



PlantNetwork

Connecting gardens, sharing skills

Training Day

The restoration and integration of natural habitats in a
designed landscape

26th June 2018

Wakehurst Place

@plantnetwork

#discoverhabitats

Programme

9.30	Registration with tea and coffee	
10.00	Welcome and introductions	
10.20	Designing with nature	Iain Parkinson, Living Collections and Conservation Manager, Wakehurst Place
11.00	Managing the wild in the garden , 10 Scottish plant communities in Dundee Botanic Garden	Claire Reaney, Horticultural Technician, Dundee Botanic Garden
11.40	Discussion, questions and plans	
12.30	Lunch in café	
13.30	Tour and discussion to include Wakehurst's meadows. Wetlands, SSSI natural habitats and flora, viewing the restored meadows in Bloomers Valley, Coronation Meadow, wetlands area and recently restored lake and ending with the SSSI.	
16.30	Close	

All presentations from our training and conferences are shared through our website. www.plantnetwork.org. Our website search facility also allows you to find previous newsletter articles, presentations and downloads.

Facilitator Biographies

Iain Parkinson, Conservation and Woodlands Manager, Wakehurst Place

Iain Parkinson is the Living Collections and Conservation Manager and works in the Landscape and Horticulture Teams at Wakehurst, Kew's wild botanic garden. Over the past 32 years he has been involved in restoring Wakehurst's natural and designed landscapes following the Great Storm in 1987. He has a particular interest in meadow restoration and is currently Chair of the Weald Meadows Group.

Iain is currently seconded to the High Weald Area of Outstanding Natural Beauty Unit for two days a week with a focus on land management advice. At Wakehurst he manages the Conservation, Gardens and Horticulture operation teams.

Clare Reaney, Horticultural technician University of Dundee Botanic Garden

Clare specialises in native plant conservation at Dundee Botanic Garden, and also maintains plant records. She is currently working on micropropagation of *Vaccinium microcarpon* to improve seed set in geographically remote clones .

Wakehurst Place meadows blog:

<https://www.kew.org/blogs/wakehurst/preserving-britains-meadows>

Native plant project at the University of Dundee Botanic garden

The article appeared in SIBBALDIA: 175 '*The Journal of Botanic Garden Horticulture*' No. 11

Abstract: The University of Dundee Botanic Garden with regard to their native plants area and Target 8 of the Global Strategy for Plant Conservation since 2009. Propagation, micropropagation and growing techniques for ten native plant species are summarised and the successes and failures of these are discussed. The work demonstrates what can be achieved with even just a small amount of financial support.

The article presents a summary of the work carried out as a result of funding totalling £18,000 received for a project to conserve Scottish native plants which was titled 'From Ben Lawers to the sea'. Funding came from a number of sources including the Friends of the University of Dundee Botanic Garden (UDBG), the Gannochy Trust and the Grant Trust. The project was designed to assist in the conservation of endangered plant species native to the upland Glens of Angus (Scottish Natural Heritage, no date) and the coastal areas of Tayside (Lloyd et al., 2002). The work has enabled us to enhance the native plants area with the creation of specialist habitats for rare and endangered species and by devising propagation techniques and

growth and nutrition protocols for other selected species. As a result, these species can now be successfully propagated and planted out into the native plants area in the UDBG, but, and more importantly, hopefully also planted back into the wild in the future. This project runs in parallel with the refurbishment of the native plants area of the garden which was established in 1974.

