8: **L Phalp**		
4:30 PM				
4:45 PM				
5:00 PM		Break		
5:15 PM	Evening walk from conference venue, to DWT Higher Hyde reserve (Leo Henley-Lock)			
5:30 PM				
5:45 PM				
6:00 PM				
6:15 PM		New Forest: **J Melin-Stubbs**		
6:30 PM		Ecology of the New Forest: **C Chatters**	European Dry Heaths Action Plan: **C Olmeda**	
6:45 PM				
7:00 PM	Dinner at conference venue			
7:15 PM		Dinner at conference venue	Dinner at conference venue	Dinner at conference venue
7:30 PM				
7:45 PM				
8:00 PM				
8:30 PM				
8:45 PM				**Jap Smits** - The hidden world of the Strabrechtse Heide
9:00 PM				

New Forest Field Excursion: Mire restoration sites; Visit to Pony Sales Yard, talk on commoning over lunch; Dry heathland areas, wild fire recovery and controlled burn sites

Urban Heath site visit: Canford Heath, urban heaths and combating urban pressure. Includes Lunch

Poole Harbour boat trip: Guided trip to see Dorset Heaths in landscape, links to other coastal and wetland habitats, Osprey reintroduction. Or optional Walk in Wareham?

TIME	THURSDAY 22nd	FRIDAY 23rd	SATURDAY 24th
7:30 AM	Breakfast	Breakfast	Breakfast
8:30 AM			
8:45 AM			
9:00 AM	Purbeck Field Excursion: Mineral sites, restoration techniques and renewable energy. Machinery demo.	Chair: Stephen Fry — S4.1: **I Alonso**	Tour of East Devon Heaths: restoration areas (minerals and forestry), grazing, recreation management. Buffet lunch and tea en route.
9:15 AM		S4.2: **W Oxford**	
9:30 AM		S4.3: **G Sterckx**	
9:45 AM		S4.4: **RA Diaz-Varela**	
10:00 AM		Break	
10:15 AM			
10:30 AM		S4.5: **J Schellenberg**	
10:45 AM		S4.6: **CD Damgaard**	
11:00 AM		S4.7: **S Lake**	
11:15 AM		S4.8: **K Nagels**	
11:30 AM		Q&A	
11:45 AM		Next Workshop **G de Blust** - Conference close	
12:00 PM	Lunch stop on chalk ridge & overview. MOD.		
12:15 PM			
12:30 PM		Lunch	
12:45 PM		Coach to Devon & settling in at accommodation	
1:00 PM			
1:30 PM	Arne RSPB reserve: bare ground creation & management, species management, restoration from forestry, public engagement.		
1:45 PM			
2:00 PM			
2:15 PM			
2:30 PM			
2:45 PM			
3:00 PM			
3:15 PM			
3:30 PM		Visit to Mutter's Moor for overview and context	
3:45 PM			
4:00 PM			
4:15 PM			
4:30 PM			
4:45 PM			
5:00 PM			
5:15 PM			
5:30 PM			
5:45 PM			
6:00 PM	**Marian Spain** (NE interim CEO)		
6:15 PM			
6:30 PM	Conference dinner	Pizza at Otterton Mill	
6:45 PM			
7:00 PM			
7:15 PM			
7:30 PM			
7:45 PM			
8:00 PM			
8:30 PM	Local band: Black Sheep		
8:45 PM			
9:00 PM			

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Presentations Programme

Monday 19th August

09:00-09:20 Welcome by organisation committee

09:20-09:45 Opening by the chair of the EHN, **Geert de Blust**

09:45-10:00 Welcome to Dorset and Tribute to John Day by **Jim White**

Opening & concluding sessions

Opening by the Chair

Geert de Blust | Chair of the EHN

NOTES:

Invited talks

Welcome to Dorset

Jim White | Dorset Wildlife Trust

A welcome to the heathlands of SE Dorset and the New Forest; two of the finest localities of lowland heathland surviving in UK. Both are part of the same geological feature and originally of comparable extent, albeit with some soil and topographical differences, but the history of these two heathland areas is very different. Our excursions and some of the talks will further elaborate and explain these contrasts – of species, grazing, habitat management, context and recent conservation history. A visit to this area was conceived by John Day who had started planning the conference but who died suddenly last September. We hope he would have approved our programme for the next few days.

NOTES:

Scientific programme - S1

Session 1: Heathland management, restoration

10:15-10:30 Session 1.1
K. Ibe, W. Härdtle & D.C. Walmsley
Heathlands under Global Change – The Importance of Provenance and Interaction Effects.

10:30-10:35 Session 1.2
P. Sewerniak & R. Puchałka
Effect of topography on groundcover species composition on inland dunes: a comparative study of heathlands and pine mono-stands from N Poland.

10:45-11:00 Session 1.3
H. Siepel
Effects of sod-cutting on the micro-arthropod community of heathlands.

11:30-11:45 Session 1.4
E. Marcos, S. Huerta, R. Pinto, D. Beltrán & L. Calvo
Resilience of soil parameters after long-term perturbations in some of the most southerly heathlands in Europe.

11:45-12:00 Session 1.5
H. Lee, L.G. Velle, I. Althuizen, S. Haugum & V. Vandvik
Soil carbon storage of coastal heathlands in Norway under different management practices

12:00-12:15 Session 1.6
J. Cox & C.E. Bealey
Monitoring the effects of vegetation management on Chobham Common NNR, Surrey

12:15-12:30 Q&A

Heathlands under global change: The importance of provenance and interaction effects

Ibe, K., Härdtle, W., Walmsley, D.C.

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Abstract

A prerequisite for the dominance of Calluna vulgaris in lowland heaths are nutrient poor edaphic conditions. As a result, atmospheric N loads constitute a threat to such systems. At the same time, Calluna vitality is known to suffer during periods of prolonged drought, which are predicted to increase during the summer months. Furthermore, it remains unclear how elevated atmospheric CO2-concentration may interfere with these global change drivers.

Therefore, knowledge of how enhanced N availability and global change factors interact is vital for understanding how heathlands can be preserved in the long term. Recent studies indicate that the strength of such interactions vary over the distribution range of Calluna.

In order to address this issue we set up a common garden experiment containing Calluna seedlings from three provenances along a climatic gradient (Atlantic, Sub-Atlantic, continental) and investigated the effects of N addition, summer drought and atmospheric CO2-concentration on selected growth and physiological parameters.

Here we present our findings and, due to our full-factorial design, are able to disentangle all interaction effects. Our results highlight that global change will have a varied impact on Calluna and that geographic origin and interaction effects need to be considered when formulating regional conservation measures.

NOTES:

Effect of topography on groundcover species composition on inland dunes: a comparative study of heathlands and pine mono-stands from N Poland

Sewerniak, P., Puchałka, R.

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Abstract

We investigated groundcover species composition in 184 plots located on dunes of the Toruń military ground (52°55'N, 18°35'E). The study was conducted in two zones of the ground, which were similar with regard to geomorphology, but clearly differed with vegetation type:

1) naturally revegetated area excluded from forest management (heathlands and grasslands being partly overgrown with young trees encroaching due to natural secondary forest succession)

2) planted production pine mono-stands (5-161 years old) which have been subjected to standard forest management practices. The plots were situated in 3 topographical positions: (i) intra-dune depressions, (ii) north- and (iii) south-facing slopes.

We found that the highest number of species occurred in the depressions; however, when considered the two studied ecosystem types, the number was much higher in naturally than artificially revegetated area (19.9±5.0 vs. 9.7±0.5, respectively). The mean number of species occurring on slopes was similar (ca. 6) and was slightly affected by both aspect as well as type of ecosystem.

We found, however, the strong positive relation ($p<0.001$) between number of species and age of studied production stands. The number for the oldest investigated age class (pine stands older than 100 years) was almost twice than stated for the youngest class (< 20 years).

This study was supported by the Ministry of Science and Higher Education, Republic of Poland (grant number N N305 304840).

NOTES:

Effects of sod-cutting on the micro-arthropod community of heathlands

Siepel, H.

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Abstract

Sod cutting or turf-stripping is commonly used as restoration measure on heathlands to get rid of excess of nitrogen. Until now none has investigated the impact on the soil micro-arthropods that are key in the decomposition or organic matter. When a decline in functional micro-arthropods results in a hampering of decomposition, the cure may be worse than the problem.

Accumulation of organic matter may fasten and a change to another type of vegetation maybe expected. A number of sod-cut heathlands, varying in time of recovery has been sampled as well as a number of control sites around heathlands in the Netherlands. Species composition, density and functionality of soil micro-arthropods will be evaluated.

