

# Botanical Society of Scotland



## President's Report 2015/16

John Grace

# 2015/16: a particularly successful lecture programme



## BOTANICAL SOCIETY OF SCOTLAND 2015/2016 LECTURE PROGRAMME

### EDINBURGH

All lectures are held in the Lecture Theatre of the Royal Botanic Garden, Edinburgh, 20A Inverleith Row, Edinburgh, EH3 5LR at 5.30pm. Tea will be served from 5pm. Abstracts of the lectures and biographical notes of the speakers will be available on the Society's website two weeks before each lecture.

**24<sup>TH</sup> SEPTEMBER 2015**

Professor Roy Watling  
Royal Botanic Garden, Edinburgh  
What Beatrix Potter can tell us about fungi

**22<sup>ND</sup> OCTOBER 2015**

Dr Richard Milne  
University of Edinburgh  
Divorcing the Scrochs: how and why molecular data has changed plant classification  
*(Tea will be 15 minutes later than usual at 5.15)*

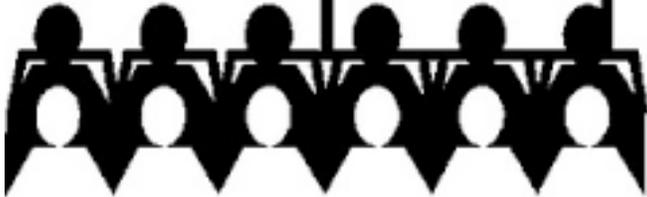
**19<sup>TH</sup> NOVEMBER 2015**

Professor Alastair Fitter  
University of York  
Friendly fungi or business partners? A mycorrhizal medley

**17<sup>TH</sup> DECEMBER 2015**

Scott Wilson  
Independent Forest Ecologist, Aberdeen  
Native woodlands in Scotland - some knotty problems: past, present and future

Best lecture  
programme  
ever, at BSS



**21<sup>ST</sup> JANUARY 2016**

Prof Alistair Hetherington  
University of Bristol  
Tales from the water-gate: leaf surface stomata, what they do and why they are important

**25<sup>TH</sup> FEBRUARY 2016**

Dr Sarah Woodin  
Aberdeen University  
100 years of vegetation change in Scotland

**24<sup>TH</sup> MARCH 2016**

Nick Stewart  
Independent Botanist  
Aquatics in Scotland: the overlooked well beneath

**14<sup>TH</sup> APRIL 2016**

Dr Charlie Clutterbuck  
City University  
The relationships between people, plants and science in determining where our food comes from.  
*(This lecture will be suitable for children)*

**19<sup>TH</sup> MAY 2016**

Dr Karen Lee  
John Innes Research Centre, Norwich  
Getting inside carnivorous plants  
*The lecture will be preceded by a walk-round the insectivorous plants in the RBGE plant houses at 4.30pm and AGM at 5.30pm*

Thanks to Maria Chamberlain

# Summer Programme of Field Meetings, sometimes joint with other Societies

Also numerous ad hoc meetings

**SATURDAY 19<sup>th</sup> MARCH 2016, 10.30am**  
**MOSSES AND LIVERWORTS OF SOUTH INCH, PERTH**  
**JOINT with PSNS (PERTSHIRE SOCIETY OF NATURAL SCIENCE)**  
**Leaders:** David Chamberlain and Alistair Godfrey

Meet at South Inch Car Park NO119 230 (charge). Further information from [alistair.godfrey@btinternet.com](mailto:alistair.godfrey@btinternet.com). Records will be collected for the Urban Flora project.

**TUESDAY 10<sup>th</sup> MAY, 7pm**  
**LICHENS OF DUNDEE**  
**DUDHOPE PARK**  
**JOINT with DUNDEE NATURALISTS**  
**Leaders:** Richard Brinklow and Brian Ballinger

Meet at Dudhope Park car park NO396 306. See [www.dundeenats.org.uk](http://www.dundeenats.org.uk). Records will be collected for the Urban Flora project.

**SATURDAY 14<sup>th</sup> MAY, 10am**  
**FORAGE FOR YOUR LUNCH**  
**CRAIGMILLAR PARK, EDINBURGH**  
**Leaders:** Richard and Ninya Milne

We will pick our edible finds and cook them in a local church hall. Booking required. There may be a small charge for the hire of the hall. Please contact [nenyamilne@gmail.com](mailto:nenyamilne@gmail.com) if you wish to attend.

**SUNDAY 15<sup>th</sup> MAY, 10am**  
**FUNGI UNDER THE MICROSCOPE**  
**JOINT with WATER OF LEITH CONSERVATION TRUST**  
**and FUNGUS GROUP OF SOUTH-EAST SCOTLAND**  
**WATER OF LEITH CENTRE**  
**24 LANARK RD, EDINBURGH EH14 1TQ**  
**Leaders:** Neville Kilkenny and Maria Chamberlain

The workshop will go over the life cycle biology of the major fungal groups and concentrate on the microscopic characters which are often needed to confirm ID. We will all collect material for observation in the vicinity of the Centre. Book with [Maria.Chamberlain@ed.ac.uk](mailto:Maria.Chamberlain@ed.ac.uk) as numbers will be limited.

**BLAIRGOWRIE**  
**JOINT with PSNS (BOTANICAL SECTION)**  
**Leaders:** Martin Robinson and John Grace  
Met at car park by river NO18014538

**SUNDAY 19<sup>th</sup> JUNE 10am -2pm**  
**HIGHER PLANTS OF ARTHUR'S SEAT**

**Leader:** Ewan Cole

Records will be collected for the Urban Flora project. We will examine the wildflowers of Arthur's Seat! Arthur's Seat Volcano is a site of special scientific interest (SSSI) located within the City of Edinburgh. It is a composite site comprised of Arthur's Seat Volcano in Holyrood Park, Carlton Hill and Castle Rock. The site covers an area of 225 hectares and is primarily composed of lowland grassland habitats, both calcareous and acidic. The close proximity of the site to the coast and its rocky igneous substrate provide a perfect niche for many plant species, with many of them being exceptionally rare.

Please bring decent footwear and a packed lunch. We aim to be finished by 14.00. Meet at Palace of Holyroodhouse Car Park, just off Queens Drive (NT27027372). The location is accessible via the Lothian Buses numbers 6 and 35. If you have any questions or would like to know more please e-mail Ewan at [E.Cole@rbge.ac.uk](mailto:E.Cole@rbge.ac.uk)

**SATURDAY 25<sup>th</sup> JUNE 2016, 10:00am**  
**CAM CHREAG, near TYNDRUM, PERTSHIRE (V.C. 88)**  
**JOINT ALPINE FIELD MEETING WITH BSBI**  
**Leader:** John Holland

Cam Chreag (884 m) is a Corbett located at the head of Gleann a'Chlachain approximately 6.0 kilometres north east of Tyndrum in the north-west corner of the Loch Lomond and the Trossachs National Park. Cam Chreag forms part of the Beinn Heagarnich Special Area of Conservation. The site has areas of species-rich calcareous grassland, flushes and cliff ledge communities. The route will take us up through Gleann a'Chlachain where more than 200 hectares of mountain woodland and scrub were planted in 1999. Meet at the walkers car park at SRUC Auchtertyre Farm / Strathfillan Wigwams (NN 353 290), which is off the A82 about 3km south of Tyndrum. Contact John Holland for further details and to confirm a place (booking is essential as numbers will be limited), tel. 01838 400524 (day) or 01567 820509 (evening), e-mail [john.holland@sruc.ac.uk](mailto:john.holland@sruc.ac.uk).

