

Urban Flora of Scotland: Notable finds

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and

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BSS Group: Urban Flora of Scotland (*“what grows in your street”*)

what we do:

- Recording in towns and cities
- Archiving vascular plants, cryptogams, fungi
- Including environmental and abundance data
- Working with BSBI and Natural History groups
- Comparing urban versus rural sites
- Also working with BSBI data from the DDB



Recording in Annan with BSBI and local recording groups, 2019. Photo Chris Miles

What grows where, and understanding “why?”

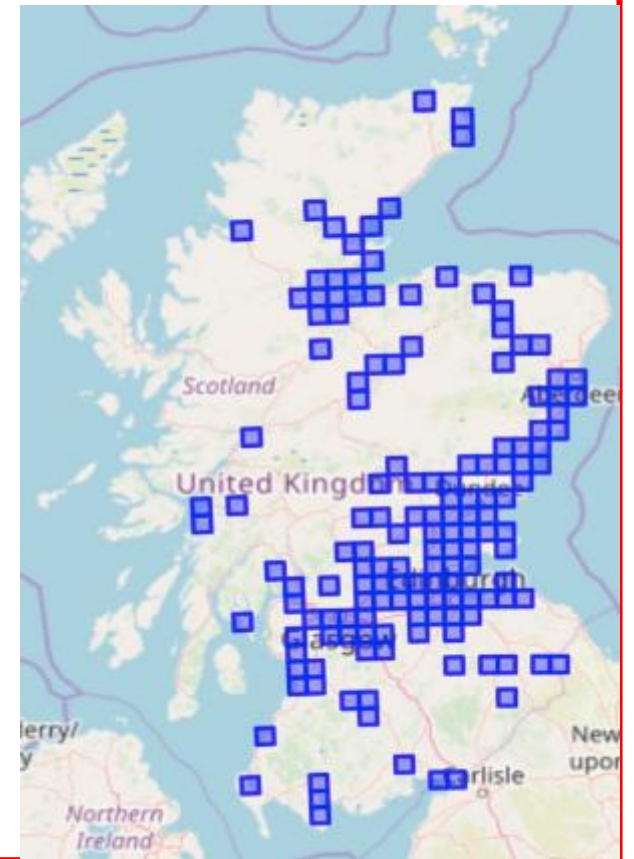
Indications of climate change

Public awareness

Alerting increases and invasive characteristics

Urban versus rural

Evidence in planning proposals



37,100 records and 1,436 species. This map downloaded from our database on iRecord October 2019. iRecord data are held within an Indicia warehouse hosted at the [Biological Records Centre](#) on behalf of the recording community.

Short talk, focus on these species which seem to be spreading rapidly:

Focus on:

Polypogon viridis, Water Bent

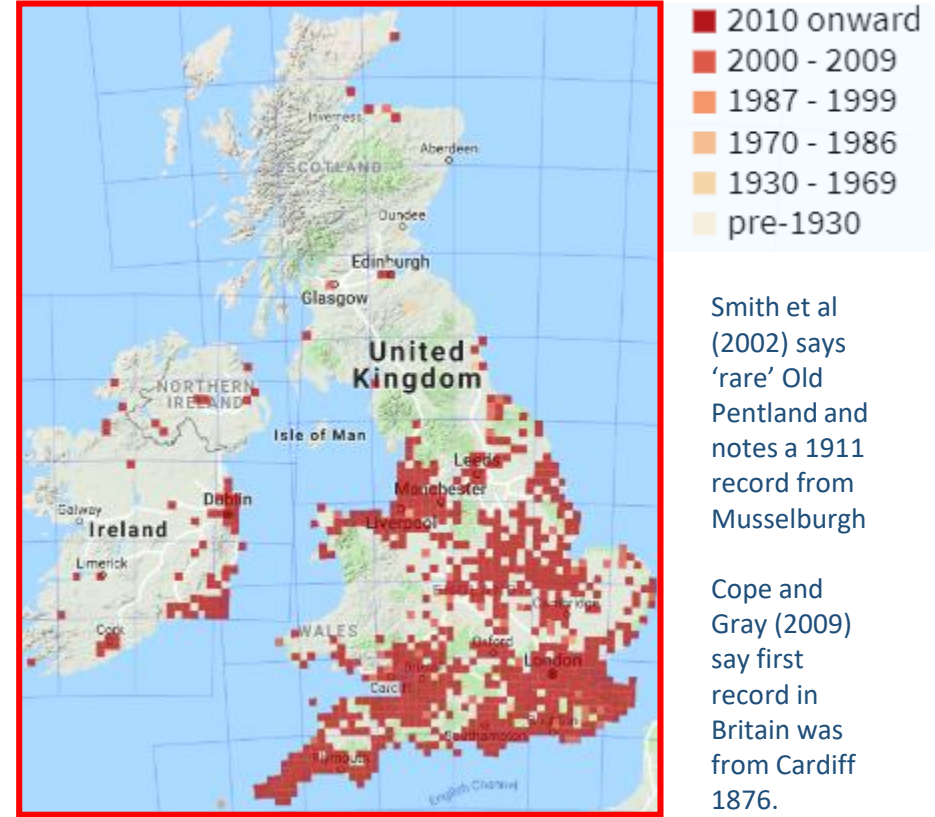
Conyza (4 species), fleabanes

Acaena novae-zelandiae, Piri-piri-burr

Polypogon viridis, Water Bent



(Botanical Museum, Helsinki)



Smith et al (2002) says 'rare' Old Pentland and notes a 1911 record from Musselburgh

Cope and Gray (2009) say first record in Britain was from Cardiff 1876.

Becoming widespread, many sites now in Leith and Edinburgh "crackophyte" ...

"*Polypogon viridis* is one of the fastest spreading plants in the British Isles, especially in urban habitats. However, we do not know the reasons for this sudden increase, or the real extent of its spread, because there may be a time lag between colonisation and recording".

Ambrose Baker and Oliver Pescott at

<http://nora.nerc.ac.uk/id/eprint/507448/1/PvAEM6.pdf>

Old and new records of *Conyza* (Fleabane) in Edinburgh



Pavement, near Haymarket station, end of Morrison Street, Edinburgh, *C. canadensis* 2019



Roadside, Drummond Street, Edinburgh
C. bonariensis



Disused school, Upper Gilmore Street, Edinburgh
C. floribunda



Waste ground, Mentone Avenue, Edinburgh
C. sumatrensis

BSBI mapmate database VC 83
(provided by Barbara Sumner)

Number of records

C. bonariensis 4
C. canadensis 23*
C. floribunda 3
C. sumatrensis 7

- Earliest modern record was by DR McKean 1989
- Old records gleaned from Smith et al (2002) and Dickson et al (2000), who both say *C. canadensis* is 'rare': Leith Docks 1904, Hamilton 1903. A very few records in MacPherson (2017)

Conyza ID

These images are from the sites where the species have already been recorded. There are new sites, eg:

Edinburgh: Morrison Street, Haymarket, Leith Community Garden, Dundas Street abandoned RBS bank, Dalry Road (Aldi waste ground).

Ayr: car park near Gaiety Theatre, various streets (*C. canadensis*).