Loss of especially larger species (not being able to penetrate deeper soil), asexual species (not able to adapt to changing environments) and fungivorous grazers (extinct due to lack of food and having a too low dispersal capacity to recolonise) is hypothesised. Especially the last group can change the system because of their stimulation of decomposition.

NOTES:

Resilience of soil parameters after long-term perturbations in some of the most southerly heathlands in Europe

Marcos, E., Huerta, S., Pinto, R., Beltrán, D., Calvo, L.

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Abstract

Heathlands occur on nutrient-poor acidic soils and are limited by nitrogen (N) and phosphorus (P). To maintain these conditions different management practices have been frequently implemented, such as prescribed burning. Fire can eliminate up to 95% of the N stored in the vegetation and slow down the nutrient cycle. The Cantabrian Mountains are subjected to atmospheric inputs of N, ranging between 7.5 and 15 kg N ha-1 yr-1, mainly in oxidised forms.

Nowadays, the main emission source, coal power plants, are being closed. As a consequence, we think the nitrogen deposition will decrease over time. For this reason, in this study we investigated the capacity of resilience of soil parameters after long-term perturbations (fire and nitrogen deposition).

We selected three Calluna heathland sites in the Cantabrian Mountains. Three permanent plots (20 m x 20 m) were established in each site: one was subjected to prescribed burning, another one to burning plus N addition (56 kg N ha-1 yr-1) during twelve years, and the third one was used as a control.

Treatments were carried out in June 2005. Soils were collected thirteen years after and the soil resilience was calculated using the resilience index proposed by Banning and Murphy (2008).

NOTES:

Soil carbon storage of coastal heathlands in Norway under different management practices

Lee, H., Velle, L.G., Althuizen, I., Haugum, S., Vandvik, V.

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Abstract

Atlantic heathlands in Norway are cultural landscapes that have developed as part of local food production where grazing and prescribed burning are the major management forms. Today, heathland areas are declining due to changing agricultural practices. In addition, low management intensities and abandonment are considered as the major threats.

Recently in Norway, extensive planting of trees in open landscapes, including coastal heathlands, has been suggested as an important policy measure to mitigate climate warming. In parallel to afforestation, large areas of unused and abandoned semi-natural areas are now undergoing massive natural succession towards deciduous forest.

Globally, grasslands and shrublands together store large amounts of carbon in soils as soil organic matter. Here we investigate the changes in above and below-ground carbon storage in Norwegian heathlands under different management schemes.

We selected three locations in Norwegian coast capturing 60-69˚N latitudinal gradient, where we established sites with different management practices: well managed coastal heathland, planted spruce forest, and natural succession forest after heathland abandonment. At each site, we sampled above and below-ground carbon to quantify ecosystem carbon storage.

We will use this opportunity to synthesise how ecosystem carbon storage capacity in European heathlands change under different management strategies and policy implementation.

NOTES:

Monitoring the effects of vegetation management on Chobham Common NNR, Surrey

Cox, J.R, Bealey, C.E.

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Abstract

The results are presented of a six year programme of heathland vegetation monitoring on Chobham Common National Nature Reserve. Four heathland management techniques (grazing, mowing, burning & turf stripping) were applied across six heathland vegetation communities (H2 dry heath, H3 dry heath, M16 wet heath, M21 mire, M25 mire and a degraded form of humid heath referred to as Molinia heath). Treatments were compared to control plots where no management was applied.

Results show greater effects of grazing on grass dominated heathland vegetation communities causing reductions in herb height, Molinia cover and increasing species richness and bare ground cover. There was no effect on heather cover in dry and wet heath but a there was a reduction of heather in M21 mire.

Mowing increased overall species richness in all four vegetation types subject to this treatment, but only increased the number of positive indicator species in H2 and M16. Mowing stimulated grass growth that returned to original cover levels by the end of the monitoring period.

Effects of burning were most pronounced on dry heath types (H2 and H3). Burning also resulted in an increase in the proportion of pioneer heather in H2, M16 and Molinia heath.

Turf stripping resulted in reduced herb height and Molinia cover, an increase in bare ground cover, proportion of pioneer heather and species richness in all four of the vegetation types subject to this management.

Implications for heathland management are discussed.

NOTES:

Scientific programme - S2

Session 2: Heathland species conservation

13:30-13:45 Session 2.1
I.K. Schmidt, D.B. Byriel, S.K. Rojas & R.M. Buttenschøn
Natural dynamics and heathland management.

13:45-14:00 Session 2.2
N E Scott & M. Sheehy Skeffington
Are the rare heathers of the west of Ireland and south-west Britain really native?

14:00-14:15 Session 2.3
K.A. Haysom, J.W. Wilkinson, B. Limburn & J. Foster
Factoring reptiles and amphibians into heathland management.

14:15-14:30 Session 2.4
J.J. Vogels, K. Huskens & M.F. Wallis De Vries
Arthropod responses to choppering and high-intensity grazing as alternatives to sod-cutting in wet heath: medium term effects.

15:00-15:15 Session 2.5
C.J. Kelly, I. Hughes, P. Merrett, A. Whitehouse, H. Smith, D. Heaver
Conservation of the Ladybird spider on the Dorset Heaths.

15:15-15:30 Session 2.6
R.R. Hansen, J. Offenberg, M.T. Strandberg, K.E. Nielsen, Schmidt, I.K.
Don't take ants for granted: Traditional management have negative impacts on ant communities.

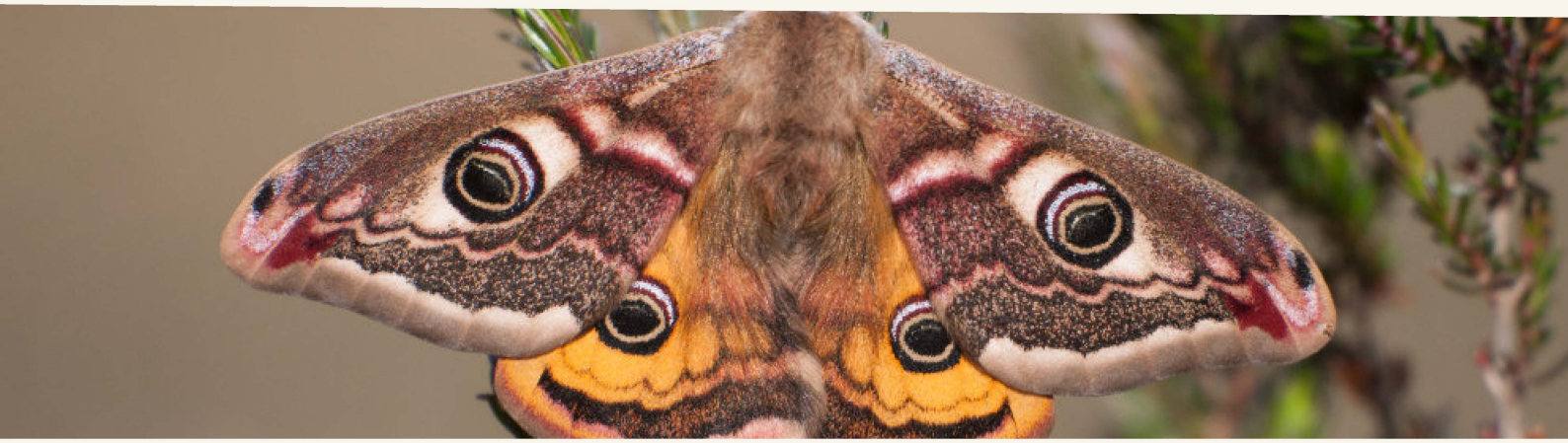
15:30-15:45 Session 2.7
J.O. Offenberg, R.R.H. Hansen, K.E.N. Nielsen, M.T.S. Strandberg, P.B.S. Sørensen & I.K.S. Schmidt
Anthills: hot, dry and alkaline islands on the heath.