**TUESDAY 24<sup>th</sup> May 7pm**  
**EVENING CRASH COURSE IN HIGHER PLANT ID**  
**Venue tbd**  
**Leader:** Richard Milne

The course is aimed at complete beginners. There may be a charge for the hire of the hall. Please contact [Maria.Chamberlain@ed.ac.uk](mailto:Maria.Chamberlain@ed.ac.uk) and for further details.

**SUNDAY 12<sup>th</sup> JUNE 10am-2pm**  
**BAWSINCH AND DUNNINGSTON NATURE RESERVE**  
**Leader:** Ewan Cole

Records will be collected for the Urban Flora project. Bawsinch and Duddingston Nature Reserve is located in the heart of Edinburgh, just south of Arthurs Seat. It is the only example of a natural freshwater loch in the City of Edinburgh. It is an important site for breeding and wintering wildfowl and includes areas of mixed woodland, scrub, grassland and reedbeds. This field meeting will take place on the southern side of the loch, access to which has very gratefully been provided by the Scottish Wildlife Trust.

The main purpose of this field meeting is to gather records for the 'Urban Flora of Scotland' project, which launched last year. This meeting also aims to provide guidance and information for those who would like to get involved in the project, from how best to record wild plants to how to upload those records to us.

This walk will be led by Ewan Cole, a new graduate of the University of Edinburgh and all round plant enthusiast. Please bring decent footwear and a packed lunch. We aim to be finished by 14.00

Meet at the junction of Forckenford Rd and Duddingston Rd at NT2866772061. The location is accessible via the Lothian Buses number 42.

**TUESDAY 14<sup>th</sup> JUNE 7pm**  
**BROUGHTY FERRY SHEIL STREET RESERVE**  
**JOINT with DUNDEE NATURALISTS**  
**Leaders:** Brian Ballinger and Lorna Ward

Meet at Esplanade car park NO474 309 See [www.dundeenats.org.uk](http://www.dundeenats.org.uk). Records will be collected for the Urban Flora project.

**SATURDAY 2<sup>nd</sup> JULY 10am**  
**DINGWALL**  
**JOINT with BSBI**  
**Leaders:** Brian Ballinger and Mary Dean

This will be an all-day event. Book with Brian Ballinger [brian@garrickwood.org.uk](mailto:brian@garrickwood.org.uk)

**SUNDAY 17<sup>th</sup> JULY 2pm**  
**MILEY SWT RESERVE, DUNDEE**  
**JOINT with SCOTTISH WILDLIFE TRUST - ANGUS AND DUNDEE**  
**Leaders:** Brian Ballinger and Mary Harwood

Meet at Loons Road entrance NO383 313.

**SATURDAY 7<sup>th</sup> SEPTEMBER 10am**  
**LICHENS OF KINNOULL HILL, PERTH**  
**JOINT with PSNS (BOTANICAL SECTION)**  
**Leaders:** Richard Brinklow and Alistair Godfrey

Meet at Corsiehill lay-by NO135 235 Further information from [alistair.godfrey@btinternet.com](mailto:alistair.godfrey@btinternet.com). Records will be collected for the Urban Flora project.

**SATURDAY 24<sup>th</sup> SEPTEMBER 11am**  
**FUNGUS FORAY at HUMBIE WOODS**  
**Leader:** Stephan Helfer

Meet Car Park at Humble Church - NT 462637  
Access off crossroads at Humble some three miles from A68 on the B road from Soutra Mains to Haddington.

**SUNDAY 9<sup>th</sup> OCTOBER 11am**  
**BRYOPHYTES OF BLACKFORD HILL, EDINBURGH**  
**Leader:** David Chamberlain

Meet at The Blackford Hill car park in front of the Royal Observatory - EH9 3HJ. This outing will be specially geared to novices and students. Records will be collected for the Urban Flora Project.

**INSTRUCTIONS FOR MOST MEETINGS:** Please bring with you waterproof clothing, suitable footwear, a hand-lens and packed lunch. Botanical Society of Scotland members are covered by the Society's insurance. The leader will warn participants of possible risks. Contact the Programme Secretary, [Maria.Chamberlain@ed.ac.uk](mailto:Maria.Chamberlain@ed.ac.uk) for further details or queries concerning transport to meetings. Check <http://www.botanical-society->

Thanks to Maria Chamberlain

**Perth urban habitats around the River Tay with the Perth Society of Natural Science, Saturday, 19<sup>th</sup> March 2016.. Bryophytes**



# The Society's academic journal, *Plant Ecology and Diversity*

Edited by Laszlo Nagy, published by Taylor and Francis, six issues per year



*Plant Ecology & Diversity*, 2015  
Vol. 8, Issue 3, 427–436, <http://dx.doi.org/10.1080/17550874.2015.1004562>



## Articles with Scottish flavour

### Red deer impacts on the montane *Racomitrium lanuginosum* moss-heath community in north-west Scotland

Oliver Moore<sup>a\*</sup> and Michael J. Crawley<sup>b</sup>

<sup>a</sup>School of Natural and Social Sciences, University of Gloucestershire, Cheltenham, UK; <sup>b</sup>Department of Biology, Imperial College London, Ascot, UK

(Received 24 July 2014; accepted 30 November 2014)

**Background:** The effect of sheep grazing on the internationally important moss-heath community of the British uplands has been well studied but less is known about the impact of red deer (*Cervus elaphus*).

**Aim:** To compare the impact of different densities of red deer on bryophytes and lichens associated with moss-heath vegetation at Beinn Eighe National Nature Reserve (low deer density) and a traditional sporting estate at Letterewe (with higher deer density), Scotland.

**Methods:** Suitable pairs of summit study sites were selected at random, and species cover data were collected from thirty 1-m<sup>2</sup> quadrats at each location. The dung pellet group count method was used to estimate red deer usage. Generalised linear models were fitted to the data.

**Results:** Mean graminoid cover was significantly higher in two of the Letterewe study sites compared with their Beinn Eighe counterparts. Bryophyte cover and height in general matched the pattern for *Racomitrium lanuginosum* in that they were not significantly different between any of the study site pairings.

**Conclusions:** Despite differences in mean deer density between the Beinn Eighe and Letterewe properties as a whole, red deer numbers actually using the exposed summit moss-heath vegetation were estimated to be very low. Therefore, bryophyte cover within the Letterewe summit study sites was not significantly different from that at Beinn Eighe.