<https://journals.rbge.org.uk/index.php/rbgesib/article/download/59/67>

Millennium Seed Bank Technical Information Sheets

A collection of technical information sheets produced by Millennium Seed Bank staff, covering various aspects of seed conservation practices and facilities. These are aimed at practitioners already working in seed conservation, although they are also used as resource materials in our training courses with university groups and to provide detailed information to visitors of the seed bank. The following sheets are available:

1. Protocol for comparative seed longevity testing
2. Assessing a population for seed collection
3. Seed collecting techniques
4. Post-harvest handling of seed collections

5. Measuring seed moisture status using a hygrometer
6. Selecting containers for long-term seed storage
7. Low cost monitors of seed moisture status
8. Small-scale seed drying methods
9. Equilibrating seeds to specific moisture levels
10. Identifying desiccation-sensitive seeds
11. Seed bank design - seed drying rooms
12. Seed bank design - cold rooms for seed storage
13. Not yet published
14. Cleaning seed collections for long-term conservation

<http://www.kew.org/science-conservation/research-data/resources/millennium-seed-bank-resources>

Kew's UK Native Seed Hub

The UK Native Seed Hub aims to enhance the resilience and coherence of the UK's ecological network by increasing the

quality, quantity and diversity of native wild flower plants and seeds available for conservation and habitat restoration.

We do this by:

- providing high quality UK native plant material for conservation and habitat restoration
- supporting UK native seed and plant producers, conservationists and others through the provision of training, technical advice and research
- building awareness and demand for best practice habitat restoration and conservation using high quality UK native plant materials

<http://www.kew.org/business-centre/welcome-uk-native-seed>

Coronation Meadows

In 2012, Plantlife published *Our Vanishing Flora*, a report highlighting the loss of wild flowers from individual counties across Great Britain since the Coronation. In his foreword for the report, Plantlife's Patron, HRH The Prince of Wales called for the creation of new wild flower meadows, at least one in every county, to celebrate the 60th anniversary of the Coronation.

The Coronation Meadows Project, led by Plantlife and in partnership with The Wildlife Trusts and the Rare Breeds Survival Trust, is working to achieve this goal by:

i) Celebrating our surviving meadows - identifying a flagship Coronation Meadow in each county in Britain. These “jewels in the crown” are places where people can enjoy a riot of colour and an abundance of wildlife in settings that have remained largely unchanged since the Coronation.

ii) Creating new meadows at ‘recipient’ sites in the same county, using the Coronation Meadows as source or 'donor' meadows to provide seed. In this way, new Coronation Meadows will be created, increasing the area of this valuable habitat, providing new homes for bees, butterflies and other pollinators and helping to secure our wild flower heritage for the next 60 years and beyond.

iii) Encouraging people to discover meadows local to them; to visit and enjoy them, celebrate their beauty, recognise their importance and to get involved with their conservation. The project will work with a wide range of partners, land owners and managers, conservation organisations and volunteer groups.

Coronation Meadows are outstanding examples of our remaining meadows, rich in a wealth of flowers and able to be held up as the flagship meadow for the county. They will typically be semi-natural grasslands resulting from natural regeneration, managed with low-key and traditional methods and full of local character and identity. The meadows are selected by the project

technical group having been assessed and verified against the project criteria.

Recipient Meadows are specially selected grassland sites located in the same county as the donor Coronation meadow from which they will receive seed. They are selected by the project technical group and verified against agreed criteria to ensure that they are suitably representative of the habitat type, conditions and geographical area exhibited by the donor meadow in order that they stand the best chance of thriving and are conserved for the future through sympathetic management.

Peoples Meadows are suggested by members of the public as their favourite places to see meadow wild flowers. They encompass a range of sites; many with public access, some historic and others modern. Whilst the submissions are not verified against the criteria of this project they remain valuable places for people to enjoy our wonderful flora.

The Coronation websites include downloadable wild flower identification resources. <http://coronationmeadows.org.uk/>



Meadows and other species-rich grasslands are an intrinsic part of the UK's natural and cultural heritage - rich in landscape character, farming, folklore and history, they are as much a part of our heritage as the works of Shakespeare.

The UK's remaining species-rich grasslands now cover a minute fraction of the area they once covered, even relatively recently in the early 20th Century. There were once natural wildflower meadows in every parish – today only 2% of the meadows that existed in the 1930's remain. Nearly 7.5 million acres of wildflower meadow have been lost so far and they are still being destroyed. Of those that do survive, around 75% occur in small fragments and remain vulnerable to destruction.