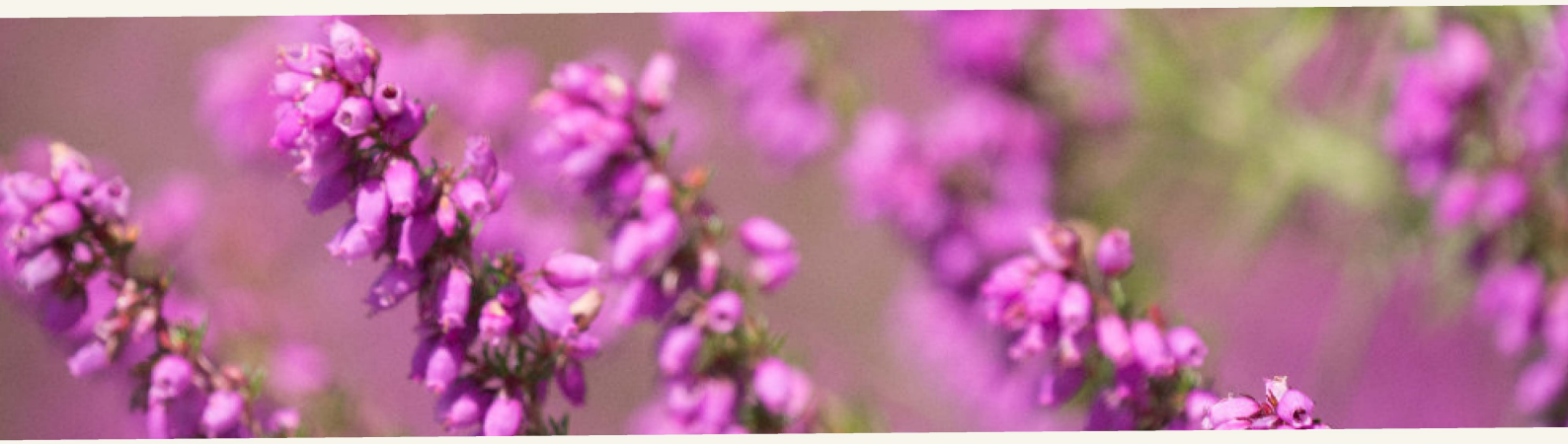
15:45-16:00 Session 2.8
M.T. Strandberg, R.R.H. Hansen, K.E.N. Nielsen, J.O.A.F. Offenberg, C.K.J. Kjær & P.B.S. Sørensen, M.T. Strandberg, R.R.H. Hansen, K.E.N. Nielsen, J.O.A.F. Offenberg, C.K.J. Kjær & P.B.S. Sørensen
Heathland blues - Potential risk for heathland butterflies from traditional management.

16:00-16:15 Q&A

18:15-18:30 Invited talk
Julie Melin-Stubbs
Introduction to the New Forest

18:30-19:15 Invited talk
Clive Chatters
Ecology of the New Forest NNR, Surrey





Natural dynamics and heathland management

Schmidt, I.K., Byriel, D.B., Rojas, S.K. & Buttenschøn, R.M.

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Abstract

Natural dynamics and heathland management is a new Danish project, which aims to evaluate which structure and biology (flora and fauna) various heathland types and management regimes promote. In addition, the aim is to develop management strategies that utilise ecosystems natural processes and, as far as possible, are self-supporting.

As part of the project, we have examined the structure and biology (flora and fauna) in various types of heath with long continuity or managed. The preliminary findings suggest that heathlands with long continuity (wet or dry) and managed heath (e.g. fire or grazing) support different diversity, which illustrates the importance of a varied management and to maintain areas with long continuity.

The presentation discusses how we can organise heathland management to both ensure areas with long continuity and the rejuvenation of the heather and the early successional stages for the benefit of the greatest number of species.

NOTES:

Are the rare heathers of the west of Ireland and south-west Britain really native?

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Abstract

Several heathland species have very disjunct distributions in Europe, being confined to the extreme west and south-west of Britain and/or Ireland and found elsewhere only, or principally, in the Iberian Peninsula.

Assuming none survived the last ice age in these islands, questions arise regarding their recolonisation northwards, sometimes apparently with hundreds of kilometre gaps en route. Erica erigena and E. mackayana have been determined as likely introductions to Ireland through traffic; with different proposed means, the first by pilgrims, the latter through smuggling, and at different times.

We now query the native status of three other heathers: Daboecia cantabrica is confined to the west of Ireland and northern Iberia, while Erica vagans, Cornish Heath, and E. ciliaris, Dorset Heath, have unusual and very local distribution patterns in Britain and Ireland and elsewhere only occur in regions of western France and northern and western Iberia.

As trade and traffic have long connected the Atlantic coastlines of Europe, it appears quite possible that all these rare heathers were introduced to Ireland and Britain by human activity. If so, is their inclusion in conservation action plans justified?

NOTES:

Factoring reptiles and amphibians into heathland management

Haysom, K.A., Wilkinson, J.W., Limburn, B., Foster, J.

Amphibian and Reptile Conservation

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Abstract

Heathlands are important habitats for herpetofauna, including some of the rarest and most vulnerable species of reptiles and amphibians in Europe. However, many of the species that are found on heathlands are challenging to survey, easily overlooked and have special habitat requirements.

Together these factors may have contributed to losses that have been observed, even on land that is managed to benefit nature. Conversely, they can evoke strong emotions in people as demonstrated by two recent initiatives, the New Forest Smooth Snake project and Snakes in the Heather; they can be popular components of citizen science programmes, able to foster greater appreciation and understanding of the heathland landscape.

Amphibian and Reptile Conservation (ARC) is a national wildlife charity dedicated to the conservation of reptiles, amphibians and the habitats on which they depend.

This presentation covers aspects of species ecology that are relevant to land managers. We consider how to recognise the presence, evaluate habitat quality, and factor their ecological requirements into land management, drawing on ARC's experience as a land manager of more than 80 nature reserves, running reintroduction programmes and coordinating regional and national surveillance.

NOTES:

Arthropod responses to choppering and high-intensity grazing as alternatives to sod-cutting in wet heath: medium term effects

Vogels, J.J., Huskens, K., Wallis De Vries, M.F.

Bargerveen Foundation, Nijmegen, The Netherlands

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Abstract

Restoration of wet heaths is an important European Natura2000 objective, which is hampered by elevated nitrogen loads. In this context, sod-cutting is often implemented to counter grass encroachment by Molinia caerulea.

In this study, we experimentally investigated the medium-term response of arthropods to choppering and high-intensity rotational grazing in comparison to sod-cutting and control. In order to unravel causal mechanisms behind observed changes, we assigned the investigated fauna groups to habitat preference (pioneer vs late successional stages) and trophic level.

Choppering and sod-cutting promoted characteristic pioneer species, while species of mature heath responded negatively to choppering and sod-cutting. After choppering, however, a faster recovery of these species was found.

Sod-cutting still had a considerable negative impact on trophic structure at a medium term, which was also less evident after choppering.

Many species from mature heaths showed a higher prevalence in the grass-dominated controls. Under intensive rotational grazing, these species also persisted. The results imply that, depending on conservation objectives, the investigated measures may complement each other in restoring and maintaining species diversity of wet heathlands.

The study also stresses that conditions that may not be valuable from a botanical perspective may still offer suitable habitat for many characteristic animal species.

NOTES:

Conservation of the Ladybird Spider on the Dorset Heaths

Kelly, C.J., Hughes, I., Merrett, P., Whitehouse, A., Smith, H., Heaver, D.

Buglife

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Abstract

The Ladybird Spider Eresus sandaliatus is a Palaearctic species, which occurs in Europe from the United Kingdom (UK) to Turkey. In the UK it is currently restricted to Dorset and specifically the Dorset Heaths. Thought extinct from 1906, despite a few unverified records, its rediscovery in 1979 at a single site stimulated conservation effort to experiment with methods to secure the original population and expand its range in the locality through introductions.

This paper will describe the methods employed by this single species Back from the Brink (BFTB) project to ensure the sustainability and security of the introduced populations in Dorset.

Recent monitoring and habitat data is presented and a preliminary assessment of the recent introductions given. There have been 19 introductions since 2001, using the tested translocation method, and currently 17 are extant. There have been 6 introductions 2017-2018 which could be considered to be establishing. Due to the long life cycle of this species, determining the success of an introduction could take up to 10 years.

Consolidating monitoring, collection, introduction and site management protocols into practical land managers 'Conservation Guidelines: Ladybird Spider' aims to compliment the delivery mechanisms to safeguard this species recovery.

KEYWORDS: Ladybird Spider, introduction, translocation, species recovery, sustainability.

NOTES:

Don’t take ants for granted: Traditional management have negative impacts on ant communities

Hansen, R.R., Offenberg, J., Strandberg, M.T., Nielsen, K.E., Schmidt, I.K.

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Abstract

The role of ants in temperate heathland ecosystems is often under-appreciated. Ants, like humans, constantly seek to optimise the conditions leading to the highest possible growth of the colony. By doing so, they affect both the physical and chemical properties of the soil, which echoes through multiple compartments of the ecosystem.