**Keywords:** Beinn Eighe; bryophyte; *Cervus elaphus*; graminoid; lichen; sheep grazing; summit vegetation

## Impact Factor

*Plant Ecology and Diversity*  
has seen an increase from  
**1.766 to 2.349**

Most highly cited  
article so far, n=187



*Plant Ecology & Diversity*  
Vol. 1, No. 2, November 2008, 147–160



### Alpines, trees, and refugia in Europe

H. John B. Birks<sup>a,c\*</sup> and Katherine J. Willis<sup>a,b</sup>

<sup>a</sup>Department of Biology, University of Bergen, Bergen, Norway; <sup>b</sup>Oxford University Centre for the Environment, University of Oxford, Oxford, UK; <sup>c</sup>Environmental Change Research Centre, University College London, London, UK

(Received 18 December 2007; final version received 16 May 2008)

Refugia were critically important for species survival in both glacial and interglacial stages of the Quaternary. The classical view of glacial stages is that alpine and arctic plants were widespread in the lowlands of central Europe and around the margins of the continental and alpine ice-sheets, whereas trees were restricted to localised refugial areas in southern Europe and the Mediterranean basin. New palaeobotanical evidence in Europe suggests, however, that this classical view is incomplete and that tree distributional ranges during the glacial stages were more extensive and included many local areas of small populations in central and eastern Europe growing in so-called 'cryptic' refugia. We argue that this concept of 'cryptic' refugia is also applicable to arctic and alpine plants during temperate interglacial stages where small localised populations grow in naturally open habitats that are not beyond or above the forest limit. Determination of the whereabouts of these cold- and warm-stage 'cryptic' refugia is very important in our understanding of the spatial patterns of present day genetic diversity and the possible rates of spread of trees in response to future climate change.

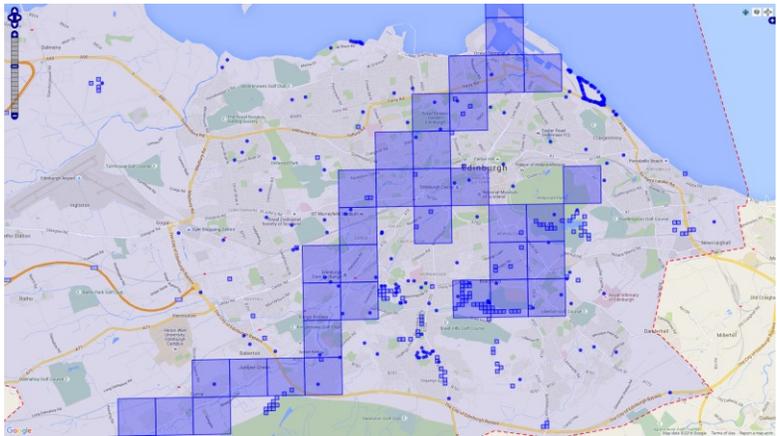
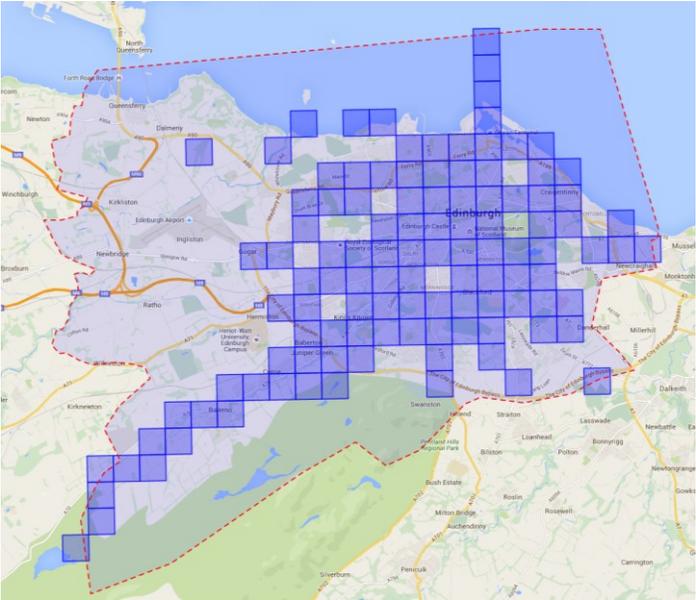
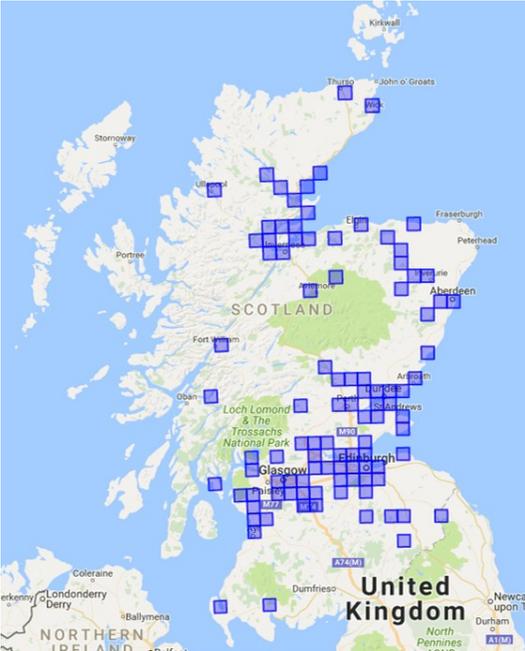
**Keywords:** alpine plants; arctic plants; cryptic refugia; Holocene; Last Glacial Maximum; macroscopic charcoal; Quaternary; plant macrofossils; pollen; trees

## New in 2016, The Grubb Reviews



# The Urban Flora Project – about 19,000 records so far

But more recorders needed! Are you going on holiday to the western parts of Scotland?