Balcarres Street,
C. canadensis



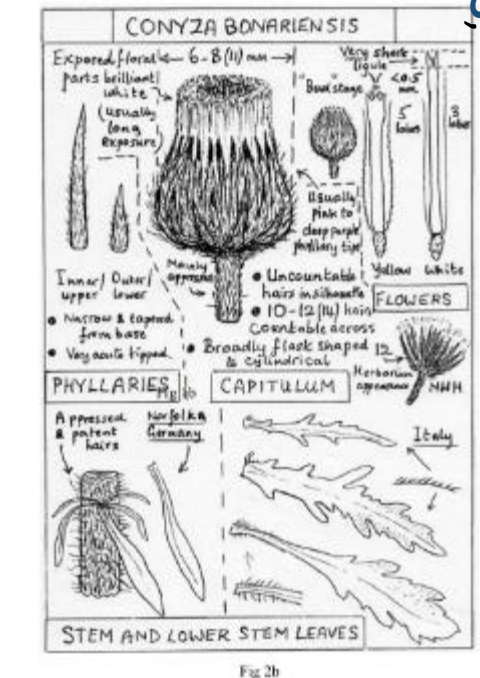
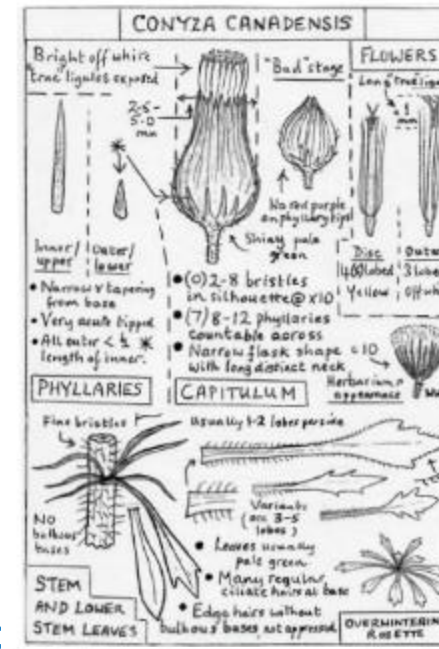
Mentone Avenue
C. sumatrensis