Heathland management alter ant species abundances and diversity, hence modifying the local effects ants have on the ecosystem. We investigated ant colony densities across four management regimes: harvest, burn, grazing and long term unmanaged heathlands.

We found that the contrasting management strategies led to significantly different ant species assemblages. In grazed heathland plots, we found 8 ant species vs. 20 species on unmanaged heathlands. The mound forming species, Formica exsecta, a natural heathland species, was literally obliterated in the harvested plots.

The unmanaged heathlands support a higher degree of landscape heterogeneity with open patches, variable vegetation structure, increased topography etc., leading to a diversification of niches.

In quantifying the effects of heathland management on ant abundances and diversity, we hope to help inform how land managers may maximise conservation value through a management regime allowing some areas to reach later successional stages.

NOTES:

Anthills: hot, dry and alkaline islands on the heath

Offenberg, J.O., Hansen, R.R.H., Nielsen, K.E.N., Strandberg, M.T.S., Sørensen, P.B.S., Schmidt, I.K.S.

Aarhus University, Department of Bioscience

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Abstract

Several ant species build anthills on heathland. When doing this, they mix and drain soil, create open dry spots with less vegetation and a slope that capture sunrays. This drastically change abiotic factors.

From Danish heathlands, we show that anthills increase surface temperature, soil porosity, desiccation and pH. As a result, anthills stand out as hot and dry islands of porous and less acidic soil on an otherwise different heath surface.

Ant abundance on heathlands is high – up to one anthill per 5 m2 and a biomass comparable to red dears. High abundance coupled with the formation of microclimatic islands provide heterogeneity and new niches, but also affect performance of existing species.

We found that plants on anthills (e.g. Festuca ovina and Galium saxatile) grew faster than conspecifics growing between the hills. Thus, hill-plants flowered earlier and consequently the overall flowering period for these species was prolonged. This again may facilitate pollinators and herbivores as the temporal window during which they can utilise their host plants widens.

We believe anthills are important drivers of heterogeneity (and possibly biodiversity) and should be conserved via appropriate heath management.

NOTES:

Heathland blues - Potential risk for heathland butterflies from traditional management

Strandberg, M.T.S., Hansen, R.R.H., Nielsen, K.E.N., Offenberg, J.O.A.F., Kjær, C.K.J., Sørensen, P.B.S.

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Abstract

Many lycaenids have their main populations in heathlands, where they depend on two hosts - namely specific fodder plants and specific ant species. Therefore, the risk that populations of heathland butterflies, such as Maculinea alcon, Plebejus argus, Plebejus idas, Polyommatus icarus and others, will be reduced, depends on the diversity and abundance ants and plants. In addition, the right plant and the right ant should be available close to each other.

Management should take account of this double host interaction, else the status of the heathland blues is at risk. It has been demonstrated that both ant and plant species assemblages in heathland is determined by burning, cutting and grazing frequency and intensity.

The immediate ambition is to initiate investigations of the combined effect of management on the hosts of heathland blues. The long-term ambition is to present recommendations for heathland management that take account of both abundance and diversity of fodder plants and ants.

NOTES:

Introduction to the New Forest

Melin-Stubbs, J.

NOTES:

Ecology of the New Forest

Chatters, C.

NOTES:

Tuesday 20th August

18:30-19:00 EU Action Plan for European dry heaths by **C. Olmeda**

Invited Talks - Tuesday 20th

EU Action Plan for European dry heaths

Concha Olmeda

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Abstract

The Habitats Directive (92/43/EEC) protects different types of heathlands, including European dry heaths (4030), which are present in 25 countries and 7 biogeographical regions in the European Union.

They provide important ecosystems services including pollination, carbon storage, groundwater recharge and recreational values.

According to the last assessment done in the EU, European dry heaths are in unfavourable status in most of their distribution area and the main threats to this habitat include both undergrazing or overgrazing, vegetation succession, nitrogen deposition and eutrophication, afforestation, uncontrolled fire and fire suppression.

An EU action plan is in preparation with the contribution of scientific experts from all the countries where dry heaths occur. It will establish the necessary measures to achieve the following objectives: improving the area, structure and function and future prospects where these parameters are in unfavourable status, and ensuring ecological diversity and connectivity across the habitat range.

Conservation and restoration measures can involve establishing appropriate grazing regimes, controlled burning and suitable post fire management, restoring afforested areas, improving connectivity by restoring the habitat between isolated patches, and increasing awareness of the importance of this habitat among land managers, spatial planners and the general public.

NOTES:

Wednesday 21st August

09:00-10:00 Oral Session 3 chaired by **Joost Vogels**: Heathlands and visitors

10:30-12:00 Oral Session 3: Heathlands and visitors (cont)

21:00-21:30 Film/book evening: The Hidden World of the Strabrechtse Heide, **Jap Smits**

Scientific programme - S3

Session 3: Heathlands and visitors

09:00-09:15 Session 3.1
I.A. Diack, P.S. Jones & D. Spray
Natural dynamics and heathland management.

09:15-09:30 Session 3.2
J.A.H. Smits
Heather for golf courses - Design and recovery of golf courses using heath.

09:30-09:45 Session 3.3
C.C.F. Dictus
Crowded Flanders, too heated for heathland...?

09:45-10:00 Session 3.4
C. Panter & D Liley
Visitor patterns on southern heathlands in the UK: overview of recent findings and thoughts for future directions.

10:30-10:45 Session 3.5
L. Calvo, R. Tárrega, S. Suárez-Seoane, L. Valbuena, A. Taboada, E. Marcos
From wildfires to prescribed fires: resilience of heathlands under different fire regime parameters.

10:45-11:00 Session 3.6
A.C. Elliot
Prevention or Mitigation? Vegetation fires on heathland.

11:00-11:15 Session 3.7
J. Fagúndez, L. Lagos, C.V. Muñoz-Barcia, C. Blanco-Arias & C.R.A.
Wild ponies in mountain heathlands landscapes in the Xistral Mountains, NW Spain.

11:15-11:30 Session 3.8
A. Diaz, T. Branston, D. Brown, M. Brown, V. Brayford, J. Bone, K. Hodder, P. Gillingham, S. Lake, R. Stafford, A. Uzal, K. Winch.
Monitoring landscape-scale grazing by large mammals as a tool for enhancing heathland biodiversity.

11:30-11:45 Session 3.9
P.C. Attwell
The Urban Heaths Partnership – Dorset approach to mitigation of urban pressures.

11:45-12:00 Q&A


Please keep to the main tracks
If you have a dog, keep it close by - if necessary use a lead.
Between March and July rare birds nest on the ground in this area.
Disturbance to the birds will leave eggs and chicks vulnerable to predators.
Thank you

Heathland wetlands - valley mires in the UK

Diack, I.A., Jones, P.S., Spray, D.

Natural England

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Abstract

The UK supports some of the best and least damaged valley mires in western Europe, however, of all peatland types in the UK, valley mires are probably the least well known. Very often occurring now only in the wider context of heathland in both lowlands and uplands, they are generally supplied by acidic groundwater from surrounding rocks. The resulting vegetation is often Sphagnum dominated and 'bog-like', and supports many rare and declining species such as large marsh grasshopper, slender cotton-grass and great sundew. The transitions to drier habitats such as wet heath also provide niches for specialist species, as do transitions to less acid wetlands where groundwater from more base-rich strata emerges. Recent survey and research has revealed the presence of valley mires over a wider area than previously recognised, particularly into the uplands, and has also identified the various pressures that these wetland ecosystems are subject to. This presentation will consider the development of these systems within heathlands, their historical and current distributions, typical and rare species, current state and restoration underway and planned across the UK.

The three authors are the wetland leads for the statutory nature conservation bodies for England, Wales and Scotland.

NOTES:

Heather for golf courses - Design and recovery of golf courses using heath

Smits, J.A.H.

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Abstract

Dutch golf courses have agreed among themselves that golf courses in 2020 will be largely free of the use of pesticides. One of the solutions is to make the rough more natural, leaving more room for natural processes in which predators in the form of predatory insects find a living environment.

In order to achieve these goals, a special department of Staatsbosbeheer (State Forest Administration) was asked to provide management advice in the practical development, use and maintanance of heathland as 'the rough'.

At a special meeting I was asked to share my knowledge on heathland management. I advised to use inoculation material in the form of mown heather and/or chopped material from heather fields. The inoculation material we now use originates from heathland areas where it becomes available during regular heathland management or remedial measures within the "Programmatic Approach to Nitrogen" – management framework.