**Urban Flora: let us focus today on  
some of the rarer plants**

**(..rare in Scotland, sometimes  
common in England and Wales)**

# List of southerners we've found



*Senecio inaequidens*@ Granton, Edinburgh

*Atropa belladonna*@ Edinburgh

*Conyza canadensis* @ Leith, Edinburgh

*Festuca arundinacea* @ Bo'ness

*Galinsoga quadriradiata* @ Edinburgh

*Polypogon viridis* @ Granton, Edinburgh

*Saxifraga granulata*@ Cramond Island, Edinburgh

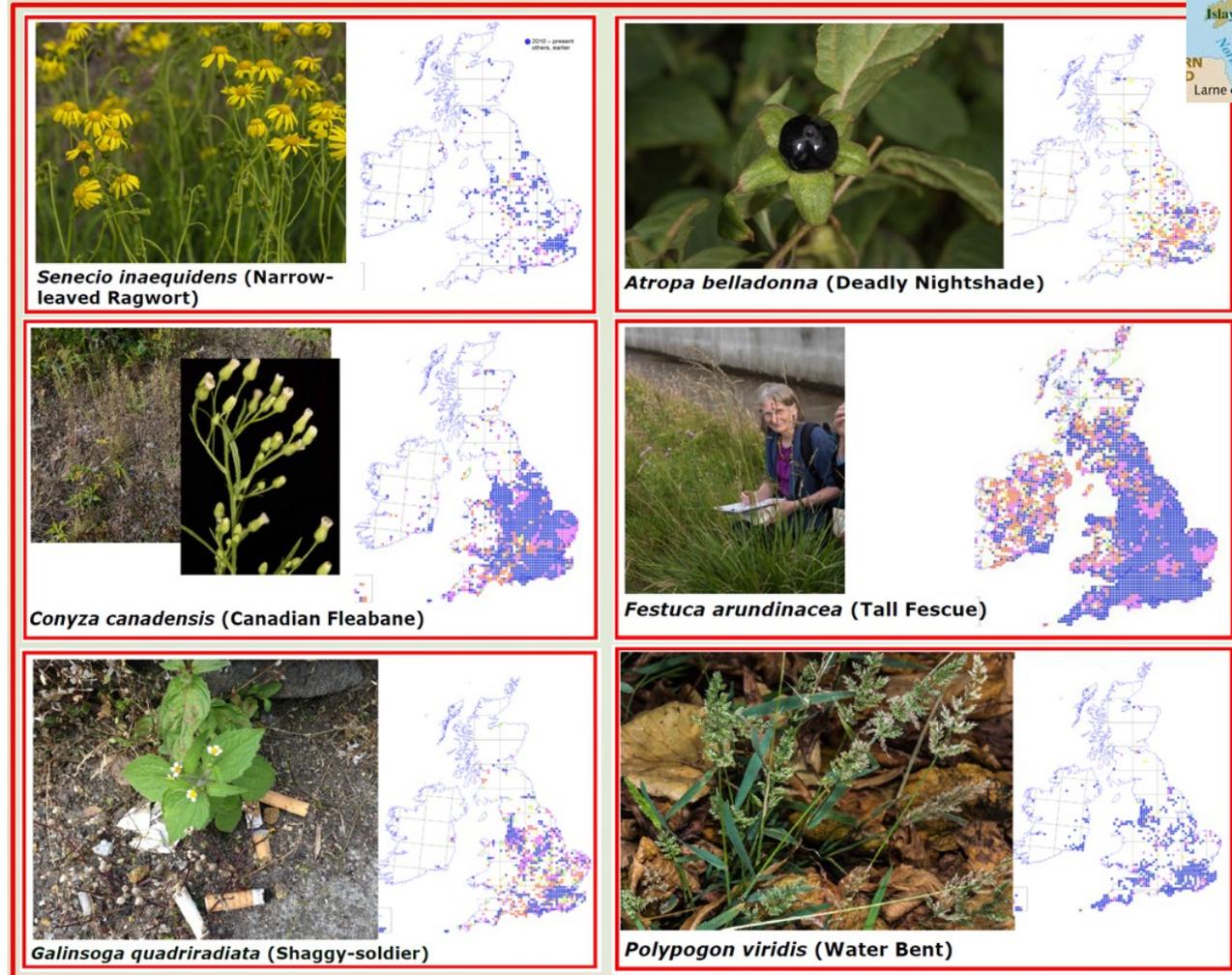
*Allium carinatum* @ Dundee

*Epipactis helleborine*@Bo'ness

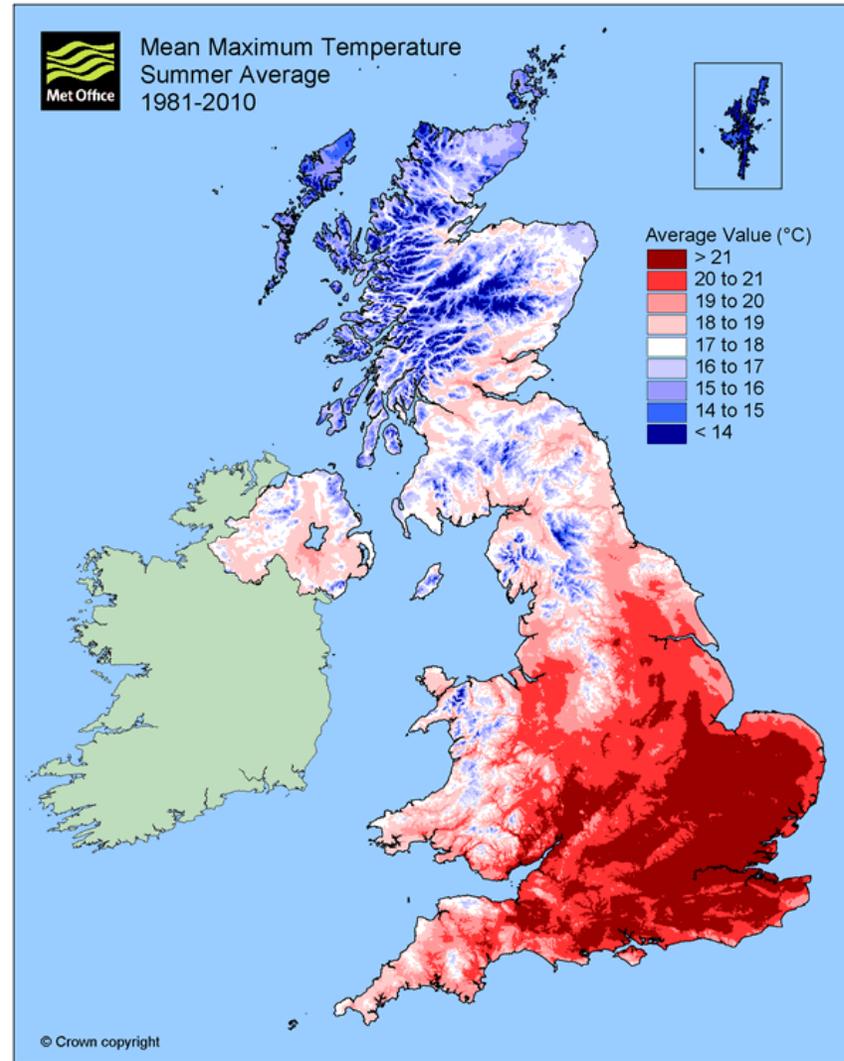
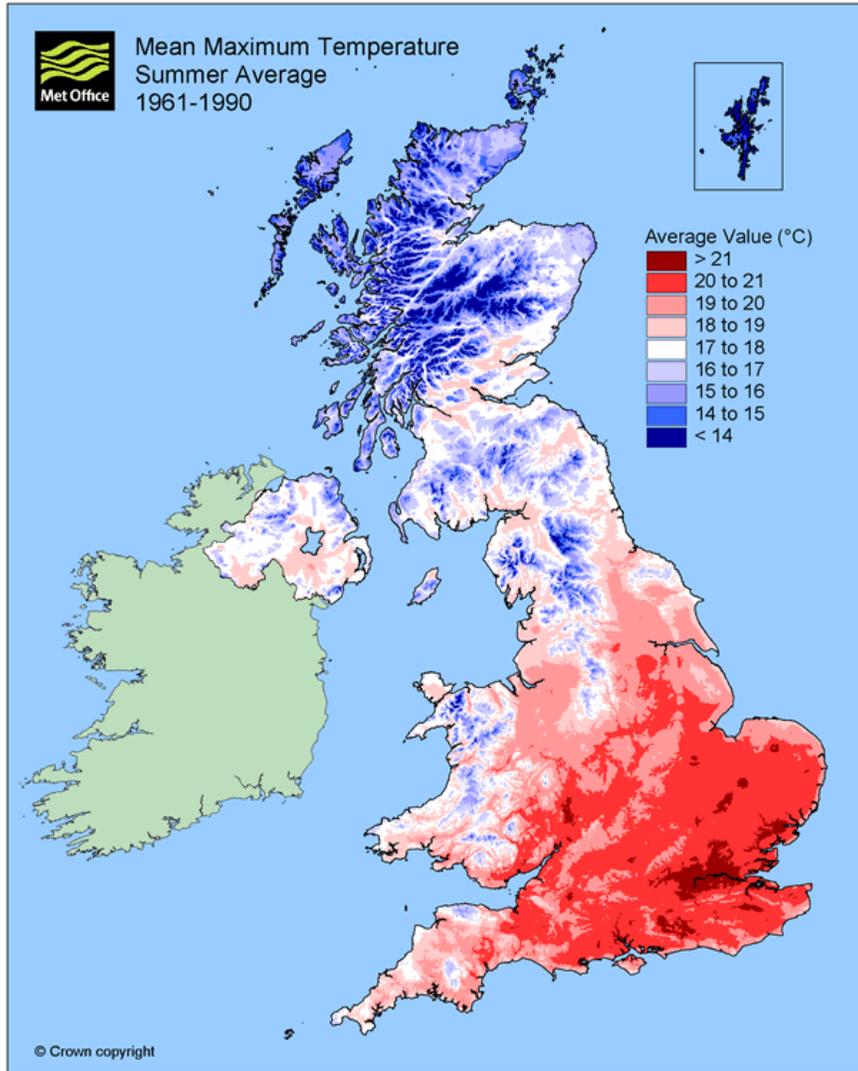
*Lilium martagon*@Blairgowrie