Meadows and species-rich grasslands can support a huge range of wildlife including wildflowers, fungi, bees, flies, beetles, spiders, moths, butterflies, reptiles, amphibians, small mammals, bats and birds. In the UK, more priority species (for conservation attention) are associated with grasslands than with any other habitat type. Only 1% of the UK's land area now supports species-rich grassland and only 2% of the UK's grasslands are species-rich. Species-rich grasslands also provide other environmental benefits including carbon storage, water retention to prevent flooding and habitat for crop pollinators, they are also archaeologically important.

Culturally speaking grasslands have a long history of inspiring artists and writers such as Constable and Shakespeare, they are

the landscape setting for many of our most important historical battles, village greens have long been the hub of rural community life, and many a common day phrase take their origin from grasslands..."off to pastures new" and "chalk and cheese".

The decline and loss of meadows and species-rich grasslands is without parallel in the history of nature conservation in the UK. What had been a widespread and ubiquitous part of agriculture and people's daily lives, disappeared altogether in the space of a single generation. Six million acres of grassland was ploughed to grow cereals during the Second World War and this started a process which would see the area of lowland meadows decline by 97% in the following 40 years. Other species-rich grasslands met a similar, albeit marginally less catastrophic, fate.

Save Our Magnificent Meadows will help address the current absence of public awareness of the importance and plight of meadows and species-rich grasslands.

Save Our Magnificent Meadows is the UK's largest partnership project transforming the fortunes of vanishing wildflower meadows, grasslands and wildlife.

- Targeting just under 6,000 hectares of wildflower meadows and grasslands in nine strategic landscapes across the UK
- Giving people all over the UK the chance to visit, enjoy and learn about our wildflower meadows and grasslands
- Raising awareness of the desperate plight of wildflower meadows and grasslands and equipping communities with the knowledge and skills to reverse this devastating trend.

Led by Plantlife, the partnership is made up of 11 organisations and is primarily funded by the Heritage Lottery Fund.

There are four common methods of restoring or recreating a wildflower meadow:

- natural regeneration - best if the area you wish to restore is adjacent to a species-rich grassland
- using green hay - best if sites lie within close proximity (within an hour's drive)
- using brush-harvested seed - is best if it is available and from a local site
- using a wildflower mix - good in situations where none of the others are available or wildflowers tolerant of higher nutrient levels are required.

Try to keep the wild in wildflower by making sure that whichever seed source used is as local to the site as possible. Management is the key to successfully establishing and maintaining a wildflower meadow and long-term planning should always be undertaken before any seed is introduced.

The Magnificent Meadows website includes resources and guidance notes, including:

- What type of meadow do I have?
- How can I manage my meadow?
- Is my land suitable for restoring or creating a meadow?
- How can I restore or create a meadow?
- How can I fund my meadow restoration?
- How can I protect a meadow?
- Technical information for advisers

www.magnificentmeadows.org.uk

The Global Strategy for Plant Conservation

GSPC - A Plan to Save the World's Plant Species - grew out of the Convention on Biological Diversity and is being fed into government policy around the world.

The GSPC highlights the importance of plants and the ecosystem services they provide for all life on earth, and aims to ensure their conservation

The vision of the GSPC is:

"Without plants, there is no life. The functioning of the planet, and our survival, depends on plants. The Strategy seeks to halt the continuing loss of plant diversity."

The mission of the GSPC is:

"The Global Strategy for Plant Conservation is a catalyst for working together at all levels - local, national, regional and global - to understand, conserve and use sustainably the world's immense wealth of plant diversity whilst promoting awareness and building the necessary capacities for its implementation."

The GSPC has 5 main objectives:

- Plant diversity is well understood, documented and recognized
- Plant diversity is urgently and effectively conserved
- Plant diversity is used in a sustainable and equitable manner
- Education and awareness about plant diversity, its role in sustainable livelihoods and importance to all life on Earth is promoted

- The capacities and public engagement necessary to implement the strategy have been developed.