Mutual benefits are:

- Generating secondary financing for (heathland) nature management
- Initiate natural processes to promote biological pest control hence reducing insecticide use.
- Re-designing golf courses as ecological stepping stones in an otherwise intensively used landscape.

The presentation will focus on the procedure and on practical applications.

NOTES:

Crowded Flanders, too heated for heathland...?

Dictus, C.C.F.

Natuurpunt Beheer

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Abstract

Flanders is one of the most densely populated regions in the world. Is there still a future for sustainable heathland?

Natuurpunt, which is the largest private nature management organisation in Flanders, has several smaller and larger heathland reserves with high nature values protected on a European level.

The presentation will look at threats like urbanisation, eutrophication, habitat loss, deficient connectivity and recreational impact and their compatibility with a viable Natura 2000 network.

It will then focus on the largest Natura 2000 site in Flanders, protected under both habitat and bird directive, with its unique valley and heathland which is mainly situated on an a very active military domain.

What are the challenges of maintaining well preserved habitats and species in this environment with important internal and external pressures and how can they be dealt with? And is there still room and the prospect of a real future for returning larger animals...?

NOTES:

Visitor patterns on lowland heathlands in the UK: overview of recent findings and thoughts for future directions

Panter, C., Liley, D.

Footprint Ecology

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Abstract

Access to the countryside is important in the enrichment it brings for visitors, for example through physical benefits or mental well-being. Access is widely promoted through government policy and various organisations for these benefits, including nature conservation organisations. At many sites in the UK access levels are increasing and at some locations this can have negative consequences.

Footprint Ecology has undertaken visitor surveys for over 15 years across most of the main lowland heathland areas within the UK. We summarise these data, highlighting the variation in the levels of use and showing the range of recreational activities and typical access patterns on lowland heathland sites, including route and postcode data.

NOTES:

From wildfires to prescribed fires: resilience of heathlands under different fire regime parameters

Calvo, L., Tárrega, R., Suárez-Seoane, S., Valbuena, L., Taboada A., Marcos, E.

University of León, Spain

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Abstract

Fire is one of the most important disturbance processes in Europe and ecosystems responses differ markedly with respect to their ecological and evolutionary relationships with fire. Current predictions of global change effects include an increase in some of the fire regime parameters, such as severity and recurrence, which may reduce ecosystem resilience and alter the provision of public goods and services.

Fire-prone ecosystems, such as heathlands, are very susceptible to the effects of highly severe fires, and it is necessary to select the most effective post-fire management strategies to increase their resilience.

Prescribed fires in southern Europe are considered as a strategies to manage fire-prone vegetation types to increase their resilience, because have neutral or positive effects on soils and biodiversity, in contrast to wildfires.

Here we explore the use of prescribed fire to increase the resilience of heathlands in comparison to the effects of large wildfires. We studied heathlands subjected to low severity prescribed fires and heathlands that suffered a large wildfire in 2017 with different scenarios of burn severity. We study the changes in structural parameters of the community in order to identify their resilience.

NOTES:

Prevention or mitigation? Vegetation fires on heathland

Elliott, A.C.

WildfireTaC

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Abstract

This presentation will focus on the differences between prevention and mitigation and their benefits to heathland habitats.

As landscape custodians we need to be certain of the impacts of our actions, so for instance, is it always the best thing to suppress every vegetation fire? Is there such a thing as a 'good' fire? When should we fight fires and when should we manage fires? A string of questions that need to be considered before embarking on any habitat management in a fire prone landscape, particularly in close proximity to urban settlement or the Rural Urban Interface – RUI.

Europe is becoming more crowded and the UK perhaps more than most. This will inevitably place greater pressure on our wilder habitats, including heathlands. Access to open spaces is undoubtedly good for the well-being of people, but it is a mixed blessing for our open habitats.

More people mean that problems, including fires, are spotted more quickly, but some of those people will certainly have mischief on their minds. This is particularly true of the RUI where heathlands are often alongside some of our most affluent and most deprived communities.

NOTES:

Wild ponies in mountain heathlands landscapes in the Xistral Mountains, NW Spain

Fagundez, J., Lagos, L., Muñoz-Barcia, C.V., Blanco-Arias, C., Diaz-Varela, R.A.

University of A Coruña

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Abstract

The role of large herbivores as transformers of vegetation structure in open landscapes is only partly understood. Herbivores such as wild ponies can shape the structure and diversity of the vegetation community, but also perform selectively on a landscape scale over different vegetation types, when the available ranging area increases.

As one of the actions of the LIFE Project “Life in Common Land”, we study the impact of wild ponies in blanket bogs and wet heaths, two priority habitats frequent in the “Serra do Xistral” Natura 2000 site in Galicia, NW Spain.

We tracked the movements of 28 mares, which are members of different bands, using GPS radiocollars during a six-month period. We used bands as the study unit defined by one or more collars; size of the band was assessed by monthly field visits.

The bands are loyal to their home ranges but overlap at different degrees. They occupy mean home ranges of over 200 ha, in areas dominated by heaths and bogs, avoiding pine plantations.

We will present update results on band performance and seasonality, habitat preference and the role of management. The influence of wild ponies in the quality of the habitats will be outlined.

NOTES:

Monitoring landscape-scale grazing by large mammals as a tool for enhancing heathland biodiversity

Diaz, A., Branston, T., Brown, D., Brown, M., Brayford, V., Bone, J., Hodder, K., Gillingham, P., Lake, S., Stafford, R., Uzal, A., Winch, K.

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Abstract

Domestic grazing stock , together with wild grazers such as deer can, in principle, be managed to produce a range of sward heights and compositions which can enhance heathland biodiversity through providing structural diversity. However, in practice it is often difficult and expensive to control localised grazing intensities in isolated sites sufficiently well so as to produce optimum habitats.

One solution may be to link nature reserves into integrated landscape-scale grazing units that also incorporate wild mammal herbivores in a more naturalistic grazing system. This leads to a new challenge of how to monitor the effectiveness of such approaches for producing a suitable range of grazing intensities that consequently support a range biodiversity.

Here we describe how long term research collaborations between Bournemouth University and the National Trust and RSPB are addressing the following questions within the Purbeck Heaths:

1. What use are large grazers currently making of the Purbeck Heath network, why is this and how might this be predicted to change?

2. What plant species communities and habitat structures currently occur across the Purbeck Heaths and how do these change in response to grazing?

3. What other manangement factors need to be considered and how can these be intergrated and monitored in more naturalistic grazing systems?

NOTES:

The Urban Heaths Partnership – Dorset approach to mitigation of urban pressures

Attwell, P.C.

Urban Heaths Partnership

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Abstract

The Urban Heaths Partnership (UHP) was formed in 2001 and delivers heathland mitigation on behalf of its 14 partners. Mitigation is funded through The Dorset Heathlands Planning Framework 2015-2020 Supplementary Planning Document adopted by the Local Planning Authorities.

Contributions are taken from residential development between 400 metres and 5 kilometres of a heathland site, this will be either financial or for larger developments will be a designated area of Suitable Alternative Natural Greenspace (SANG) along with funding to develop and maintain the site for eighty years.

The partnership delivers Strategic Access Management and Monitoring (SAMM), through a small team of staff employed on behalf of the partnership. The team co-ordinates mitigation, delivers an education programme, monitoring programme and “Dorset Dogs” project, which works to promote positive access management for dogs and responsible ownership and behaviour.

The wardening element of SAMM providing extra presence on site is delivered by the Local Planning Authority partners, also funded from developer contribution along with Heathland Infrastructure Projects (HIPs) which include development of SANGs.

NOTES:

Friday 23rd August

09:00-12:00 Heathland monitoring and new technologies

Session 4: Heathland monitoring and new technologies

09:00-09:15 Session 4.1
I. Alonso, G. Picton-Phillipps & D. Heaver
Exploring wide-spectrum drone use on heathland ecosystems

09:15-09:30 Session 4.2
W. Oxford & J. Caudery
Open Source Data and Remote Sensing to Support Heather Moorland Management

09:30-09:45 Session 4.3
G. Sterckx
Heathland restoration in Flanders: experiences of a public service in nature conservation

09:45-10:00 Session 4.4
R.A. Díaz-Varela, C.A. Blanco-Arias, E.R. Díaz-Varela, C.V. Muñoz-Barcia, L. Lagos & J. Fagúndez
A remote sensing multiscale characterization of wet heathland and bog mosaics in Serra do Xistral (NW Spain)

10:30-10:45 Session 4.5
J. Schellenberg
Does Calluna vulgaris vitality suffer from subcontinental weather events?