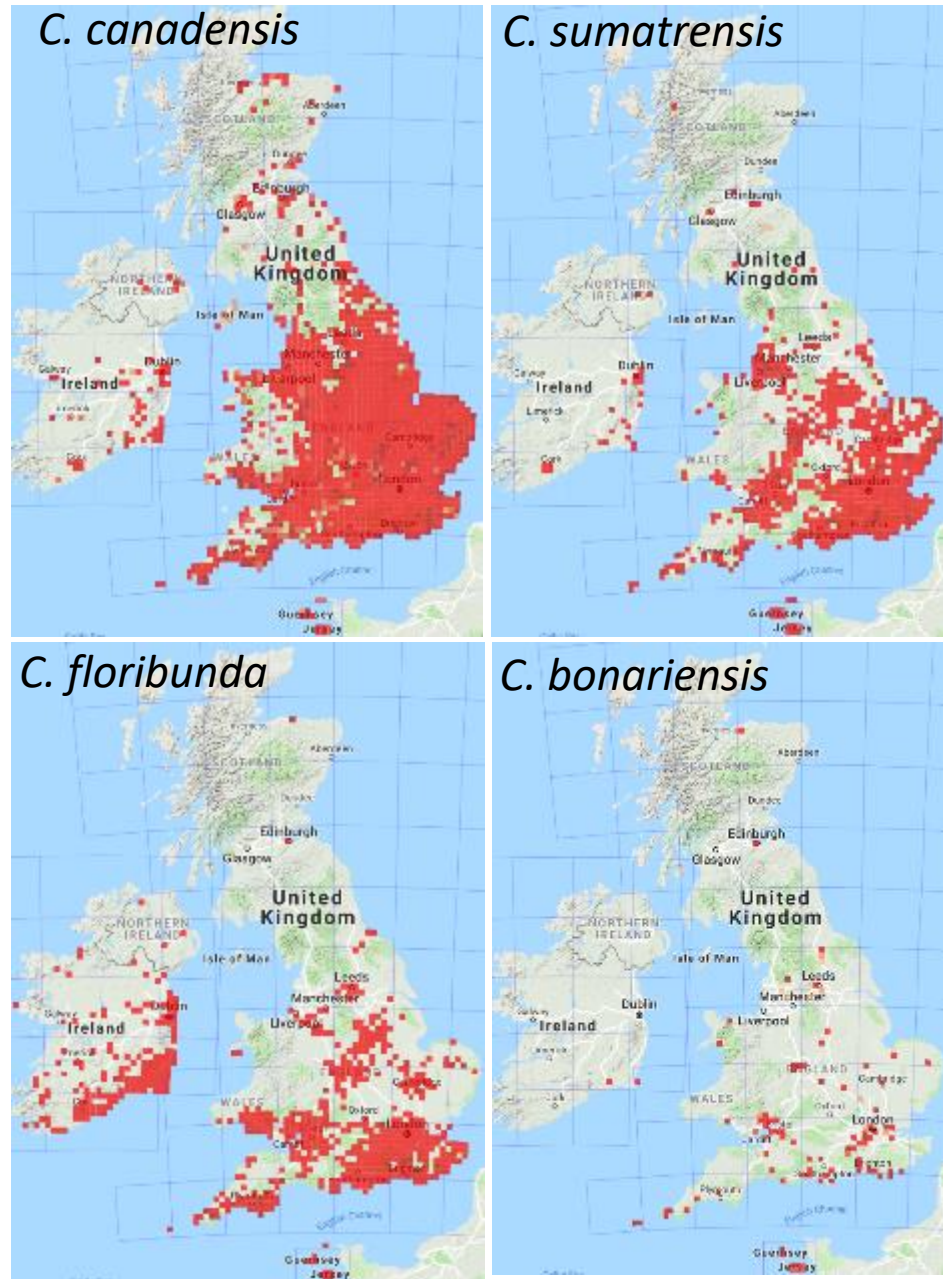
Upper Gilmore Street
C. floribunda



Drummond, Street
C. bonariensis



British Islands: the distribution of *Conyza* (Fleabane)



BUT taxonomic relationships are not clear, and hybridisation has been reported

New Journal of Botany

Journal of the Botanical Society of Britain & Ireland

Article

The genus *Conyza* in Britain and a name for the hybrid between *Erigeron acris* and *Conyza floribunda* (Asteraceae)

A. R. G. Mundell

Pages 76-81 | Published online: 27 Jul 2018

Download citation | <https://doi.org/10.1093/njbot/njy004>

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Abstract

The species of *Conyza* (Asteraceae) and their hybrids are briefly reviewed. A binomial name (*Conygeron stanleyi*) is given for the hybrid between *Erigeron acris* L. and *Conyza floribunda* Kunth (including *C. bilobata* J. Rémy). The alien *C. floribunda* from South America has spread rapidly across Britain and Ireland since its initial records in 1992, and is now a common sight particularly in urban ruderal situations. Its hybrid with *E. acris* has now been found both in Ireland and several southern counties in England and is very likely to be found in further locations where both parents grow together.

American Journal of Botany 82(3): 360-368, 1995.

CHARACTERIZATION OF INVASIVE *CONYZA* SPECIES (ASTERACEAE) IN EUROPE: QUANTITATIVE TRAIT AND ISOZYME ANALYSIS¹

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The genus *Conyza* (Asteraceae) represents one of the foremost examples of intercontinental plant invasions from the New World to the Old World that has resulted in a number of taxonomic problems owing to the dearth of knowledge concerning the biosystematics of the genus. In this study, quantitative trait and enzyme-electrophoresis analysis was used to assess the pattern of variation within and among five short-lived taxa of *Conyza* (*C. blakei*, *C. bonariensis*, *C. canadensis*, *C. floribunda*, *C. nasvirensis*), introduced into Europe, and to test the hypothesis of a recent hybrid origin of *C. floribunda*. The five taxa exhibit marked differences in morphological and life-history characteristics that are concordant with divergence in genes encoding isozymes. In addition, a recent hybrid origin of *C. floribunda* is clearly not supported by either quantitative or electrophoretic data. These findings suggest that the five taxa differentiated genetically in their native range prior to their introduction in Europe. As formerly suggested by Arthur Cronquist (*Bulletin of the Torrey Botanical Club* 70: 628-632, 1943), *C. canadensis* appears to be more closely related to the genus *Erigeron* than the other taxa. The electrophoretic results also confirm that this particular species is diploid, while the presence of multiple bands and fixed heterozygosity demonstrates that the other *Conyza* taxa are all genetic allopolyploids. Both quantitative and electrophoretic data suggest the presence of two groups among the polyploid taxa; one comprising *C. bonariensis* and *C. nasvirensis*, the other *C. blakei* and *C. floribunda*. The latter grouping is supported by the observation that *C. blakei* and *C. floribunda*, both native to Argentina, exhibit a striking ability to shift from semelparous to iteroparous reproduction, while the other taxa are strictly semelparous.

Acaena novae-zelandiae Piri-piri-burr



We found it in Melrose and very common at Hopetoun House (Queensferry). Recorded in Melrose as *A. anserinifolia* 1911 (see Ida Hayward's The Adventive Flora of Tweedside)



Lindisfarne is HQ now, possible association with sheep trade



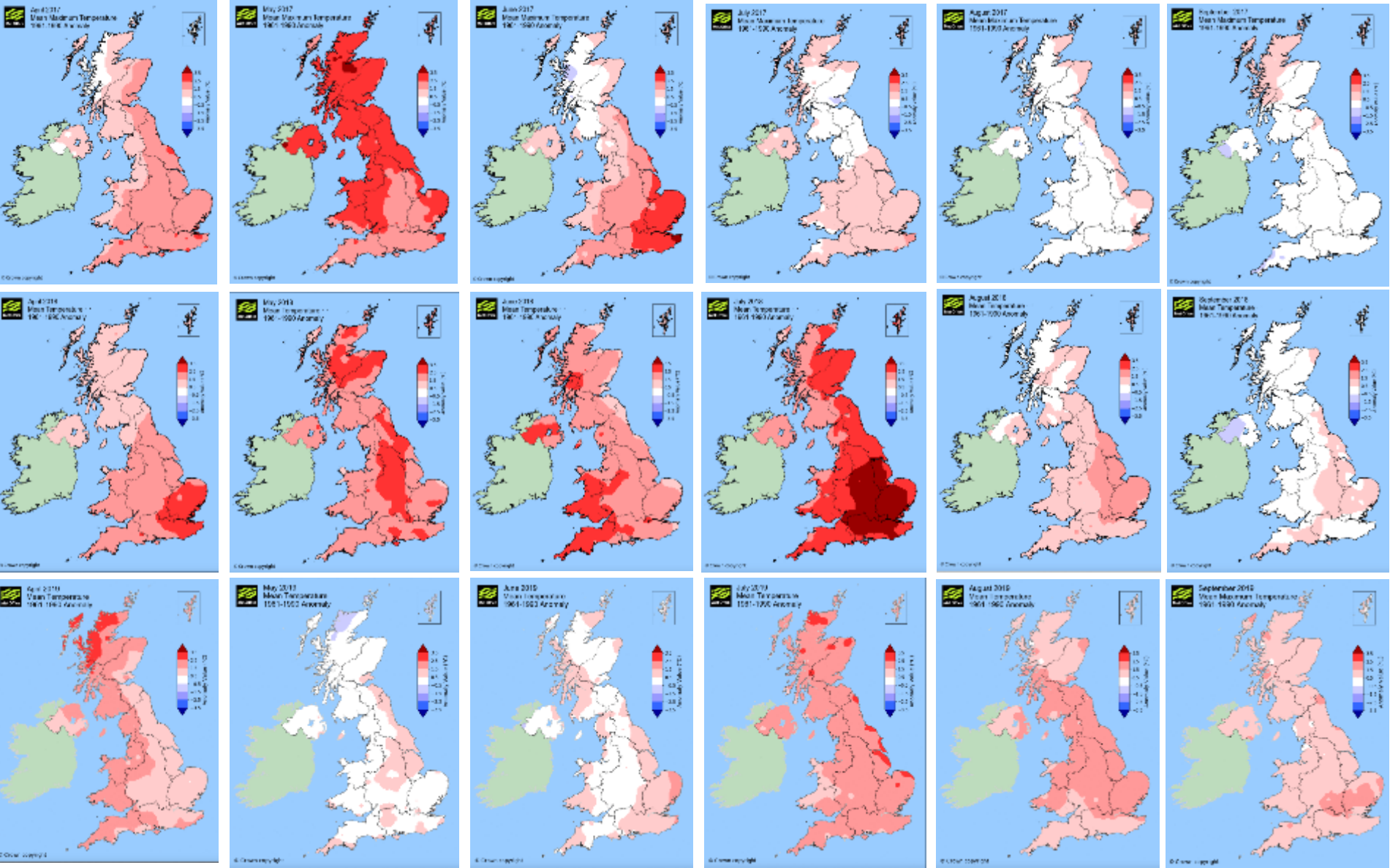
1985 records (Glynn & Richards *J. Ecol* 73, 1055)



<https://bie.ala.org.au/species/>
<http://id.biodiversity.org.au/node/apni/2906921>

**Two possible reasons for
recent northerly spread of
urban species**

1. Anomalies in summer temperature, by month, 2017-2019



2017

2018

2019

April

May

June

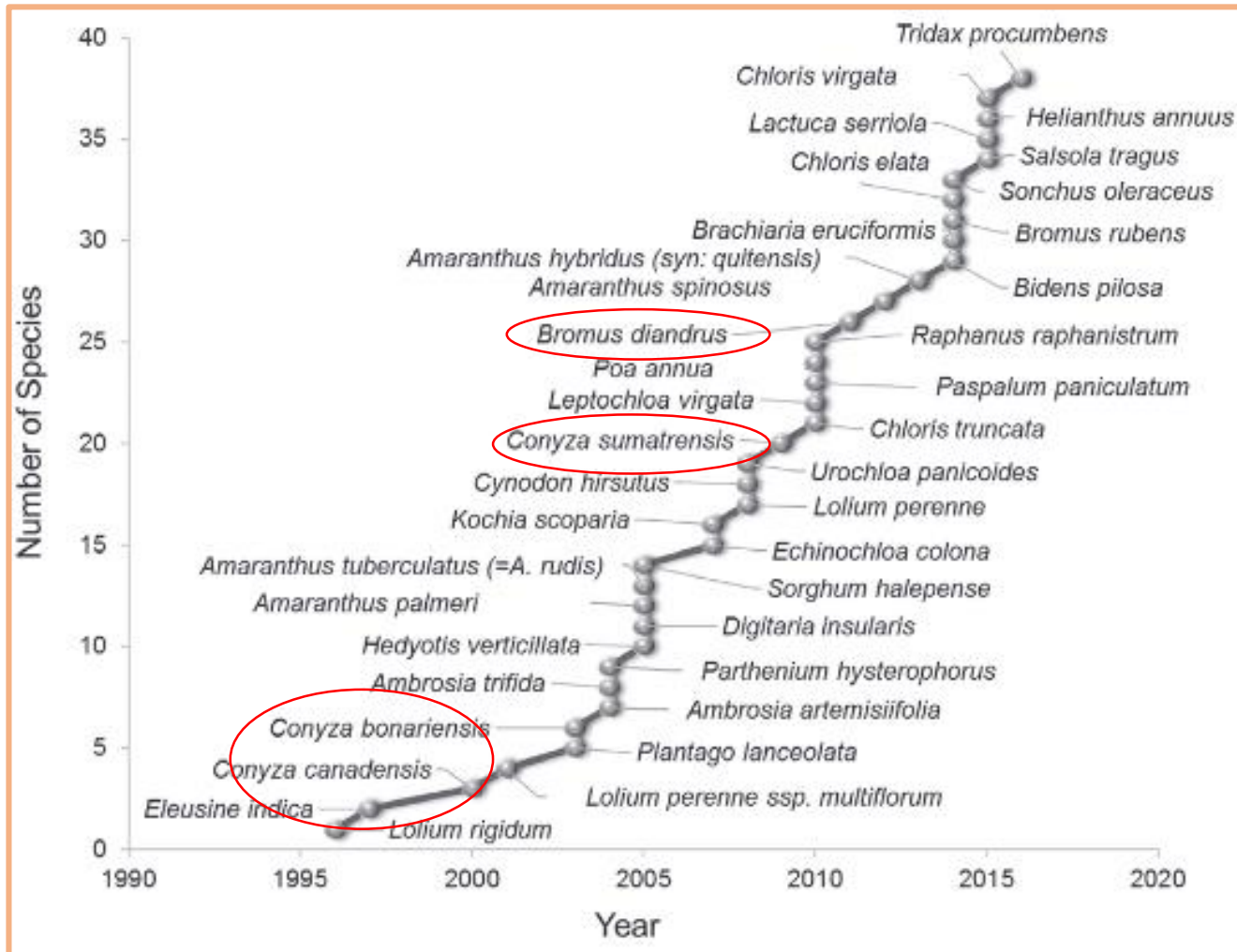
July

Aug

Sept

<https://www.metoffice.gov.uk/research/climate/maps-and-data/uk-actual-and-anomaly-maps>

2. Glyphosate-resistance of 'weeds'



Review

Received: 30 April 2017
Revised: 5 October 2017
Accepted article published: 10 October 2017
Published online in Wiley Online Library: 20 November 2017
(wileyonlinelibrary.com) DOI 10.1002/ps.4760

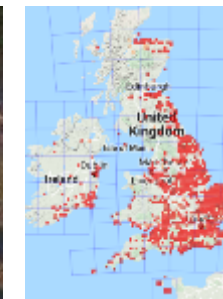
Overview of glyphosate-resistant weeds worldwide

Ian Heap^{a*} and Stephen O Duke^b

Abstract

Glyphosate is the most widely used and successful herbicide discovered to date, but its utility is now threatened by the occurrence of several glyphosate-resistant weed species. Glyphosate resistance first appeared in *Lolium rigidum* in an apple orchard in Australia in 1996, ironically the year that the first glyphosate-resistant crop (soybean) was introduced in the USA. Thirty-eight weed species have now evolved resistance to glyphosate, distributed across 37 countries and in 34 different crops and six non-crop situations. Although glyphosate-resistant weeds have been identified in orchards, vineyards, plantations, cereals, fallow and non-crop situations, it is the glyphosate-resistant weeds in glyphosate-resistant crop systems that dominate the area infested and growing economic impact. Glyphosate-resistant weeds present the greatest threat to sustained weed control in major agronomic crops because this herbicide is used to control weeds with resistance to herbicides with other sites of action, and no new herbicide sites of action have been introduced for over 30 years. Industry has responded by developing herbicide resistance traits in major crops that allow existing herbicides to be used in a new way. However, over reliance on these traits will result in multiple-resistance in weeds. Weed control in major crops is at a precarious point, where we must maintain the utility of the herbicides we have until we can transition to new weed management technologies.
© 2017 Society of Chemical Industry

Keywords: glyphosate resistance; glyphosate-resistant crops; herbicide resistance; mode of action; multiple resistance; weeds



Bromus diandrus found by Edinburgh tramline 2019

A note on 'Mad clover disease' at various sites

Photos: John Grace, Chris Jeffree, Jill Thompson



Not vivipary *sensu stricto*. We think they are phytoplasma infections, usually transmitted by sap-sucking insects

'True' vivipary in *Holcus lanatus*, Speyside2017



End