*Olearia avicenniifolia* x *moschata*@ Ayr

*Carpobrotus edulis*@ Portpatrick

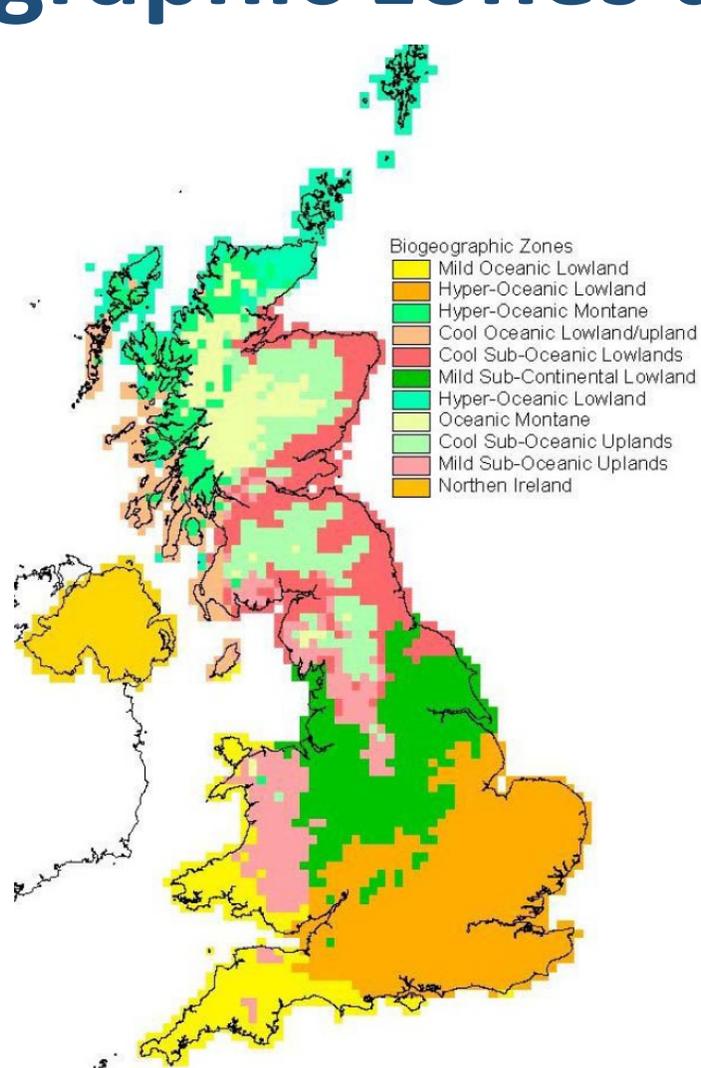


# Warming brings southerners to the north

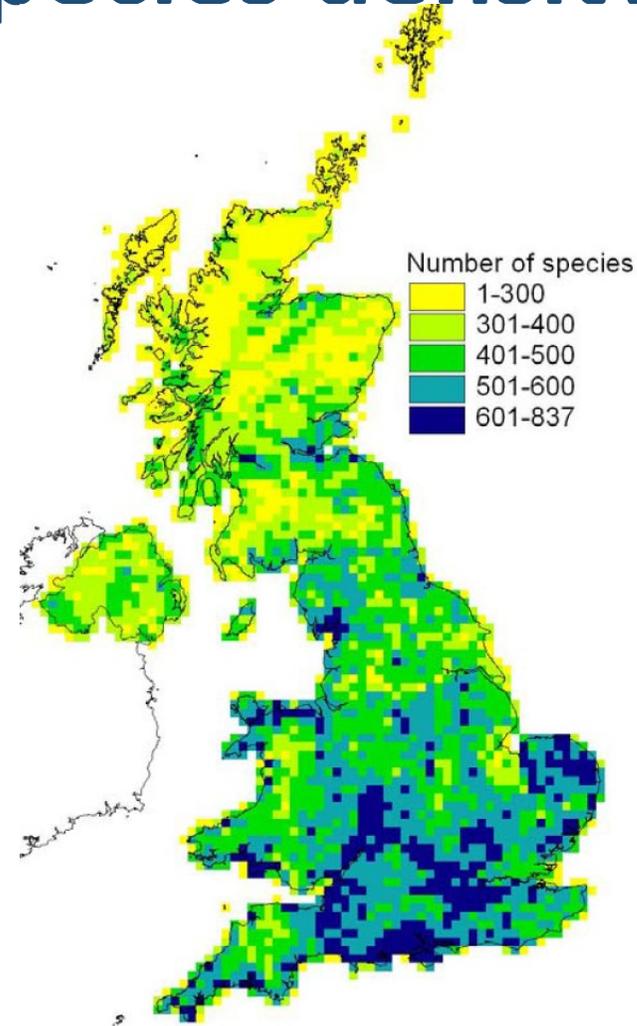


Isotherms  
moving 15 km  
north per year  
(Beniston 2013)