10:45-11:00 Session 4.6
C.D. Damgaard
Using empirical models for setting up local adaptive management plans: Wet heathlands

11:00-11:15 Session 4.7
Lake & C. Kelly
Working across site boundaries to save vulnerable heathland species in Dorset's Heathland Heart

11:15-11:30 Session 4.8
K. Nagels, P De Becker & C. Herr
Restoration of Nardus grasslands on the military area Kamp Beverlo

11:30-11:45 Q&A

Exploring the application of very high spatial resolution thermal and multispectral imagery on heathland ecosystems

Alonso, I., Picton-Phillipps, G., Heaver, D.

Natural England

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Abstract

Recent years have seen an increasing use of Unmanned Autonomous Vehicles (UAV), using different cameras, lenses and sensors, in ecological research and monitoring. We wanted to explore the use of thermal and multispectral UAV-mounted sensors to detect structural diversity in heathlands because characteristic and rare species associated with this habitat require a diverse structure to thrive.

A multi-disciplinary team of specialists worked together from the selection of sites and stands to the ground truthing and image analysis. An area of Cannock Chase (Midlands, UK) was flown with both a thermal (morning and afternoon) and multispectral camera (midday). We marked 12 plots (6 m diameter) on the ground, selected to represent various heather growth stages and/or dominance of some plant species. Vegetation structure and “surfaces” of value to invertebrates were measured.

Early results indicate that the thermal imagery has potential to identify variation in vegetation structure within the heathland, and that the approach may be refined to provide additional information to that of the multispectral camera. The work also revealed that there are a number of factors that need to be accounted for when collecting thermal data, such as the time of flight, cloud conditions and topography, all of which may influence the thermal data to varying degrees.

NOTES:

Open source data and remote sensing to support heather moorland management

Oxford, W., Caudery, J.

2Excel geo Ltd

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Abstract

Muirburn (rotational burning) is a large part of heather management. Muirburn promotes heterogeneity in heather age and structure, providing habitat and grazing for wildlife.

However, due to the risk of damage to other fauna, flora and soils, burning is strictly legislated and guidance is provided through The Muirburn Code (the Code). Land owners must demonstrate adherence to the Code or risk prosecution. The Code details criteria for regions that cannot be burnt, addressing parameters for many environmental, ecological, geographic and anthropogenic features.

2Excel geo will demonstrate the derivation and integration of geospatial and remotely sensed data to address the Code's criteria for a region in Scotland. Applying advanced machine learning techniques to airborne hyperspectral imagery collected by 2Excel, features such as bracken, trees, heather (including an age estimation) and water bodies, are mapped. Combining this with open source datasets and consultation with landowners, results in a product which may be used to support land owners in muirburn management and planning.

This approach has also been applied to other environmental problems such as tree species and tree health mapping. These additional topics and future direction will be briefly summarised.

NOTES:

Heathland restoration in Flanders: experiences of a public service in nature conservation

Sterckx, G.

Agency for Nature And Forest

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Abstract

In 2009 The Flemish governement made up Conservation Goals for Natura 2000-Habitats en Species. In order to achieve a good conservation status, the area of several heathland habitats needs to increase and the quality should be enhanced.

For some critical heathland species, the governement made up special species protection plans, for instance for Coronella austriaca and Hipparchia semele. Between 2014 and 2017 ANB made a number management plans for public nature areas.

We will discuss some elements ranging from small scale heathland restoration in Zoniën forest, the creation of ecological corridors for Coronella austriaca in the forest of Postel and restoration of a complete heathland landscape in the Teut-Tenhaagdoornheide.

So we have a lot of good plans and ambition. But the realization of these goals is not a one day trip. Heathland restoration is expensive, but more important, it often requires deforestations in a very crowded semi-urban area. We will discuss the results and cost calculation of heathland habitats on a Flemish level and the challenges for the approval of the management plans.

NOTES:

A remote sensing multiscale characterization of wet heathland and bog mosaics in Serra Do Xistral (NW Spain)

Díaz-Varela, R.A., Blanco-Arias, C.A., Díaz-Varela, E.R., Muñoz-Barcia, C.V., Lagos, L., Fagúndez, J.

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Abstract

Conservation and management of atlantic wet heathlands and bog mosaics with high biodiversity value require detailed spatially-explicit knowledge of key variables as their extent, species composition, structure, spatial patterns and ecosystem processes.

In this context, the integration of remote sensing data at different resolutions with information on vegetation 3D structure and spectral response, might play a major role in the characterization and monitoring of the complex spatial and temporal dynamics of these habitats over large areas.

In the framework of the EU project “Life in Common Land” (LIFE16 NAT/ES/000707) we present a multi-scale and multi-temporal characterization of wet heathland and bogs in the Natura 2000 site “Serra do Xistral” (NW Spain).

Analyses were based on remote sensing multispectral and 3D data, ranging from metric (Sentinel and LiDAR) to centimetric resolutions (RGB orthomosaics acquired by manned aircrafts and RGB/multispectral orthomosaics and point clouds acquired by Remotely Piloted Aircraft Systems).

Results allowed the identification of a good conservation status in around the 80% of the 4700 ha covered by Natura 2000 priority habitats bogs and wet heaths (4020*, 7110* and 7130*) spanning different environmental and use-intensity gradients, along with the location of several management issues in a spatially explicit way.

NOTES:

Does Calluna vulgaris vitality suffer from subcontinental weather events?

Schellenberg, J.

University of Göttingen

jenny.schellenberg@biologie.uni-goettingen.de

Abstract

Calluna vulgaris, the key species of North-German Lowland heathland, is assumed to suffer from subcontinental weather events, such like droughts or unfavourable conditions of relative humidity and water supply.

Its main distribution areal is the atlantic to subatlantic coast and inland, with moderate temperature amplitudes and evenly spreaded water supply over the whole year.

These conditions were not more met in wide ranges of Eastern – Southeastern German Lowland heathlands, where subcontinental climate causes higher frequencies of drought events and higher temperature amplitudes.

In our current study, we test influences of several drought, temperatures and mixed influences on Calluna vulgaris vitality parameters (e.g. inflorescence length, flower density, annual growth, seedling establishment).

The talk focuses on results and implications for future heathland management of subcontinental Lowland heathlands in Germany.

NOTES:

Using empirical models for setting up local adaptive management plans: Wet heathlands

Damgaard, C.D.

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Abstract

The importance of different abiotic and biotic drivers on wet heathland vegetation was modelled using a spatio-temporal structural equation model in a hierarchical Bayesian framework. It is demonstrated how such an empirical model may be used to set-up local adaptive management plans.

The model was fitted using ecological data from 39 Danish sites, each with several wet heathland plots. The data were sampled in the period 2007 to 2014. Including resampling over the years, 1322 plots were sampled.

Plant cover was measured using the pin-point method and the joint distribution of the key plant species in the wet heathland ecosystem, Erica tetralix, Calluna vulgaris, Molinia caerulea, and an aggregate class of other higher plants was estimated assuming a Dirichlet-multinomial mixture distribution.

The investigated drivers of wet heathland vegetation include nitrogen deposition, soil type, pH, precipitation and grazing. The study demonstrated that important insight of ecosystem dynamics and regulation can be obtained by spatial and temporal structural equation modelling in a hierarchical Bayesian framework and that the proper statistical modelling of the joint species abundance is a key feature of such models.

Furthermore, the advantages of partitioning different types of uncertainties become clear when the fitted structural equation model is used for predictive purposes at a specific site.

NOTES:

Working across site boundaries to save vulnerable heathland species in Dorset's Heathland Heart

Lake, S., Kelly, C.

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Abstract

Back from the Brink (BFTB) is a national initiative that aims to bring vulnerable species back from the brink of extinction through working in partnership across sites and taxa.

Here in Dorset, the 3-year Dorset's Heathland Heart BFBT project is engaging with seven partners on 13 sites to create the "microhabitats" required by 19 specific plants, invertebrates and reptiles, all species that are reliant on the disturbed conditions once created by traditional subsistence lifestyles in heathland landscapes.

Here, we describe some of the unusual mechanical techniques we are using to expose clay, sand and peat substrates on wet and dry heaths and how we are tailoring this for species such as the Marsh Clubmoss Lycopodiella inundata, Yellow Centaury Cicendia filiformis, Purbeck Mason Wasp Pseudepipona herrichii, Heath Tiger Beetle Cicindela sylvatica and Sand Lizard Lacerta agilis.