The GSPC includes of 16 targets for conservation to be achieved by 2020. A mid-term review of progress towards the targets was carried out in 2014.

Target 8

Target 8 of the GSPC calls for '**75% of threatened plant species in *ex situ* collections, preferably in the country of origin and at least 20% available for recovery and restoration programmes**'. The Convention on Biological Diversity's mid-term review of the GSPC highlighted that more needs to be done if the 2020 targets are to be achieved.

Ex situ collections of plant species act as an insurance against extinction in the wild while being available for research, reintroduction and restoration. Botanic gardens are the main institutions involved in *ex situ* conservation of threatened species with nearly one third of all known plants grown in botanic gardens.

Ex situ plant conservation is defined as the conservation of plant diversity outside its natural habitat. Ex situ conservation plays a complementary role to in situ conservation, providing a safety 'back-up' and an insurance policy against extinction in the wild. Given the fact that ecosystems are already changing as individual species react differently to climate change, ex situ conservation is assuming a new and important role in conservation strategies.

Useful poster guidance for all GSPC targets

https://www.bgci.org/files/Plants2020/popular_guide/target_8.pdf

Target 8 and the Global Seed Conservation Challenge (GSCC)

A major new initiative of BGCI. The GSCC will increase the contribution of botanic gardens towards the Global Strategy for Plant Conservation (GSPC) which seeks to halt the continuing loss of plant diversity.

More than 400 botanic gardens worldwide are banking seed for conservation.

The GSCC seeks to highlight and commend the progress achieved by the botanic garden community in *ex situ* seed conservation. All gardens that actively contribute to *ex situ* seed conservation are making progress towards the ambitious objectives of Target 8 and are therefore participating in the GSCC.

How can you participate?

Share data

- Upload seed data to PlantSearch.
http://www.bgci.org/plant_search.php

Promotion

- Send us your seed banking stories;
- Enter the seed banking competition.

Conservation

- Collect and conserve seed from more threatened species.

How is BGCI contributing?

Training

- Organise training courses on seed conservation;
- Provide resources on seed banking;
- Support capacity building according to priorities.

Review and reporting

- Collate information on *ex situ* seed collections;
- Baseline study and gap analysis of current seed banking activities within the global botanic gardens network;
- Work towards a major review of seed banking efforts which will be reported on at the 6th Global Botanic Gardens Congress.

Prioritisation

- Provide information on which species are not represented in *ex situ* collections;
- Determine priorities for collection.

Promotion

- Highlight stories/news from botanic gardens on seed conservation;
- Award prizes for seed conservation at the 6th Global Botanic Gardens Congress.
- Set intermediary seed collecting targets and challenges.

www.bgci.org

Useful Contacts & Links

Plant identification

1. Botanical Society of Britain and Ireland (BSBI) flower keys

<http://www.botanicalkeys.co.uk/flora/>

2. Orchid Observers flower guide (Natural history Museum)

<http://www.nhm.ac.uk/content/dam/nhmwww/take-part/Citizenscience/orchid-observers/orchid-observers-id-guide.pdf>

3. <http://wildflowerfinder.org.uk/>

4. PlantLife spotter sheets

<https://www.plantlife.org.uk/uk/discover-wild-plants-nature/spotter-sheets>

Management, restoration and recreation of meadows and grasslands

- The Wildlife Trusts
- Plantlife
- Floodplain Meadows Partnership
- High Nature Value Farming
- Farm Wildlife
- Landlife
-

Meadows Projects

- Coronation Meadows
- Hay Time

Livestock

- Rare Breeds Survival Trust
- Grazing Animals Project
- PONT (Pori, Natur a Threftadaeth – Grazing, Nature and Heritage)

Conservation Bodies

- Buglife
- Butterfly Conservation Trust
- Bat Conservation Trust
- European Forum on Nature Conservation and Pastoralism
- Plantlife
- RSPB
- The Wildlife Trusts
- British Mycological Society
- BSBI