# Biogeographic zones and species density



Preston et al (2003) CEH Report



Natives and archaeophytes

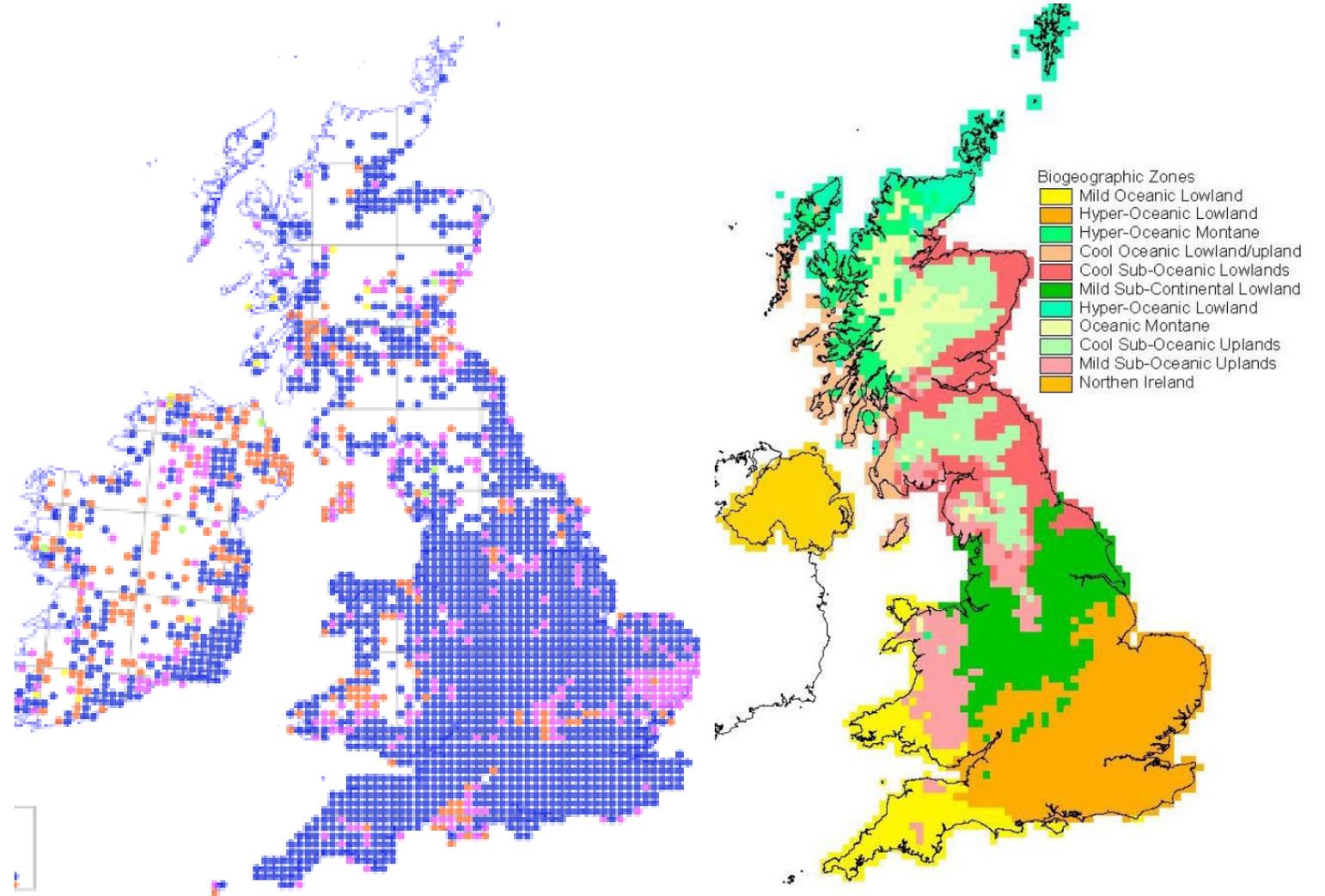
Far more of them in the south

# Species often map by summer temperature

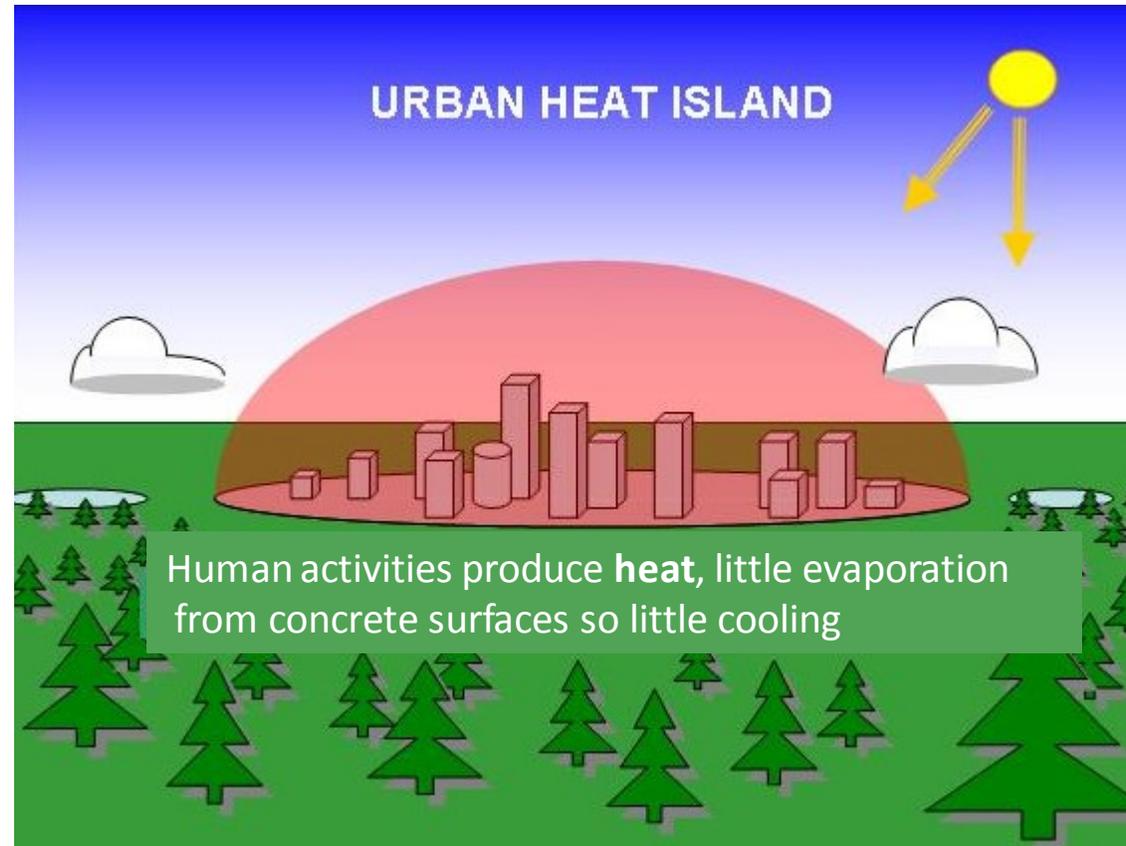


Photo: john grace

***Buddleja davidii* (Butterfly-bush)**  
**An Edinburgh street**



# Different patterns expected in urban environments



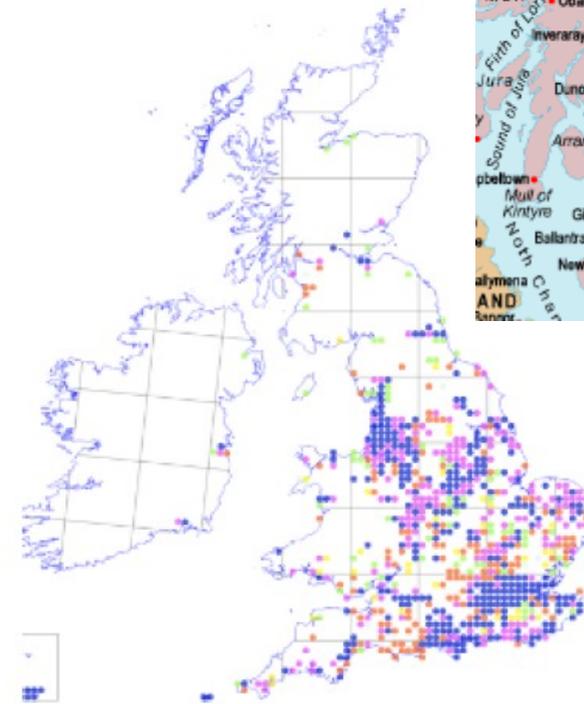
**Hypothesis: we will find southern species in our northern towns and cities**

# A southerner comes north



Photo: john grace

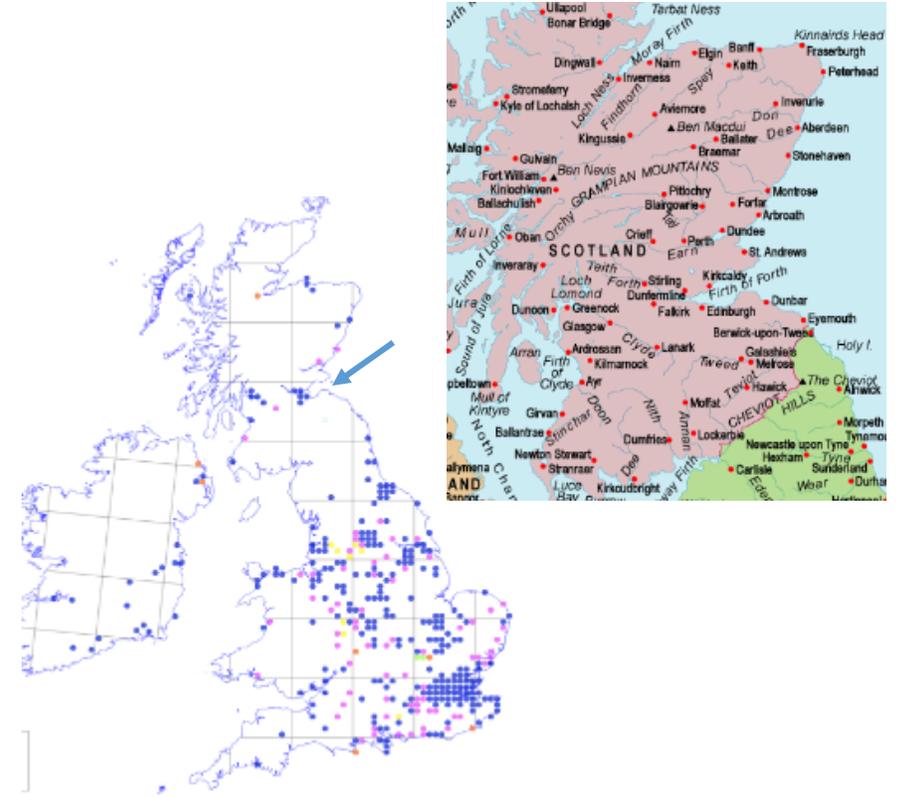
***Galinsoga quadriradiata* (Shaggy-soldier)**



Found in Edinburgh streets and allotments, many sighting this year

# Another southerner comes north

Photo: chris jeffre



*Senecio inaequidens* (Narrow-leaved Ragwort) found at Granton

# A sea-side southerner

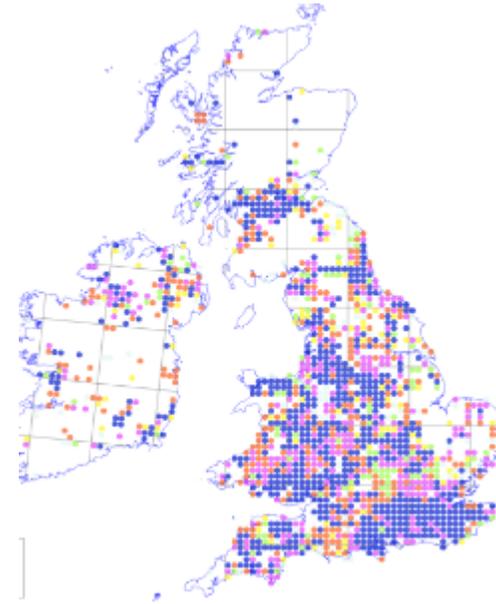


***Carpobrotus edulis* (Huttentot Fig), Cliff at Portpatrick**

# A woodland example



Photo: chris jeffre



“said to be more common in Glasgow than anywhere else in Britain (Allan & Woods, 1993)”.

***Epipactis helleborine* (Broad-leaved Helleborine) in a wood at Bo’ness**

# Spreading in the North-East

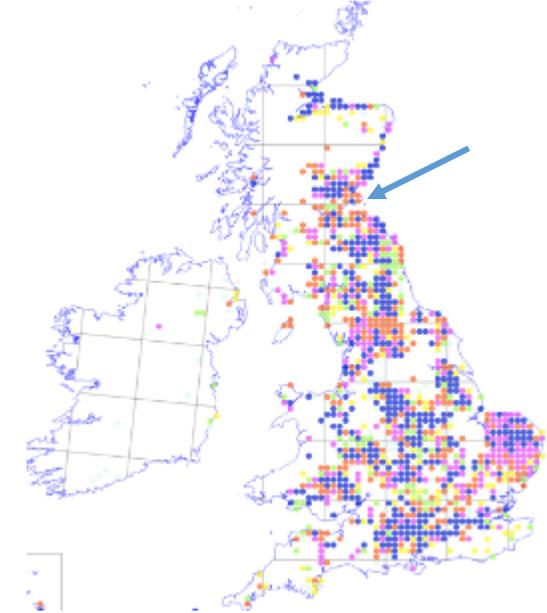


Photo: chris jeffree

*Saxifraga granulata* (Meadow Saxifrage)  
Crammond Island, Edinburgh



WWII fortifications at  
Crammond Island

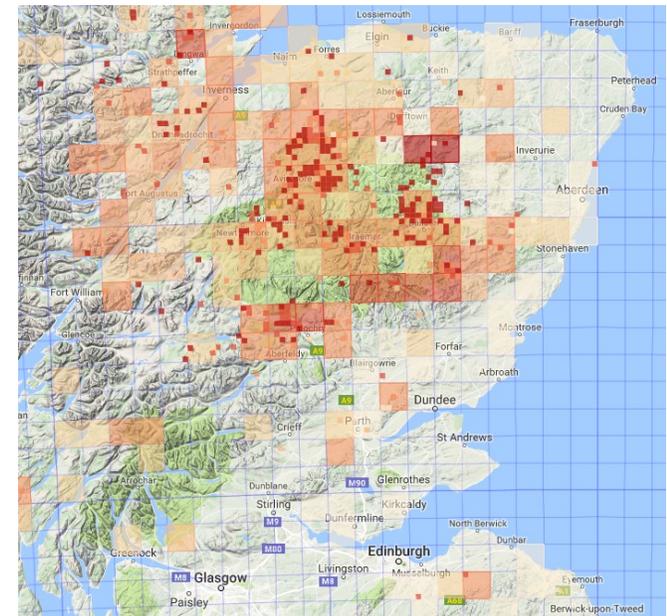
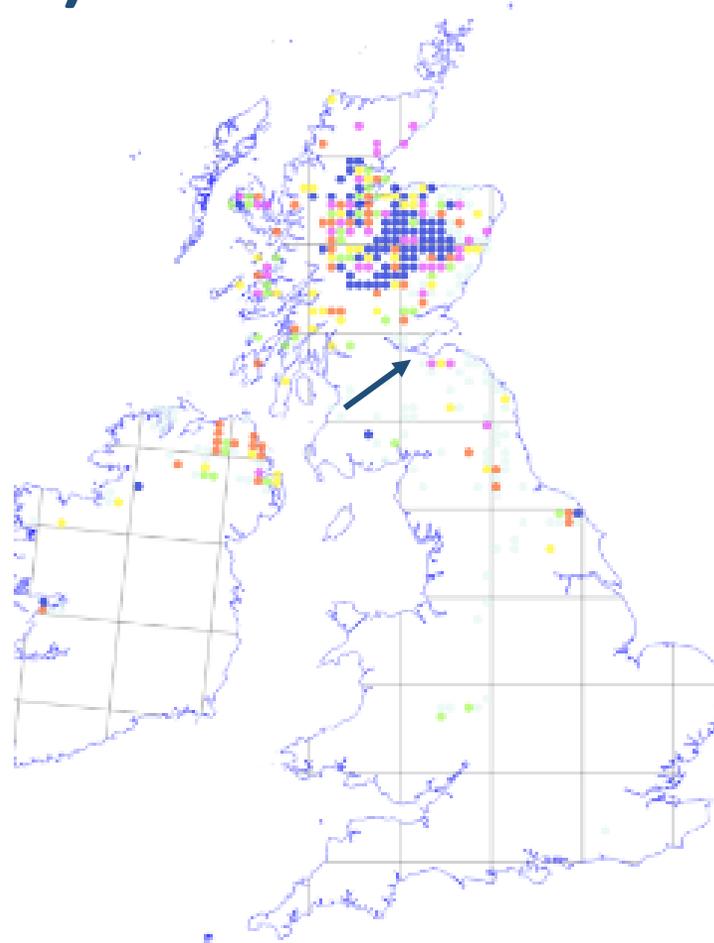


# Are northern species absent from (warm) cities? (the converse hypothesis)



Photo: chris jeffree

***Pyrola media* (Intermediate Wintergreen)**  
In a wood at Bo'ness



**But some species are evidently temperature-insensitive**



***Galeopsis speciosa* (Large-flowered Hemp-nettle), Edinburgh allotments**

Not a southerner but a kiwi, relation to temperature unclear

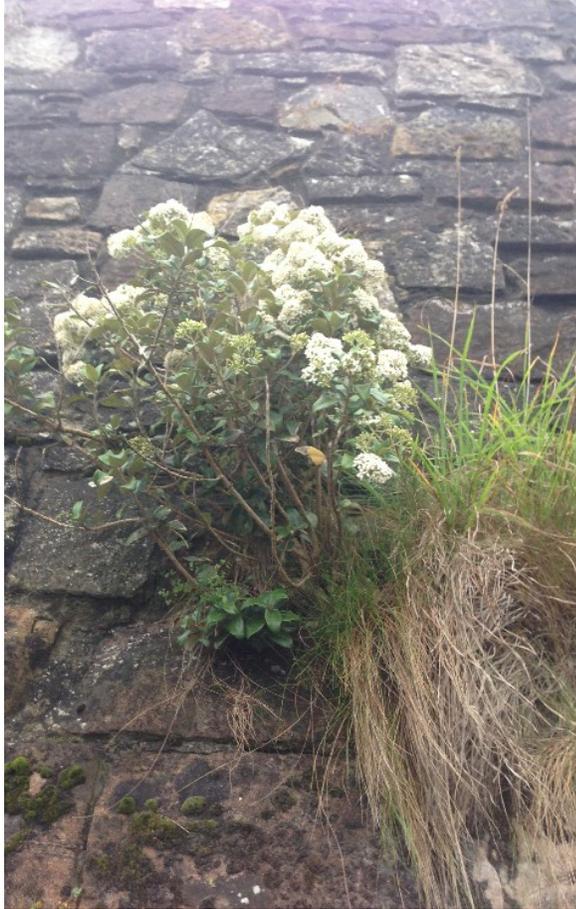
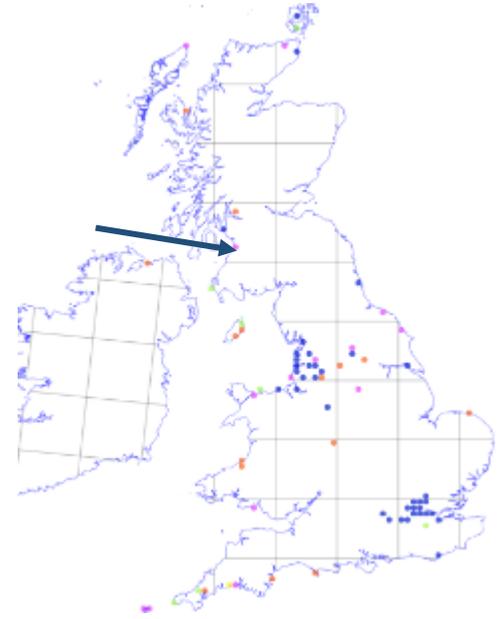


Photo: john grace



Oliver Cromwell's Citadel, Ayr



***Olearia avicenniifolia* x *moschata* (*O. x haastii*) (Daisy-bush) Ayr**



**The End**  
**Many thanks for listening**