We will look at initial species responses to the interventions, which include over 100 scrapes, 1.5 km of rutted tracks, pond re-profiling and tree tipping in addition to standard heathland management such as prescribed burning, mowing and scrub and tree clearance.

BFTB also aims to "inspire a nation" about the species and their habitats, and we outline how our project is contributing through volunteer monitoring at a landscape level, which is both engaging local people and providing essential data to inform site management.

NOTES:

Restoration of Nardus grasslands on the military area Kamp Beverlo

Nagels, K., De Becker, P., Herr, C.

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Abstract

The military camp Beverlo is a Natura 2000 site. The site is not only important for heathlands, but also for Nardus grasslands.

In the Natura 2000 management plan, the aim for heathlands is to restore 700 ha adding to the 3,100 ha current heathland extent. For Nardus grasslands, we expect to restore 40 ha adding to the current 120 ha Nardus grassland extent.

We investigated the abiotic criteria and the landscape position of the actual grasslands and potential places for restoration. We made a protocol for field research on the abiotic criteria, to optimize the soil sampling.

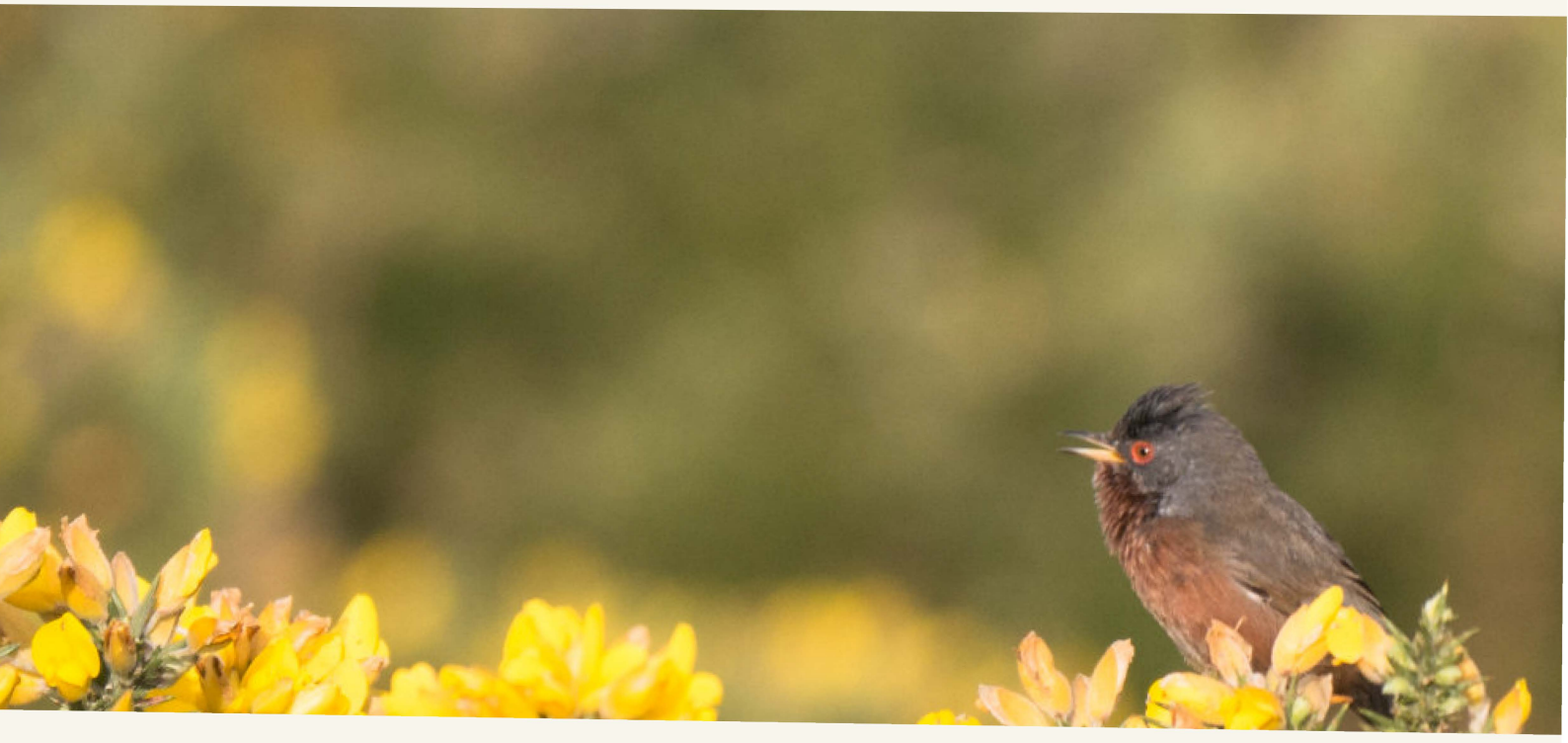
With the results of the investigation we organized two workshops with the local managers to choose the measures for restoration on good potential locations. It seemed that the abiotic difference between heathland and Nardus grasslands is very small and that management (such as mowing) is an important factor.

NOTES:

Posters Programme

Monday 19th August

16:45-17:45 Poster Session chaired by **Leonor Calvo**



Posters programme - Monday 19th

Posters Programme - 16:15 to 17:00

Poster 1
J. Kowal, M.I. Bidartondo, K. Field, G. Hoysted, J. Duckett, S. Pressel
Above and Below: Vegetation Ecology on Heathlands.

Poster 2
L. Death
Back from the Brink – Dorset's Heathland Heart and the Ladybird Spider projects.

Poster 3
R.M. Buttenschøn
Deer grazing at heathlands.

Poster 4
N. Hutchinson
Restoring heathland at the macro and micro scale, a view from Plantlife.

Poster 5
K. Winch
The value of different habitat types within a heathland landscape mosaic at different spatial scales for hoverflies (Diptera, Syrphidae).

Poster 6
J. Jasińska & P. Sewerniak
Effect of slope aspect on characteristics of litterfall in dune heathlands of the Toruń Basin (N Poland).

Poster 7
J.R. Cox & C.E. Bealey
Bracken's place in the heathland landscape – the composition, extent and management of bracken dominated vegetation in the New Forest.

Poster 8
Phalp, L., Brayford, V., Harris, L., Inglebright, Z., Khanom Ali, H., Parasiliti, M., Tolley, A., Lake, S., Stone, D., Brown, D., Diaz, A.
The Purbeck Student Environment Research Team (SERT) - A partnership for monitoring conservation management of the upcoming Purbeck Heaths National Nature Reserve.

Poster 1 - Monday 19th

Above and below: Vegetation ecology on heathlands

Kowal, J., Bidartondo, M.I., Field, K., Hoysted, G., Duckett, J., Pressel, S.

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Abstract

Heathlands are crucial protected UK habitats supporting endemic flora and fauna. Heathland soils are acidic and mainly comprise sand and peat, fluctuating between extreme dry and wet. In order to access soil nutrients, vascular plant roots and bryophyte rhizoids form mutualistic symbioses with fungi wherein the fungi transfer nutrients to, and receive photosynthates from, their host plants. We have been studying fungal symbionts present in two heathland plants - a non-vascular leafy liverwort (Cephalozia bicuspidata) and a rare lycophyte (Lycopodiella inundata) - to promote a better understanding of heathland vegetation ecology with the aim of improving restoration and conservation. Through a multidisciplinary approach, combining molecular identification, cytology, in vitro cultivation, and radio- and stable-isotope tracer techniques, we show that both plants form nutritional mutualisms with distinct fungi. Cephalozia bicuspidata associate with Pezoloma ericae (Ascomycota) and Lycopodiella inundata gametophytes and sporophyte roots associate with Endogonales (Mucoromycotina), despite numerous other potentially mycorrhizal fungi occurring in adjacent vegetation. As neighbouring Ericaceous plants also associate with P. ericae, we show a potentially practical application of colonized liverworts as an 'ecological fertilizer' to promote re-establishment of ericaceous plants. Thus, with this work we:

- Generate knowledge of the Lycopodiella-Mucoromycotina symbiosis, providing new insights for conservation and population restoration efforts of this rare plant.
- Broaden understanding of belowground ecological dynamics which are crucial to both plant community-wide and single species conservation/restoration efforts.
- Provide a novel practical technique for use in heathland restoration.

NOTES:

Poster 2 - Monday 19th

Back from the Brink – Dorset's Heathland Heart and the Ladybird Spider projects

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Abstract

Back from the Brink (BFTB) is one of the most ambitious conservation projects ever undertaken. It is the first time that so many conservation organisations have come together with one focus – to bring back from the brink of extinction some of England's most threatened animals, plants and fungi. Our aim is to save 20 species from extinction and benefit over 200 more.

Dorset is home to two of the 19 BFTB projects that span England – the Dorset's Heathland Heart project, led by Plantlife and the Ladybird Spider project, led by Buglife. Dorset's Heathland Heart aims to restore and expand eight types of microhabitat while increasing landowners understanding of the species they support. It also has a tiered outreach programme to allow local people to engage with the heathlands on their doorstep and to become species champions.

For over 70 years, the Ladybird Spider was thought to be extinct in Britain, until it was rediscovered on a heath in Dorset in 1980. Conservation work means that there are now 14 populations and nearly 1,000 individuals, but it is still very vulnerable. Through reintroductions, we aim to increase this to 20 sustainable populations that can naturally grow and expand.

We are also creating new opportunities to learn more about spiders at RSPB Arne nature reserve in Dorset, which will be visited on the Purbeck Field Visit.

NOTES:

Poster 3 - Monday 19th

Deer grazing at heathlands

Buttenschøn, R.M.

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Abstract

Part of the Danish heaths is maintained as open heathland by deer grazing, but there is very little scientific documentation of the long term effect at species composition and vegetation structure. The effect is largely influenced by grazing pressure, but deer density is difficult to assess.

We are investigating impact of deer grazing at several heathlands in Denmark as partner in “Natural dynamic I heathland management – self-sustaining nature management” a joint project between IGN, Copenhagen University and Aarhus University.

A combination of methods are used to asses density of deer in relation to vegetation structure and composition including use of GPS neckless, cameras, drones and LiDAR data. Low-tech methods include pellet group counting and cutting of vegetation in grazed and ungrazed sites to estimate the quantity and species composition of biomass are used in Hanstholm nature reserve without public access in Thy National Park and at Ovstrup Heath.

NOTES:

Poster 4 - Monday 19th

Restoring heathland at the macro and micro scale, a view from Plantlife

Hutchinson, N.

Plantlife

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Abstract

Britain's heathlands are globally important and one of the richest habitats in the UK. Despite historic declines, recent efforts have failed to restore heathland sites at rate necessary to reverse declines in some of our most threatened plant species.

The public forest estate provides a key opportunity for meeting the Government's stated ambition for nature's recovery and restoration ecology needs to be applied as sites come up for commercial conifer cropping. UK experience demonstrates that restoration of ancient heathland sites following conifer plantation cropping is one of the most cost effective and impactful approach to restoring open heathland habitats which can support rare and threatened plant species.

Plantlife is leading a call for combined efforts at the macro and micro scale for heathland conservation. At the macro scale we are calling for a large scale approach to heathland restoration on the public forest estate, and at the micro scale we are promoting an evidence-based approach to establishing diversity within heathland habitats to maximise ecological opportunity for a range of plants and invertebrates.

NOTES:

Poster 5 - Monday 19th

The value of different habitat types within a heathland landscape mosaic at different spatial scales for hoverflies (Diptera, Syrphidae).

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Abstract

Declines in pollinators and their ecosystem services have been attributed to drivers operating at landscape scales. Hoverflies provide ecosystem services as adults and larvae through pollination, waste decomposition and pest control. Resources for hoverflies are well studied across agricultural landscapes for this reason; however, comparatively, heathlands remain largely unstudied.

5 plots each of five different habitats were identified across a site. Observations were used within plots to determine hoverfly abundance and richness. Habitat characteristics were measured within each plot and the surrounding 50 m2 patch, and habitat percentage cover measured at the landscape scale.

At the plot and patch scale, hoverfly abundance and richness were highest in acid grassland and woodland edge habitats. Abundance was influenced by floral cover, floral richness and bare ground cover, while richness was influenced by floral richness alone.

At the landscape scale, increases in deciduous woodland cover increased hoverfly abundance, while increases in wet heath cover decreased hoverfly abundance.

Management of hoverflies must be implemented at multiple scales. At local scales hoverflies were influenced by adult resources, whereas at the landscape scale they were influenced by larval resources. Acid grassland and woodland habitats provide florally diverse habitats for hoverflies, and further woodland provide microhabitats for larvae.

NOTES:

Effect of slope aspect on characteristics of litterfall in dune heathlands of the Toruń Basin (N Poland)

Jasińska, J., Sewerniak, P.

Nicolaus Copernicus University in Toruń, Poland, Department of Soil Science and Landscape Management

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Abstract

The study was conducted on inland dunes in the Toruń Basin (N Poland) with regard to opposite slope aspects (north- vs. south-facing).

Since deforestation, which occurred some decades ago, the investigated area has been excluded from forest management, thus vegetation has developed by natural secondary succession. In this process; however, the clear topographically-induced pattern of vegetation occurs: north-facing slopes are overgrown with heather (Calluna vulgaris) mainly, while in ground vascular flora of south-facing slopes grasses distinctly predominate.

We investigated in 3-year study the mass and chemical composition (C, N, P, K, Mg, Mn, Ca, Fe, Al) of litterfall collected in subplots situated on slopes of a representative latitudinally located dune. Besides, we used main component of litterfall being specific for a slope aspect (heather stalks for north-, grass blades for south-facing exposure) for litter decomposition study. The materials were placed in the middle part of the slopes, and subsequently collected every 6 months for laboratory analyses.

We found clear differences in mass and chemical composition between litterfall collected from both slopes, which subsequently have involved differences in rate of its decomposition. Thus, slope aspect was revealed as a crucial agent, which, by its primeval effect on site conditions, influenced functioning of heathlands on inland dunes.

This study was supported by the Ministry of Science and Higher Education, Republic of Poland (grant number N N305 304840).

NOTES:

Poster 7 - Monday 19th

Bracken's place in the heathland landscape – the composition, extent and management of bracken dominated vegetation in the New Forest

Cox, J.R., Bealey, C.E.

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Abstract

We present the results of a survey of bracken Pteridium aquilinum dominated vegetation in the open (grazed) New Forest.

Survey data were used to develop a unique classification of bracken dominated vegetation comprising 11 distinct communities. The extent of these was mapped across the New Forest and recommendations made for their future management.

A five year programme of bracken management and monitoring was initiated in 2015 to test the effectiveness of seven bracken management treatments comprising combinations of cutting, burning, scarifying and herbicide spraying applied to two common bracken vegetation types. We provide interim results of the project in advance of the final years monitoring in 2019.

Whereas Bracken is frequently considered an undesirable or negative species requiring control or even extermination, we conclude that it is an historic and intrinsic component of the heathland landscape requiring appropriate management.

NOTES:

Poster 8 - Monday 19th

The Purbeck Student Environment Research Team (SERT) - A partnership for monitoring conservation management of the upcoming Purbeck Heaths National Nature Reserve.

Phalp, L., Brayford, V., Harris, L., Inglebright, Z., Khanom Ali, H., Parasiliti, M., Tolley, A., Lake, S., Stone, D., Brown, D., Diaz, A.

Bournemouth Univeristy

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Abstract

The creation of a new landscape scale Purbeck Heaths NNR brings an exciting opportunity for developing new cross-organisation collaborations that fuse strong feedback loops between management interventions, impact monitoring and results being used to inform future management interventions. Here we summarise the results from this year's collaboration of Bournemouth University's Purbeck SERT with the National Trust, RSPB and Back from the Brink. The SERT addressed four questions:

1. What effect are current grazing levels having on the plant community composition and vegetation structure of dry and wet heaths?

2. What has been the initial impact of wet scrapes habitat creation on colonisation by rarer plants such as Marsh Clubmoss Lycopodiella inundata?

3. Has the recent creation of dry scrapes provided new sites for the rare Purbeck Mason Wasp Pseudepipona herrichii?

4. Does a new technique of creating bare ground patches by toppling excess trees over at their roots appear to provide useful new invertebrate habitat?

Initial results indicate that:

1. Current grazing levels are providing some useful heterogeneity but need to be increased in many areas and/or augmented with other ways of creating early successional habitats.

2. Wet scrapes are already proving habitat for species such as Round Leaved Sundew Drosera rotundifolia. Deep scrapes are likely to give better long-term results.

3. Dry scrapes are already being successfully used by Purbeck Mason Wasps.

4. The patches created by toppled trees are extensively hunted over by Wood Ants Formica rufa which may limit their suitability for other invertebrates.

NOTES: